

Artificial intelligence (AI) and future newsrooms

A study on journalists of Bangladesh

Abstract: Many Western and economically developed countries have already incorporated Artificial Intelligence (AI) into their newsrooms. As the media industry is constantly addressing new technological advancements, media scholars are highly confident about the combination of AI and the newsroom. This research investigates AI as a new prospect in the Bangladeshi journalism arena, focusing on the current state of AI usage and projecting the future by evaluating professional journalists' 'Mental Readiness' across a variety of media companies. In the first phase, from the survey of 107 working journalists from 20 different news organisations, this study finds that journalists possess a mostly positive attitude towards AI and are willing to incorporate current technologies in their newsrooms. The majority of journalists are informed, yet many of them lack sufficient AI literacy. In the second part, in-depth interviews with five newsroom editors reveal that it is difficult for Bangladesh to make a significant transformation within a short period. Most of them believe that providing AI-enabled newsrooms in a developing country like Bangladesh is still a long shot, owing to economic and technological constraints.

Keywords: AI literacy, artificial intelligence, Bangladesh, journalists, newsrooms, technology

SANJOY BASAK PARTHA

MALIHA TABASSUM

MD ASHRAFUL GONI

PRIYANKA KUNDU

Bangladesh University of Professionals, Dhaka

Introduction

ARTIFICIAL intelligence (AI) has become a critical component of human life. No one can deny how indispensable AI has become in almost all sectors. The influence of AI technology on numerous sectors is already proven and has the potential to have a wide-ranging and profound impact on the journalism sector. Artificial Intelligence (AI) is a broad term that refers to the different possibilities made available by recent technological breakthroughs (Beckett, 2019). From machine learning to natural language processing, news

organisations are using AI to automate a variety of tasks in the journalism production process, including data detection, extraction, verification, story writing, and more. AI systems can assist journalists through event notifications, accelerating the execution of complicated operations based on vast volumes of data and covering previously untouched areas.

The *New York Times*, *Forbes*, *The Washington Post*, and ProPublica are just a few examples of newsrooms using AI. The Heliograf, the *Washington Post*'s 'in-house automated storytelling tool', is just one of several examples of how newsrooms are employing AI to improve sports coverage (Hall, 2018, cited by Young & Stroud, 2020). The Associated Press, the industry's pioneer in AI, began using Automated Insights' Wordsmith technology to automatically generate corporate earnings reports in 2014, growing its coverage from 300 to 4,000 companies in a single year (Young & Stroud, 2020).

According to Knowhere News, a software start-up formed in 2015, AI may eradicate the bias that many people identify with a lack of trust. After detecting current topics on the web, Knowhere News' AI system collects data from thousands of news articles from various leanings and perspectives to produce an 'impartial' news article in under 60 seconds (DeGeurin, 2018).

In discussing technology, we still use the term 'world' to refer to advanced or first-world countries, anticipating that underdeveloped countries will catch up or follow a trend. We frequently notice that developing countries are slow to adopt new cultures or technology and this is especially true in Bangladesh. In Bangladesh, the use of AI in journalism is insufficient. Dataful, a non-profit organisation, has hosted training events for Bangladeshi journalists and students (Dataful offers, 2020) and other organisations are holding different seminars and workshops. Bangladeshi newsrooms might have to embrace new journalistic arenas such as digital journalism and data journalism in order to survive. The information ecology has been revolutionised by technology, which has displaced media and journalists from their traditional duties. (Kothari & Cruikshank, 2022). The local journalism industry would be harmed if Bangladesh struggled to catch up with its automated contemporaries.

According to Biswal and Gouda (2020), most people are dubious about AI's usage in journalism due to its perceived lack of credibility. Several scholars and practitioners believe that AI will never be able to replace human credibility, originality, or wit (Beckett, 2019). Some are concerned about technical difficulties, while others fear losing their jobs. New methods of cyber assault can be developed to exploit specific flaws in the system (The Cyber Security Battlefield, 2019). How much a machine can maintain the ethical standard has also become a debatable issue in this sector. Moreover, some think that the incorporation of AI will give the platform companies more power over the news industry which will affect the freedom and strength of media (Brennen et al., 2019; Kothari &

Cruikshank, 2022; Simon, 2022).

