

THE ATTITUDES OF PUPIL-TEACHERS TOWARDS ARTIFICIAL INTELLIGENCE

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Abstract- In recent years, there has been considerable progress in the products of artificial intelligence (AI) technologies. While some people appear to be open to the growth of AI products in everyday life and enjoy the benefits, others tend to be dubious and concerned about the increasing influence of AI goods. The aim of present study is to find out the attitudes of pupil-teachers towards artificial intelligence. The findings of study revealed that: I. There was significant difference found in Attitudes of Male and Female Pupil-Teachers towards Artificial Intelligence. The male Pupil-Teachers were more likely to express positive attitude towards Artificial Intelligence than their female counterparts. II. There was significant difference found in Attitudes of Pupil-Teachers of Government and Private Colleges towards Artificial Intelligence. The Pupil-Teachers of government colleges were more likely to express positive attitude towards Artificial Intelligence as compared to the Pupil-Teachers of private colleges. III. There was significant difference found in Attitudes of Pupil-Teachers of Urban and Rural areas towards Artificial Intelligence. The Pupil-Teachers of urban areas were more likely to express positive attitude towards Artificial Intelligence as compared to their rural counterparts. IV. There was significant difference in Attitudes of Pupil-Teachers of Arts and Science towards Artificial Intelligence. The Pupil-Teachers of the science stream were more likely to express positive attitude towards Artificial Intelligence than the Pupil-Teachers of the arts stream.

Keywords: Attitudes, Pupil-Teachers, Artificial Intelligence

1. INTRODUCTION

In recent years, there has been considerable progress in the products of artificial intelligence (AI) technologies. While some people appear to be open to the growth of AI products in everyday life and enjoy the benefits, others tend to be dubious and concerned about the increasing influence of AI goods.

Artificial intelligence (AI) is a phrase used to describe a technology that allows software and robots to mimic human intellect (e.g., Fetzer, 1990). The possible applications of AI systems include computer science, engineering, biology, neurology, and psychology. Healthcare, transportation, banking, and education are just a few of the areas where AI is fast revolutionising modern civilization (Makridakis, 2017; Harari, 2017). Understanding public attitudes and views of AI is critical for directing its development, acceptance, and regulation as AI technologies become increasingly interwoven into daily life (Araujo et al., 2020; O'Shaughnessy et al., 2022; Zhang & Dafoe, 2019).

AI advancements have resulted in potentially game-changing technical innovations such as self-driving automobiles (Hong et al., 2021). Furthermore, AI-based products such as Apple's Siri and Amazon's Alexa have achieved widespread acceptance in daily life (Brill et al., 2019), delivering voice-command services for activities such as weather forecasting and navigation. Furthermore, AI research has given rise to humanoid robots, such as social robots (Sandoval et al., 2014; Glas et al., 2016; see Hentout et al., 2019 for a review). The incorporation of AI into daily life has several benefits, including safer driving (Manoharan, 2019) and enhanced healthcare (Johnson et al., 2021).

This advancement in artificial intelligence brings with it both exciting prospects and possible difficulties. While AI has the potential to transform many sectors, it also includes disadvantages such as job loss. Automation is causing job displacement (Tschang & Almirall, 2021). Despite the fact that AI has the potential to create new jobs, these jobs may differ significantly from those that AI replaces (Wilson et al., 2017). Public opinion on AI is divided, with some embracing its benefits and others opposing it. Ambivalence or even anxiety can occur (Fast & Horvitz, 2017). Well-known individuals such as Stephen Hawking have warned that the advancement of AI might imperil human survival (Cellan-Jones, 2014; Kumar and Choudhury 2022). Elon Musk, CEO of Tesla, and a tech entrepreneur, has expressed similar sentiments. Concerns concerning AI advancement have been expressed on several occasions (Cellan-Jones, 2014). He has argued in favour of a prohibition on military robots together with other professionals (Gibbs, 2017). While this proposal has received mixed reactions from other experts who instead emphasise how AI can be an opportunity for the future of human kind (Samuel, 2023; see also earlier works as e.g., Archer, 2021; Samuel, 2021), Musk and several other influential figures in the AI field wrote an open letter calling for a temporary halt to AI development in March of this year. Thus, in its most basic form, artificial intelligence is a subject that combines computer science and large datasets to solve problems. It also includes the subfields of machine learning and deep learning, which are commonly referenced in the context of artificial intelligence. AI algorithms are used in these areas to develop expert systems that make predictions or classifications based on input data.