This study attempts to produce a key finding on Bangladeshi journalists' perceptions and expertise of AI in journalism to understand the present and detect the future of AI in Bangladeshi newsrooms. The research focuses on professional journalists' 'Mental Readiness' rather than infrastructure issues. So, the prime research question is, what is the present state of AI use in Bangladeshi newsrooms, and what is its future? The following sub-questions will be answered to meet the objectives of the study:

1. Do journalists have enough AI literacy?
2. What are the challenges and ethical dilemmas of using AI in newsrooms?
3. How do journalists envision AI in future newsrooms?
4. Are journalists mentally ready to accept and embrace AI as a journalistic tool?

Literature review

According to a survey of 71 media organisations from 32 countries, AI can help fight economic challenges as well as fortify misinformation and disinformation (Beckett, 2019). Some researchers (Dörr & Hollnbuchner, 2017; Simon, 2022; Anderson, 2013) have referred to AI in journalism as 'Algorithmic Journalism', in which structured data is turned into texts via Natural Language Generation (NLG). Despite some technology restrictions, Dirican (2015) found AI had a significant economic advantage and the production cost was substantially lower than that of a human journalist.

The benefits and future of AI have also been extolled in some literature also. For example, in the book *Tech Giants, Artificial Intelligence, and the Future of Journalism*, author Jason Whittaker (2019) discussed the five largest tech giants (Amazon, Apple, Facebook, Google, and Microsoft) that are heavily experimenting with artificial intelligence and, as a result, have a significant impact on the future of journalism. According to him, these companies are constructing a digital ecosystem in which the public sphere emerges with the help of social machines and gains social computational strength (Whittaker, 2019, p. 5). He argued that artificial intelligence has altered consumers' perceptions of journalism and media, as well as their consumption behaviour. The change in automation, particularly through the use of artificial intelligence, has prompted major technology companies to think more about these changing trends. He anticipated an even brighter future for AI in journalism practice, in which AI will not only aid in profit generation but will also aid humans in understanding and altering the world.

Ali and Hassoun (2019) discussed AI's potential as 'Automated Journalism', dismissing any potential threats or dilemmas. The authors conclude that artificial intelligence technologies add value to journalism across the digital world, particularly in terms of their ability to overcome the core problems that early modern journalism faces, such as countering fake news, news scripting

based on editorial lines, and information collection. Artificial intelligence would supplement rather than replace journalistic jobs and poses no threat to professional journalism.

The term ‘Chatbot Journalism’ was coined by certain academics to convey automation in both news creation and reaching big crowds (Shin, Al-Imanmy & Hwang, 2022, Veglis & Maniou, 2019; Jones & Jones, 2019). Chatbot journalism proposes more interactive news formats with a more conversational tone and personalised style of addressing as part of a customisation attempt. Veglis and Maniou (2019) investigate the role and characteristics of chatbots. They discovered that this new journalistic robot might provide a realistic and viable solution to the challenges that reporters face in the age of big data.

But what are the challenges it possesses? Monti (2019) investigated the ethical and legal challenges of automated journalism, with a particular emphasis on information freedom, liability, and duty. Unlike Ali and Hassoun (2019), he believes that AI will never be able to replace journalists. And says humans will continue to play a role in journalism since the type of critical thinking required to read the facts presently cannot be performed by a machine. According to the author: ‘No robotic reporter can be a defender of democracy and human rights.’

The drawbacks of AI literacy have been addressed by several scholars (Tejedor & Vila, 2021; Jamil, 2021; Shin, Al-Imanmy & Hwang, 2022). Jamil (2021) focuses on Pakistan, identifying limitations and investigating prospects for the application of artificial intelligence in Pakistan’s major news media. He discovered that most professionals, academics, and students had a low rate of AI literacy. He found many barriers, including technological limits, distrust of machines, a lack of training, and a widening digital divide.

Stray (2019) looks at some of the disadvantages from a different angle. He emphasised the fact that much of the material required to present a story is not open to the public and is controlled by governments and private companies. To avoid the possibility of libel, he believes that extensive human inspection or journalistic inference is required for a high level of accuracy. As the factors that determine whether a set of facts is ‘newsworthy’ are fundamentally social, they are difficult to encode computationally.

In the case of Bangladesh, few studies have been conducted in this relatively new sector. Khan and Shnaider (2021) discussed the automation of classic journalistic tools to allow journalists to swiftly distribute news, receive audience comments, and have two-way engagement with readers. According to them, automation has resulted in the creation of thousands of new employments for aspiring journalists, particularly in the field of digital journalism. Goni and Tabasum (2020) researched the mental readiness of potential Bangladeshi journalists who have enrolled in this discipline at several institutions to pursue a career in journalism. They discovered that Bangladeshi students are mentally prepared to

understand and accept AI as a revolutionary technology with limitless personal and professional benefits.

Reviewing the current literature, it is possible to conclude that the majority of these studies have talked about the challenges and opportunities. In general, opportunities and problems, as well as ethical and intuitive dilemmas, were identified. However, no one has undertaken a qualitative study on journalists' psychological readiness to accept such disputed technologies in their professional lives, especially in the context of Bangladesh.

Methodology and sampling

Our study adopted two methods—survey and in-depth interviews. The survey helped to pinpoint a generalisation on how media professionals perceive AI in Bangladeshi newsrooms. In-depth interviews allowed us to learn more about how they evaluate the benefits and drawbacks of AI in the news industry.

The survey included 107 journalists from 20 various media outlets in Bangladesh (print, broadcast, and online) where the sampling method was purposive. Since not every journalist is interested and informed about the idea of AI, the researchers sampled and surveyed only those journalists who have some idea about AI in news practice. The findings of Beckett (2019) done by the Google News Initiative and POLIS Thinktank at LSE were adapted with small contextualisations in creating the survey questionnaire of the study. The abovementioned survey was a baseline study that effectively mapped out the perception regarding AI of journalists from 71 media houses from 32 countries by asking questions such as journalists' views on the risks and potentials of AI, its ethical and editorial relevance of it, and how it can be used in newsrooms.

In the second phase, five newsroom heads from different media outlets were interviewed to gain a better insight into the current situation and to make accurate predictions about the deployment of AI in newsrooms. These respondents were chosen using the convenience sampling approach. A semi-structured questionnaire based on significant survey findings was created for interviewing them.

There were 86 male journalists and 21 female journalists among the 107 responders. This survey includes more men than women to represent the lower female-male ratio in the Bangladeshi media business. We believe that the sample is representative since it includes a varied range of participants with diverse journalism experience, various media types, ages, and employment responsibilities (Tables 1 & 2).

The sample for this study was drawn from a wide range of job experience variances. There were journalists with less than a year of experience and journalists with more than 30 years of experience. This study also gathered information from 10 different media outlets.

Age Group	Frequency	Percentage
18-23 years	6	5.6
24-28 years	24	22.4
29-34 years	46	43.0
35-40 years	23	21.5
41-50 years	7	6.5
More than 50 years	1	.9
Total	107	100.0

Human-Machine Communication as theoretical framework

Since the inception of Computer-Mediated Communication (CMC), scholars have explored a newer framework that defies the conventional concept of viewing communication as a process possible only among humans. However, the introduction of the Human-Machine Communication (HMC) framework introduced a fresh conceptual framework.

Name of the media house	Frequency	Percentage
Prothom Alo	10	9.3
Daily Star	11	10.3
UNB	10	9.3
BBC Bangla	10	9.3
bdnews24.com	11	10.3
Jagonews24.com	11	10.3
Jamuna TV	13	12.1
DBC	10	9.3
Some TV	10	9.3
Independent TV	11	10.3
Total	107	100.0

HMC accentuates the notion of communication which is done through the interaction between humans and technology (Guzman, 2018). Continuous studies on Human-Robot Interaction (HRI) and Human-Agent Interaction (HAI) paved the way for the HMC framework (Spence, 2019). There remains a significant distinction in the scope of study among HRI, HAI, and HMC, as the latter sees technology as the role of the communicator (Guzman, 2018). The traditional outlook of communication focuses on the question of ‘who is a person interacting with?’ whereas the HMC study alters the question with ‘what are people communicating with?’ (Gunkel, 2012, p. 1-2). Previously, communication studies used to label humans as ‘communicators’ and machines as ‘facilitators’, which is now challenged as Lewis et al. (2019) explain:

Within HMC, the definition of communication is not tied to an ontological understanding of communicators. Rather, communication is conceptualized generally as the “creation of meaning”, and human communication and human-machine communication are each a type of communication.