Applications of Artificial intelligence

AI systems have various real-world applications nowadays. Some of the most prevalent use cases are as follows:

Speech recognition: Speech recognition is a skill that employs natural language processing (NLP) to convert human speech into a written format. It is also known as automated speech recognition (ASR), computer speech recognition, or speech-to-text. Many mobile devices include speech recognition into their systems to do voice searches (e.g., Siri) or to improve texting accessibility.

Client service: Throughout the client experience, online virtual agents are replacing human representatives. They respond to commonly asked questions (FAQs) regarding issues such as shipping or give personalised advice, such as cross-selling items or recommending sizes for users, altering the way we think about consumer involvement across websites and social media platforms. Messaging bots on e-commerce sites with virtual agents, messaging applications like Slack and Facebook Messenger, and jobs that are typically done by virtual assistants and voice assistants.

Computer vision: Computer vision is an AI technique that allows computers and systems to derive meaningful information from digital photos, videos, and other visual inputs, and then act on that knowledge. This capacity to provide suggestions sets it apart from picture recognition jobs. Computer vision, which is powered by convolutional neural networks, has applications in photo tagging in social media, radiological imaging in healthcare, and self-driving automobiles in the automotive sector.

Engines of recommendation: AI algorithms can aid in the discovery of data trends that can be utilised to generate more successful cross-selling tactics by utilising historical consumer behaviour data. This is used by online businesses to give appropriate add-on recommendations to customers throughout the checkout process.

Automated stock trading: High-frequency trading platforms powered by AI execute hundreds or even millions of deals per day without the need for human interaction, helping to optimise stock portfolios.

1.1. Justification of the Study

Despite numerous study articles on various areas of AI and the issues AI tools represent for society, there is still a research deficit. We do not know how prepared our society is for the impending changes, or what people's thoughts and attitudes are towards advances of artificial intelligence. Closing this study gap might assist researchers and companies in understanding the most unfavourable aspects influencing public opposition to AI acceptance in order to prevent or minimise them. There is currently a scarcity of scientific research on public and organisational acceptance or attitudes towards AI. The investigator wanted to discover the attitude of pupil-teachers towards artificial intelligence which can stymie the growth of AI systems in educational progress. This article is unique in that it examines the attitude of pupil-teachers views about widespread AI application in social life. The objective of this study is to explore the attitude of pupil-teachers towards artificial intelligence and the adoption of innovative technologies. So, the present attempt is made to study the attitude of pupil-teachers towards artificial intelligence.

1.2. Statement of the Problem

“The Attitudes of Pupil-Teachers towards Artificial Intelligence”

1.3. Objectives of the Study

The study was taken up with the following objectives.

1. To study the difference in Attitudes of Male and Female Pupil-Teachers towards Artificial Intelligence.
2. To study the difference in Attitudes of Pupil-Teachers of Government and Private Colleges towards Artificial Intelligence.
3. To study the difference in Attitudes of Pupil-Teachers of Urban and Rural areas towards Artificial Intelligence.
4. To study the difference in Attitudes of Pupil-Teachers of Arts and Science towards Artificial Intelligence.

1.4. Hypotheses of the Study

The study was taken up with the following Hypotheses.

H₀₁. There will be no significant difference in Attitudes of Male and Female Pupil-Teachers towards Artificial Intelligence.

H₀₂. There will be no significant difference in Attitudes of Pupil-Teachers of Government and Private Colleges towards Artificial Intelligence.