In another study, Guzman (2018, p. 1) elongates HMC as:

HMC research focuses on the process of communication between humans and machines and the implications of encounters between people and technology for individuals, society, and humanity.

Emerging technological advancements have now opened the gate to applying sophisticated software in more autonomic and human forms of communication. Machines are no longer used only as a facilitator during the communication process; rather some technologies are functioning as lone communicators, such as AI chatbots (Mou & Xu, 2017).

However, journalism scholars remain sceptical about the deployment of AI in the newsroom, as journalism still counts on human brains to use and interpret data meaningfully (Linden, 2017). As Jung et al. (2017) and Jamil (2021) opine, to properly comprehend the possible impact of HMC on journalism, it is necessary to assess the mental and cultural attitude of working journalists in accepting machines as communicators, and the socio-political context of the particular society, especially in developing countries.

As a whole, the HMC framework is effective as it narrates how machines can also act as communicators along with humans, and how much people are prepared to perceive these types of roles of machines. This framework is particularly fitting to this study, as it shows the view of Bangladeshi journalists regarding the role of technology as a communicator, their willingness to comply with this new role, and their readiness to embrace this new shift in the field of journalism. Another significant point that makes the HMC framework relatable

in this study is that newsrooms of developed countries like the USA, UK, and China are closely linked with AI, whereas newsrooms of developing countries like Bangladesh are still far away from implementing this. The HMC framework, therefore, helps to identify any potential barriers that may be restricting the use of AI in this region of the world and forecasts sustainability shortly.

Research findings from the survey

Prior experience in Interacting with AI

Respondents were asked: ‘Have you ever interacted with Artificial Intelligence technology?’

Only 43 percent of respondents said they had never interacted with Artificial Intelligence technology, while 67 percent had already communicated with AI. To obtain a clearer understanding of what kind of AI technology participants had recently used, another question was asked: ‘Which of the following technologies have you used or encountered in the previous year?’

More than 75 percent of respondents said they had used Facebook-recommended news, but only 1 percent had interacted with AI for fake news identification. This is a significant finding since it meant professionals are using an AI application connected to journalism. More than 62 percent received online purchasing recommendations from AI, while 51 percent of them used email spam filters.

AI literacy

Almost 90 percent of professionals said they knew about AI and understood the fundamentals. According to the findings of this survey, most journalists lacked solid technical understanding. Fewer than one or two out of 100 had had prior training or self-training in AI, and the others were relatively inexperienced.

Preference in AI usage

A total of 59 percent of respondents preferred social media-based AI, particularly online chatbots, but 31 percent preferred to speak with a person when seeking services. Respondents favoured contact channels where AI could be used. They would rather talk to a chatbot than a human representative.

Impact of AI on global journalism

A sizable proportion of respondents (almost 62 percent) were aware of the impact of AI on global journalism, while only slightly more than 38 percent were uninformed about the possible impact of AI on future media. The study also asked the respondents where we can use AI most effectively.

According to the research, AI would have a virtually identical influence on the three primary sectors of journalism: newsgathering, news production, and news distribution. The majority of respondents (41 percent) believed that AI in

journalism may be best used in the news distribution process. About 33 percent of respondents chose news gathering and 26 percent chose news production as areas where AI might be used to its greatest capacity.

Output quality of AI

According to 56 percent of professionals, the impact of AI on the news manufacturing process is enormous. These figures appeared to be a little lower when compared with their positive view toward the influence of AI. A total of 44 percent foresaw less output, thus demonstrating a lack of confidence in AI among professionals. They believe that traditional journalism is still superior in Bangladesh.

AI and journalism ethics

Exploring present regulatory approaches, a plethora of unexpected ethical difficulties have emerged for those already grappling with the complex relationships between human journalists and algorithmic work. When it comes to integrating automated storytelling into newsrooms, journalists were asked about how to keep and encourage accuracy and impartiality and thus maintain journalistic ethics. The divide between the two responses was razor-thin. A total of 51 percent of journalists believed AI could follow ethical principles, or that it could be built in such a way that it does. However, 49 percent were sceptical about a machine's ability to have morals. Almost half of the professionals believe the ethical standards of AI journalists should be monitored regularly to retain the trust of the public.

The attitude of journalists towards the AI revolution

According to our findings, professional attitudes toward the spread of AI are mixed. Most journalists believe that AI will never be able to replace humans, but that it may play a significant role in data journalism. Most of them believed AI would be used to improve their work efficiency rather than to degrade their positions or make them unemployed. This attitude was quite positive, indicating professionals' mental preparedness to accept technology. On the other hand, 65 percent believed AI would not be able to replace humans. A total of 14 percent believed it was conceivable, while 21 percent were unsure. Another observation reflected a positive approach. When asked if they were concerned about the possibility of robot interference in their newsroom 74 percent said they were not afraid. Most of them believed AI could do basic tasks such as data analysis, text translation and meaning decoding. Since the robot could not write creatively, cover unique news, or investigate things except data analysis, so, a place for humans would remain.

The survey outcomes suggests that most of the journalists have a basic AI literacy, yet they stated their technological understanding was not so firm. Although journalists knew what AI was and how it worked in newsrooms, they still lacked confidence it could benefit the newsroom. A major portion of the

respondents did not think AI was capable of maintaining ethical standards. A significant number of journalists said AI was not going to replace humans, but could be used as a supporting technology for data collection, distribution, and audience interaction.

Findings from in-depth Interviews

Along with the survey, the study conducted in-depth interviews with a total of five editorial-level personnel who talked about their perception of AI. All of them acknowledged the fact that AI could seriously affect the quality of journalism. However, they remained sceptical about the immediate implication of AI in Bangladeshi newsrooms. 'Indeed, AI has a future, but not too soon,' SK Tanvir Mahmud, newsroom editor of an online news portal said. 'We need more time to see any future of Bangladesh. It is a far cry.' AI has been introduced so far in only a handful of newsrooms in Bangladesh in a very limited scope. Some of the online news portals (e.g., Jago News, *Dhaka Post.com*, etc.) are using AI to interact with their readers. When a reader expresses their wish to come across specific news or beat-based news, the AI-run chatbot sends them instant replies and shares their desired news links. But other activities, like news gathering and news production, are still to be achieved. Regarding future journalistic contributions, Mahfuzer Rahman Sarkar, head of the online daily Kaler Kontho, said: 'Journalistic automation can and will create a great difference in our field. No matter what observations come from ethical perspectives, automation is a must to ensure quality production.' Regarding the use of AI for online media, the editor of the *Dhakar Post*, Mahiduddin Sarkar, acknowledged its usefulness and said the use of AI would become popular in Bangladesh due to the requirement of the medium.

When asked if AI could produce a piece of news while maintaining its sensitivity and ethical standards, all the experts expressed their concerns regarding this. As news-making requires the highest level of sensitivity and a considerable amount of creativity, they were extremely unsure about the effectiveness of AI. In this regard, Lipi Rani, senior sub-editor of *Daily Prothom Alo* (the most circulated Bangla newspaper) said: 'If the news is produced with the help of AI, the final gatekeeping must be done by the human brain, as a slight mistake or insensitivity can cause unrest among the audience.' For the same reasons, Abdul Kalam Azad, head of online for popular English daily newspaper *The Business Standard*, ruled out the possibility of AI replacing the human brain in newsrooms.

Rather, they wanted to see AI as a helping hand for working journalists. For instance, they said AI could be used to gather information from the internet and could be used in content uploading and sharing, so that manual uploading of news is no longer needed. That would allow newsrooms to use the staff previously assigned to these tasks on other jobs. For instance, even five years ago, almost every newspaper organisation had a proofreading team, but software

was now used for proofreading. However, as media operators of a developing country, costs were a key concern. Budget constraints would make it difficult to train journalists and it would be hard to make a profit while producing high quality content.