H₀₃. There will be no significant difference in Attitudes of Pupil-Teachers of Urban and Rural areas towards Artificial Intelligence.

H₀₄. There will be no significant difference in Attitudes of Pupil-Teachers of Arts and Science towards Artificial Intelligence.

1.5. DELIMITATIONS OF THE STUDY

The followings are the delimitations of the present study

1. The data has been collected from the Pupil-Teachers in Murshidabad District, West Bengal.
2. Only 157 Pupil-Teachers have been selected from Teachers' Training Colleges of Murshidabad district in West Bengal.
3. The data has been collected from the students of government and private Teachers' Training Colleges of Murshidabad district in West Bengal.
4. The data have been collected from rural-urban, male-female Pupil-Teachers in Murshidabad District
5. The data has been collected from the Pupil-Teachers belonging to the Arts, Science Streams.

2. Theoretical Background

Examining the effect of AI may be necessary for every business, as the assault of AI, robots, and related revolutionary technologies has the potential to disrupt banking, manufacturing, retail, and health care, among others. Improvements in digital technology enable businesses to optimise their own processes, such as inventory management and efficient material processing, and to transform supplier and customer interfaces, such as increased customer knowledge and material tracking (Ranta et al. 2021; Borges et al. 2020; Caputo et al. 2019). Furthermore, entrepreneurs use digital technology to create blended value propositions for their stakeholders that include environmental, social, and commercial benefit (Gregori and Holzmann 2020).

According to Reckwitz (2020), the logic of the unusual, extraordinary, and original is replacing the logic of rationalisation, formalisation, and standardisation. This implies that individuals have developed identities, and technology has played a key part in developing this new period. Only the pervasiveness of quantification, measurement, and comparison (in the form of evaluations,

rankings, and scores) contributes to the special's domination. All of this is underpinned by the digital age's rapidly increasing data creation and processing capabilities.

Humanity will need to gain new skills and abilities in order to profit from future technology breakthroughs. They must, for example, build critical competences based on the knowledge required to allow reflection on the ethical and value-related concerns posed by new technology innovations (Johannessen 2020).

They also include the capacity to see patterns and comprehend what is going on with individuals, organisations, society, the environment, and the planet (Lima et al. 2017). Other in-demand human qualities will be strong and informed leadership. Leaders who comprehend the next age will be required, rather than leaders with a restricted perspective and understanding based on the past industrial era (Johannessen 2020).

Many academics have concentrated on the topic of building new business strategies for digital transformation and incorporating AI into various business processes such as value chains (Kitsios and Kamariotou 2021; Borges et al. 2020; Oosthuizen et al. 2020).

Many organisations are struggling to develop a strategy framework for customer experience management (Holmlund et al. 2020). Some academics are certain that AI solutions may bridge the gap between enterprises and customers, assisting retail organisations in increasing client participation, and greatly improving consumer experience (Sujata et al. 2019).

According to Zaki (2019), digital transformation is a phase of innovation that has a significant influence on the workforce and their attitude towards upcoming changes. He argues that "employees should keep an eye out for their next job, which in all likelihood will be elsewhere."

3. Research Methodology

The present study is intended to explore the attitudes of pupil-teachers towards artificial intelligence. therefore, the researcher chooses a descriptive study design that focuses on surveying, describing, and examining existing situations.

3.1. Tool used in this Study

For the present study researcher used The General Attitudes towards Artificial Intelligence Scale (2023) which was Validated and standardized by Astrid Schepman & Paul Rodway.

3.2. Size and Distribution of Sample

The present study was conducted on Pupil-Teachers of Murshidabad District, West Bengal. The sample of the study comprised 157 Pupil-Teachers; out of these, 79 male Pupil-Teachers, and 78 were female Pupil-Teachers, 89 students were from the arts stream, 68 Pupil-Teachers were from science stream, 85 Pupil-Teachers were residents of rural areas and 72 Pupil-Teachers were from the urban areas, and 67 Pupil-Teachers were studying in government teacher's training college whereas 90 Pupil-Teachers were studying in private teachers' training colleges.