The in-depth interviews suggested newsroom heads did not foresee AI having an effect in Bangladeshi newsrooms soon. According to them, although AI had a future in local newsrooms, it would take time for this to happen. The interviewees said AI would never replace humans because technology did not have the sophisticated intellect to interpret a critical social phenomenon. However, like the survey result, the in-depth interview responses suggested AI can be used as a helping hand. So, right at this moment, Bangladeshi media houses are not willing to take the risk of introducing new technology on a larger scale when it is still not fully used worldwide.

Analysing the results from both methods using the HMC framework, three basic findings appear. Firstly, in the journalism practice of Bangladesh, AI has been used in a limited version and has a future in the newsroom. Secondly, regarding ethics and performances, media professionals are not quite confident that AI would be entirely ethical in news writing and be able to give better output than journalists. The third finding is that AI is not going to take over the driving seat in the newsroom. These findings correspond with the theory that in HMC, a machine (AI) can be used as a supporting component in the communication (journalism) process. It cannot be fully relied on, but can play a role as a subsidiary instrument in human-machine communication.

Discussion and conclusion

This study found that the mental readiness of the journalists to accept AI in regular news practice is still low in Bangladesh since they are ready to use AI as a supporting tool in the newsroom, but do not trust it unconditionally. The survey revealed that about 90 percent of the professionals have a basic understanding of AI, but very few of them have ever engaged with AI or used it in their profession. On the other hand, according to 44 percent of respondents, AI will always produce less output than them, because a robot can never be better than a human and will be incapable of producing high-quality material. This study reveals a lack of trust in AI's practical application and output among newsroom editors. The findings of the study have some kinds of similarities and contrasts with the situation of other countries.

As previously stated, several news organisations throughout the world are attempting to include AI-based journalism in their news production. This new trend is undeniably positive and beneficial. However, it is uncertain whether today's journalists are sufficiently educated and equipped to deal with this new trend. Making newsrooms sufficiently equipped is also a significant challenge in the

context of Bangladesh. Some journalists have mentioned a lack of technical skills in this subject, as well as the performance of AI. The findings are consistent with Jamil's (2021) research, which discovered lower AI literacy, inadequate training, and a lack of technical expertise among journalists in developing countries.

Journalists and editorial practitioners did not identify issues such as 'extracting and processing huge data' 'identifying false news' and so on, even though Ali and Hassoun (2019) and Veglis and Maniou (2019) listed these as important challenges. Aside from these challenges, ethical dilemmas have also been addressed by both journalists and newsroom personnel. This is also a challenge to journalistic norms. The possibility of a computer having morality is still viewed with skepticism by respondents. This result is nearly like Montil (2019) who has expressed doubts about the robot's liabilities while carrying out professional duties. To overcome this ethical challenge, almost half of professionals believe that the ethical standards of these AI journalists should be monitored regularly to achieve and maintain public trust. Newsroom personnel also argued that the ultimate gatekeeper was the human brain, as a minor error may trigger dissatisfaction and unrest. Stray (2019) has also conveyed the same concerns and suggested extensive human inspection to achieve accuracy.

The findings suggested that AI has potential and could be used in three key sectors: news dissemination, newsgathering, and news production. According to most respondents (41 percent), AI in journalism may indeed be best used in the news dissemination process. Editors are likewise optimistic about an AI-enabled future newsroom because to them AI will allow newsrooms to save time, money and labour. This finding is similar to that of Dörr and Hollnbuchner (2017) who examined how AI-based algorithmic journalism could manage big data and thus lower the production cost and required time. However, our study also revealed that AI deployment in Bangladeshi newsrooms will never be able to compete with human intelligence and creativity, and so will never be able to replace humans. Ali and Hassoun (2019) also reject the concerns regarding AI replacing humans in their study.

The fourth question is crucial when it comes to anticipating the future. The question is whether the journalists are mentally prepared to welcome AI as a journalistic tool or not. A total of 48 percent of the survey respondents said they were not fully comfortable with the idea of accommodating AI technology in their traditional working method. A total of 29 percent said they were not bothered about it, and 21 percent said they would welcome the incorporation of new technology wholeheartedly. As Jung et al. (2017) and Jamil (2021) suggested taking the mental and cultural readiness of the local journalists into account in their studies, the current scenario does not look like Bangladeshi newsrooms will be able to implement AI on a large scale in the near future. One of the newsroom editors even opined confidently that he did not see AI flourishing in

the Bangladeshi journalism industry in the next five to 10 years. This finding contradicts Goni and Tabassum's (2020) finding that journalism students were mentally prepared to embrace and employ AI on a professional level.

Regarding the final goal, projecting the future of AI in Bangladeshi newsrooms, it can be asserted that Bangladeshi journalism still has a long way to go before successfully implementing AI. This study discovered that Bangladeshi professionals are not completely psychologically prepared to embrace AI in newsrooms, although they have an open mind towards it. The use of AI might require staff training and assistance in the office.

Therefore, the traditional concept of seeing communication only as an activity among humans is being superseded by the advancement of technology. Machines are now capable of acting as communicators rather than only as facilitators in the communication process. The Human-Machine Communication framework has suggested a radical shift, which states that AI-based technologies are now ready to act as communicators alongside humans, if not replacing them. This transition in the communication process has started to affect the media industry as well. However, the situation has not advanced that far in less economically developed countries like Bangladesh. Most media organisations have not acquainted themselves with AI yet, mostly due to a lack of confidence in AI performance, ethical dilemmas, skilled manpower and budgetary constraints. Some of them have started their journey with AI recently, mostly in the news dissemination process. However, the bigger prospect of AI is yet to be unleashed in Bangladeshi newsrooms.

As media scholars hope that AI will shake up future journalism, it is necessary to conduct further academic research from a Bangladeshi perspective. This study recommends that further work can be done on prospects for AI-based communication in journalistic practice, the skillsets needed for journalists to cope with new technology, whether AI is likely to improve the overall quality of news content, and how ethics and accuracy can be ensured through the use of Human-Machine Communication.

References

- Ali, W., & Hassoun, M. (2019). Artificial intelligence and automated journalism: Contemporary challenges and new opportunities. *International Journal of Media, Journalism and Mass communications*, 5(1), pp. 40-49.
- Anderson, C. W. (2013). Towards a sociology of computational and algorithmic journalism. *New Media & Society*, 15(7), pp. 1005-1021.
- Beckett, C. (2019). New powers, new responsibilities: A global survey of journalism and artificial intelligence. *Polis*, London School of Economics and Political Science.
- Biswal, S., & Gouda, N. (2020). Artificial intelligence in journalism: A boon or bane? In *Optimization in Machine Learning and Applications*, pp. 155-167.
- Dataful Offers Training on Data Journalism. (2020). UNB. <https://www.unb.com.bd/>