3.3. Statistical techniques used in the present study

The researcher used Mean, Standard Deviation, 't' Test for the analysis of the data.

4. Data Analysis and Discussion

Objective 1. To study the difference in Attitudes of Male and Female Pupil-Teachers towards Artificial Intelligence.

H₀₁. There will be no significant difference in Attitudes of Male and Female Pupil-Teachers towards Artificial Intelligence.

Table 4.1 Showing the difference in Attitudes of Male and Female Pupil-Teachers towards Artificial Intelligence for the total sample

Variable	Groups	N	Mean	S.D.	SED	df	t-ratio	Sig. Value
Artificial Intelligence	Male	79	171.56	16.42	2.69	155	3.44**	0.0007
	Female	78	162.28	17.35				

** Significant at 0.01 level (2- tailed)

The above table 4.1 represents the difference in Attitudes of Male and Female Pupil-Teachers towards Artificial Intelligence for the total sample. The investigator calculated the mean, S.D., standard error of difference, and t- score of both groups for the sample of 157 (male- 79 and female-78). The mean score of male Pupil-Teachers is 171.56 with S.D. of 16.42, while the mean score of female Pupil-Teachers is 162.28 with an S.D. value of 17.35. When t - value is measured with the mean of the two groups, it is found 3.44 (P= 0.0007), which is significant at 0.01 level of significance. The in-depth study reveals a significant difference in Attitudes of Male and Female Pupil-Teachers towards Artificial Intelligence. Therefore, the concerned null hypothesis, "There will be no significant difference in Attitudes of Male and Female Pupil-Teachers towards Artificial Intelligence," is rejected. The mean score (171.56) of male Pupil-Teachers is more as compared to the mean score (162.28) of female Pupil-Teachers. Therefore, on the basis of their mean score, it can be said that male Pupil-Teachers were more likely to express positive attitudes towards Artificial Intelligence than their female counterparts.

Objective 2. To study the difference in Attitudes of Pupil-Teachers of Government and Private Colleges towards Artificial Intelligence.

H₀₂. There will be no significant difference in Attitudes of Pupil-Teachers of Government and Private Colleges towards Artificial Intelligence.

Table 4.2 Showing the difference in Attitudes of Pupil-Teachers of Government and Private Colleges towards Artificial Intelligence for the total sample

Variable	Groups	N	Mean	S.D.	SED	df	t-ratio	Sig. Value
Artificial Intelligence	Government College	67	173.01	16.27	2.84	155	3.17**	0.0019
	Private College	90	164.25	18.54				

** Significant at 0.01 level (2- tailed)

The above table 4.2 represents the difference in Attitudes of Pupil-Teachers of Government and Private Colleges towards Artificial Intelligence for the total sample. The researcher calculated the mean, S.D., standard error of difference, and t- score of both groups for the sample of 157 (Pupil-Teachers of Government Colleges - 67 and Pupil-Teachers of Private Colleges - 90). The mean score of the Pupil-Teachers of government Colleges is 173.01 with S.D. of 16.27, while the mean score of the Pupil-Teachers of private Colleges is 164.25 with an S.D. value of 18.54. When t- value is measured with the means of two groups, it is found 3.17 ($p=0.0019$), which is significant at 0.01 level of significance. The in-depth study reveals that there is a significant difference in Attitudes of Pupil-Teachers of Government and Private Colleges towards Artificial Intelligence. Therefore, the concerned null hypothesis, "There will be no significant difference in Attitudes of Pupil-Teachers of Government and Private Colleges towards Artificial Intelligence," is rejected. The mean score (173.01) of the Pupil-Teachers of government Colleges is more as compared to the mean score (164.25) of the Pupil-Teachers of private colleges. Therefore, on the basis of their mean score, it can be said that the Pupil-Teachers of government colleges were more likely to express positive attitudes towards Artificial Intelligence as compared to the Pupil-Teachers of private colleges.