- category/Bangladesh/dataful-offers-training-on-data-journalism/41600
- DeGeurin, M. (2018). A startup media site says AI can take bias out of news. *Vice*. https://www.vice.com/en_us/article/zmgza5/knowhere-ai-news-site-profile
- Dörr, K. N. & Hollnbuchner, K. (2017). Ethical challenges of algorithmic journalism. *Digital Journalism*, 5(4). <https://doi.org/10.1080/21670811.2016.1167612>
- Dirican, C. (2015). The impacts of robotics, artificial intelligence on business and economics. *Procedia-Social and Behavioral Sciences*, 195, pp. 564-573.
- Goni, M. A., & Tabassum, M. (2020). Artificial intelligence (AI) in journalism: Is Bangladesh ready for it? A study on journalism students in Bangladesh. *Athens Journal of Mass Media and Communications*, 6(4), pp. 209-228.
- Gunkle, D. J. (2012). Communication and artificial intelligence: Opportunities and challenges for the 21st century. *Communication*, 1(1), pp. 1-26.
- Guzman, A.L. (2018). What is human-machine communication, anyway? In A. L. Guzman (Eds.), *Human Machine Communication: Rethinking Communication, Technology, and Ourselves*, (pp. 1-28). Peter Lang.
- Jamil, S. (2021). Artificial intelligence and journalistic practice: The crossroads of obstacles and opportunities for the Pakistani journalists. *Journalism Practice*, 15(10), pp. 1400-1422.
- Jones, B., & Jones, R. (2019). Public service chatbots: Automating conversation with BBC News. *Digital Journalism*, 7(8), pp. 1032-1053.
- Jung, J., Haeyeop, S., Youngju, K., & Sewook, O. (2017). Intrusion of software robots into journalism: The public's and journalist's perceptions of news written by algorithms and human journalists. *Computers in Human Behaviour*, 71, pp. 291-298.
- Khan, A. K., & Shnaider, A. (2021). The features of online news websites in Bangladesh. *Technology Transfer: Innovative Solutions in Social Sciences and Humanities*, pp. 47-49.
- Kothari, A., & Cruikshank, S. A. (2022). Artificial intelligence and journalism: An agenda for journalism research in Africa. *African Journalism Studies*, 43(1), pp. 17-33.
- Lewis, S. C., Guzman, A. L., & Schmidt, T. (2019). Automation, journalism, and human-machine communication: Rethinking roles and relationships of humans and machines in news. *Digital Journalism*, 7(4), pp. 409-427.
- Linden, C. G. (2017). Decades of automation in the newsroom: Why are there still so many jobs in journalism? *Digital Journalism*, 5(2), pp. 123-140.
- Monti, M. (2019). Automated journalism and freedom of information: Ethical and juridical problems related to AI in the press field. *Opinio Juris in Comparatione*, 1(1).
- Mou, Y., & Xu, K. (2017). The media inequality: Comparing the initial human-human and human-AI social interactions. *Computers in Human Behaviour*, 72, pp. 432-440.
- Shin, D., Al-Imanny, S., & Hwang, Y. (2022). Cross-cultural differences in information processing of chatbot journalism: Chatbot News Service as a cultural artifact. *Cross Cultural & Strategic Management*, 29(3), pp. 618-638.
- Simon, F. M. (2022). Uneasy bedfellows: AI in the news, platform companies and the issue of journalistic autonomy, *Digital Journalism*, <https://doi.org/10.1080/21670811.2022.2063150>
- Spence, P. R. (2019). Searching for questions, original thoughts and/or advancing theory: Human-machine communication. *Computers in Human Behaviour*, 90, pp. 285-287.
- Stray, J. (2019). Making artificial intelligence work for investigative journalism. *Digital Journalism*, 7(8), pp. 1076-1097.
- Tejedor, S., & Vila, P. (2021). Exo journalism: A conceptual approach to a hybrid formula between journalism and artificial intelligence. *Journalism and Media*, 2(4), pp. 830-840.

- The Cyber Security Battlefield. (2019, April 2). Centre for International Governance Innovation. <https://www.cigionline.org/articles/cyber-security-battlefield/>
- Veglis, A., & Maniou, T. A. (2019). Chatbots on the rise: A new narrative in journalism. *Studies in Media and Communication*. 7(1), pp. 1-6. <https://doi.org/10.11114/smc.v7i1.3986>
- What consumers really think about AI: A global study (2020). <https://hyken.com/wp-content/uploads/what-consumers-really-think-about-ai.pdf>
- Whittaker, J. (2019). *Tech giants, artificial intelligence, and the future of journalism* (1st ed.). Routledge.
- Young, C., & R. Stroud, S. (2020). Can artificial intelligence reprogram the newsroom? Center for media engagement. <https://mediaengagement.org/research/can-artificial-intelligence-reprogram-the-newsroom/>

Sanjoy Basak Partha is a lecturer in the Department of Mass Communication and Journalism (MC&J) at Bangladesh University of Professionals. His research interests include multimedia journalism and digital storytelling.
sanjoy.partha@bup.edu.bd

Maliha Tabassum is a lecturer in the Department of Mass Communication and Journalism at Bangladesh University of Professionals. Her research interests include communication arena, media, films, and culture.

MD Ashraful Goni is an assistant professor in the Department of Mass Communication and Journalism the Bangladesh University of Professionals. He is a PhD student in the College of Media and Communication, Texas Tech University. He has a particular interest in artificial intelligence (AI) and media.

Priyanka Kundu is a lecturer in the Department of Mass Communication and Journalism (MC&J) at Bangladesh University of Professionals (BUP). She is a PhD student at the University of Illinois. Her research interest includes press freedom and digital media.