Objective 3. To study the difference in Attitudes of Pupil-Teachers of Urban and Rural areas towards Artificial Intelligence.
H₀₃. There will be no significant difference in Attitudes of Pupil-Teachers of Urban and Rural areas towards Artificial Intelligence.

Table 4.3 Showing the difference in Attitudes of Pupil-Teachers of Urban and Rural areas towards Artificial Intelligence for the total sample

Variable	Groups	N	Mean	S.D.	SED	df	t-ratio	Sig. Value
Artificial Intelligence	Urban	74	182.41	13.46	2.525	155	5.623**	0.0001
	Rural	83	168.21	17.61				

** Significant at 0.01 level (2- tailed)

The above table 4.3 represents the difference in Attitudes of Pupil-Teachers of Urban and Rural areas towards Artificial Intelligence for the total sample. The researcher calculated the mean, S.D., standard error of difference, and t- score of both groups for the sample of 157 (Urban Students - 74 and Rural Students - 83). The mean score of the Pupil-Teachers of urban areas is 182.41 with S.D. of 13.46, while the mean score of the Pupil-Teachers of rural areas is 168.21 with an S.D. value of 17.61. When t- value is measured with the means of two groups, it is found 5.623 ($P=0.0001$), which is significant at 0.01 level of significance. The in-depth study reveals that there is a significant difference in Attitudes of Pupil-Teachers of Urban and Rural areas towards Artificial Intelligence. Therefore, the concerned null hypothesis, "There will be no significant difference in Attitudes of Pupil-Teachers of Urban and Rural areas towards Artificial Intelligence," is not accepted. The mean score (182.41) of the Pupil-Teachers of urban areas is more as compared to the mean score (168.21) of the Pupil-Teachers of rural areas. Therefore, on the basis of their mean score, it can be said that the Pupil-Teachers of urban areas were more likely to express positive attitudes towards Artificial Intelligence as compared to their rural counterparts.

Objective 4. To study the difference in Attitudes of Pupil-Teachers of Arts and Science towards Artificial Intelligence.
H₀₄. There will be no significant difference in Attitudes of Pupil-Teachers of Arts and Science towards Artificial Intelligence.

Table 4.4 Showing the difference in Attitudes of Pupil-Teachers of Arts and Science towards Artificial Intelligence.

Variable	Groups	N	Mean	S.D.	SED	t-ratio	Sig. Value
Artificial Intelligence	Arts Stream	87	160.10	18.31	2.52	9.120**	0.0001
	Science Stream	70	183.31	12.02			

** Significant at 0.01 level (2- tailed)

The above table 4.4 represents the difference in Attitudes of Pupil-Teachers of Arts and Science towards Artificial Intelligence. The researcher calculated the mean, S.D., standard error of difference, and t- score of both groups for the sample of 157 (Arts Stream Pupil-Teachers – 87 and Science Stream Pupil-Teachers - 70). The mean score of the Pupil-Teachers of the arts stream is 160.10 with S.D. of 18.31, while the mean score of the Pupil-Teachers of the science stream is 183.31 with an S.D. value of 12.02. When t- value is measured with the means of two groups, it is found 9.12 ($p=0.0001$), which is significant at 0.01 level of significance. The in-depth study reveals that there is a significant difference in Attitudes of Pupil-Teachers of Arts and Science towards Artificial Intelligence. Therefore, the concerned null hypothesis, "There will be no significant difference in Attitudes of Pupil-Teachers of Arts and Science towards Artificial Intelligence," is not accepted. The mean score (183.31) of the Pupil-Teachers of the science

stream is more as compared to the mean score (160.10) of the Pupil-Teachers of the arts stream. Therefore, on the basis of their mean score, it can be said that the Pupil-Teachers of the science stream were more likely to express positive attitudes towards Artificial Intelligence than the Pupil-Teachers of the arts stream.

5. Findings of the Study

- I. There was significant difference found in Attitudes of Male and Female Pupil-Teachers towards Artificial Intelligence. The male Pupil-Teachers were more likely to express positive attitude towards Artificial Intelligence than their female counterparts.
- II. There was significant difference found in Attitudes of Pupil-Teachers of Government and Private Colleges towards Artificial Intelligence. The Pupil-Teachers of government colleges were more likely to express positive attitude towards Artificial Intelligence as compared to the Pupil-Teachers of private colleges.
- III. There was significant difference found in Attitudes of Pupil-Teachers of Urban and Rural areas towards Artificial Intelligence. The Pupil-Teachers of urban areas were more likely to express positive attitude towards Artificial Intelligence as compared to their rural counterparts.
- IV. There was significant difference in Attitudes of Pupil-Teachers of Arts and Science towards Artificial Intelligence. The Pupil-Teachers of the science stream were more likely to express positive attitude towards Artificial Intelligence than the Pupil-Teachers of the arts stream.
- V.

6. Conclusion

In conclusion, the present investigation contributes to the field of Artificial Intelligence research by providing a short, reliable, and valid measure of the attitude of pupil teachers towards Artificial Intelligence. The findings of the study showed more positive attitude towards Artificial Intelligence is an important finding that is likely to have useful practical implications in the deployment of AI-based products.

REFERENCES:

1. Araujo, T. et al. (2020). In AI we trust? Perceptions about automated decision-making by artificial intelligence. *AI & Society*, 35(3), 611–623. <https://doi.org/10.1007/s00146-019-00931-w>
2. Borges, et al. (2020). The strategic use of artificial intelligence in the digital era: Systematic literature review and future research directions. *International Journal of Information Management*, 57: 102225.
3. Brill, T. M., Munoz, L., & Miller, R. J. (2019). Siri, Alexa, and other digital assistants: a study of customer satisfaction with artificial intelligence applications. *Journal of Marketing Management*, 35(15-16), 1401-1436.
4. Cave, S., Coughlan, K., & Dihal, K. (2019). ‘Scary robots’: Examining public responses to AI [Paper presentation]. *Proceedings of the Second AAAI/ACM Annual Conference on AI, Ethics, and Society*. <https://doi.org/10.17863/CAM.35741>
5. Cellan-Jones, R. (2014). Stephen Hawking warns artificial intelligence could end mankind. *BBC news*, 2(10), 2014.
6. Charness, N., Yoon, J. S., Souders, D., Stothart, C., & Yehnert, C. (2018). Predictors of attitudes toward autonomous vehicles: The roles of age, gender, prior knowledge, and personality. *Frontiers in Psychology*, 9, 2589. <https://doi.org/10.3389/fpsyg.2018.02589>
7. EU. (2020). Transparent, reliable and unbiased smart tool for AI. *Horizon Research Programme*, 2020-2024. <https://cordis.europa.eu/project/id/952060>
8. Fast, E., & Horvitz, E. (2017). Long-term trends in the public perception of artificial intelligence. In S. Singh, & S. Markovitch (Eds.), *Proceedings of the Thirty-First AAAI Conference on Artificial Intelligence (AAAI'17)* (pp. 963–969). AAAI Press. <https://doi.org/10.5555/3298239.3298381>
9. Fetzer, J. H., & Fetzer, J. H. (1990). *What is Artificial Intelligence?* (pp. 3-27). Springer Netherlands.
10. Gregori, P. and Patrick Holzmann. (2020). Digital sustainable entrepreneurship: A business model perspective on embedding digital technologies for social and environmental value creation. *Journal of Cleaner Production*, 272: 122817.
11. Hong, J. W., Wang, Y., & Lanz, P. (2020). Why is artificial intelligence blamed more? Analysis of faulting artificial intelligence for self-driving car accidents in experimental settings. *International Journal of Human-Computer Interaction*, 36(18), 1768–1774. <https://doi.org/10.1080/10447318.2020.1785693>
12. Johnson, J. (2019). Artificial intelligence & future warfare: Implications for international security. *Defense & Security Analysis*, 35(2), 147–169. <https://doi.org/10.1080/14751798.2019.1600800>
13. Johannessen, J. (2020). *Artificial Intelligence, Automation and the Future of Competence at Work*. London and New York: Routledge.
14. Johnson, K. B., Wei, W. Q., Weeraratne, D., Frisse, M. E., Misulis, K., Rhee, K., ... & Snowdon, J. L. (2021). Precision medicine, AI, and the future of personalized health care. *Clinical and translational science*, 14(1), 86-93.
15. Jones, M. L., Kaufman, E., & Edenberg, E. (2018). AI and the ethics of automating consent. *IEEE Security & Privacy*, 16(3), 64–72. <https://doi.org/10.1109/MSP.2018.2701155>
16. Kitsios, F. and Kamariotou, M. (2021). Artificial Intelligence and Business Strategy towards Digital Transformation: A Research Agenda. *Sustainability*, 13: 2025
17. Makridakis, S. (2017). The forthcoming Artificial Intelligence (AI) revolution: Its impact on society and firms. *Futures*, 90, 46–60. <https://doi.org/10.1016/j.futures.2017.03.006>
18. Manoharan, S. (2019). An improved safety algorithm for artificial intelligence enabled processors in self-driving cars. *Journal of artificial intelligence*, 1(02), 95-104.
19. Oosthuizen, et al. (2020). Artificial intelligence in retail: The AI-enabled value chain. *Australasian Marketing Journal*.

20. Ranta, Valtteri, Leena Aarikka-Stenroos, and Juha-Matti Väisänen. 2021. Digital technologies catalyzing business model innovation for circular economy Multiple case study. *Resources, Conservation and Recycling*, 164: 105–55.
21. Reckwitz, Andreas. (2020). *Society of Singularities*. Cambridge: Polity.
22. Rosseel, Y. (2012). lavaan: An R package for structural equation modeling. *Journal of Statistical Software*, 48(2), 1–36. <http://www.jstatsoft.org/v48/i02/> <https://doi.org/10.18637/jss.v048.i02>
23. Royal Society Working Group. (2017). Machine learning: The power and promise of computers that learn by example [Technical report]. <https://royalsociety.org/topics-policy/projects/machine-learning/>
24. Ryan, M. (2020). In AI we trust: Ethics, artificial intelligence, and reliability. *Science and Engineering Ethics*, 26(5), 2749–2767. <https://doi.org/10.1007/s11948-020-00228-y>
25. Samuel, J. (2023). Two Keys for Surviving the Inevitable AI Invasion, Source: <https://aboveai.substack.com/p/two-keys-for-surviving-the-inevitable>
26. Sandoval, E. B., Mubin, O., & Obaid, M. (2014). Human robot interaction and fiction: A contradiction. In *Social Robotics: 6th International Conference, ICSR 2014, Sydney, NSW, Australia, October 27-29, 2014. Proceedings 6* (pp. 54-63). Springer International Publishing.
27. Schepman, A., & Rodway, P. (2020). Initial validation of the general attitudes towards Artificial Intelligence Scale. *Computers in Human Behavior Reports*, 1, 100014. <https://doi.org/10.1016/j.chbr.2020.100014>
28. Sujata, et al. (2019). Artificial intelligence tools for enhancing customer experience. *International Journal of Recent Technology and Engineering* 8: 700–706.
29. Tschang, F. T., & Almirall, E. (2021). Artificial intelligence as augmenting automation: Implications for employment. *Academy of Management Perspectives*, 35(4), 642-659.
30. Wilson, H. J., Daugherty, P., & Bianzino, N. (2017). The jobs that artificial intelligence will create. *MIT Sloan Management Review*, 58(4), 14.
31. Zaki, Mohamed. 2019. Digital transformation: Harnessing digital technologies for the next generation of services. *Journal of Services Marketing*, 33: 429–35.
32. Zhang, B., Dafoe, A. (2019). Artificial intelligence: American attitudes and trends. Center for the Governance of AI, Future of Humanity Institute, University of Oxford. <https://governanceai.github.io/USPublic-Opinion-Report-Jan-2019/executive-summary.html>