EVALUATING DATA JOURNALISM EDUCATION IN BANGLADESHI PUBLIC UNIVERSITIES: A QUANTITATIVE STUDY FOR MEDIA STUDENTS

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Abstract

The development of information and communication technologies is transforming our ways of interacting, making decisions, and understanding reality. By incorporating computer science into journalism, the traditional logic of the field has undergone significant transformation. Moreover, it has evolved traditional storytelling into a more interactive and engaging format. The study aims to figure out how public universities in Bangladesh provide facilities for media studies students to learn data journalism. The study employed quantitative research approach, collecting data from nine public universities in Bangladesh offering journalism programs. The sample was selected using stratified sampling, with a total sample size of n = 180. SPSS statistical software was used to examine the data, which also included the descriptive statistics. The study examines the adequacy of tools, resources, and instructional approaches provided by universities for data journalism education. Additionally, it investigates the challenges encountered by both students and professionals in the field of data journalism. The study's findings reveal that a significant portion of respondents (83%) acknowledged that their university provides data journalism courses. However, the research also uncovered that 82% of participants were dissatisfied with the resources available for learning data journalism at their institutions. Additionally, 44 % of the respondents identified insufficient practical experience as the primary barrier to effectively acquiring skills in data journalism. This research explores the incorporation of data journalism into university curricula in Bangladesh and evaluates the sufficiency of resources available to students for effectively acquiring skills in this evolving area of journalism.

Keywords: Journalism, Data, Data Journalism, Students Satisfaction, Computing-based journalism

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1. Introduction

The landscape of journalism has undergone a dramatic transformation in recent years, driven by technological advancements, shifts in audience behavior, and the rise of data as a pivotal asset in the news production process (Bradshaw, 2017). In this evolving digital ecosystem, journalism has moved beyond its traditional formats to embrace computational approaches that enable more in-depth, fact-based, and engaging storytelling. One of the most influential innovations in this context is data journalism, which combines journalistic principles with data science, visualization, and digital tools to investigate, interpret, and present information in a more analytical and impactful way (Coddington, 2015; Fink & Anderson, 2015). Data journalism empowers reporters to analyze large and complex datasets, identify hidden trends and insights, and present these findings in ways that are both accessible and compelling for audiences. This approach enhances the depth, accuracy, and transparency of reporting, making it a vital tool for modern media practitioners in their efforts to inform the public and hold power to account.

The interdisciplinary nature of data journalism sets it apart from conventional journalism. It requires journalists to possess not only core skills in research, writing, and critical thinking but also technical competencies in areas such as data analysis, coding, visualization, and statistical reasoning. Heravi and Lorenz (2020) argue that data journalism draws from a diverse range of disciplines, including computer science, data analytics, information design, and the social sciences, enabling journalists to produce more nuanced and evidence-driven content. Similarly, Bradshaw (2018) emphasizes that the rise of data journalism represents a shift toward more methodical and verifiable storytelling that enhances public trust in the media. These developments are not only reshaping how news is produced and consumed but are also influencing journalism education, as universities worldwide recognize the need to prepare future journalists for a data-intensive media environment.

Over the past decade, journalism education programs across the globe have begun integrating data journalism into their curricula in response to growing industry demand (Gray et al., 2012; Royal, 2016). According to Berret and Phillips (2016), data journalism encompasses a broad array of practices, including the collection, cleaning, analysis, visualization, and dissemination of data to support journalistic narratives. This framework has gained widespread acceptance as a necessary component of modern journalism education. Howard (2014) further defines data journalism as the convergence of journalistic inquiry with the principles of data science, wherein structured and unstructured data are systematically analyzed to uncover stories that would otherwise remain hidden. By equipping

students with data-driven skills, journalism programs can help cultivate a new generation of reporters who are adept at navigating the complexities of the digital information age.

Despite these global advancements, journalism education in Bangladesh remains heavily centered on traditional reporting techniques, often with minimal exposure to data literacy and computational methods. While the country has experienced significant growth in both conventional and digital media (Islam & Rahman, 2019), the integration of data journalism into journalism curricula has not kept pace. Research on the evolution of digital journalism in Bangladesh has largely focused on the professional challenges faced by working journalists (Hossain & Alam, 2017; Kabir, 2018), with little attention paid to the academic settings where foundational competencies are first developed. Consequently, a gap persists between the demands of contemporary newsrooms and the training provided by educational institutions.

The problem becomes particularly acute when considering the conditions within public universities in Bangladesh. These institutions often lack access to modern technological infrastructure, qualified instructors, and data visualization tools needed to facilitate hands-on learning in data journalism. As a result, students graduate with limited exposure to essential skills such as spreadsheet management, data scraping, statistical analysis, and interactive storytelling. Zhu and Du (2018) highlight that one of the most pressing challenges in journalism education is the shortage of graduates who are proficient in data journalism. This is exacerbated in developing contexts like Bangladesh, where resource constraints further limit students' ability to engage with data-driven projects during their academic careers. Moreover, media students frequently face financial barriers, institutional inertia, and a lack of industry-academic collaboration, which collectively hinder their professional readiness for data-centric journalism roles.

The situation is further complicated by the broader information crisis marked by misinformation, sensationalism, and declining public trust in the media. In such an environment, the role of data journalism becomes even more critical. It not only enhances the credibility and accountability of media reporting but also provides audiences with a more accurate and evidence-based understanding of social, political, and economic issues. However, to fully realize this potential, journalism students must be trained to understand, interpret, and communicate data effectively. This training must begin at the university level, where the foundations of professional practice are laid.

While international models and curricular frameworks offer valuable

insights, they cannot be adopted wholesale without considering the local context. Journalism education in Bangladesh faces unique challenges, including limited funding, traditional pedagogical approaches, and bureaucratic constraints. Therefore, localized research is essential to assess the current status of data journalism education and to identify areas for reform. Understanding how students perceive their training, the types of facilities available to them, and the institutional commitment to data journalism is vital for bridging the gap between academia and the industry. Without such an assessment, efforts to modernize journalism education in Bangladesh will remain fragmented and ineffective.

This study addresses a significant concern: the insufficient preparation and lack of structured curricula for teaching data journalism in public universities across Bangladesh. As data journalism gains prominence in the modern media environment, many students find themselves without the practical skills, technological tools, or academic exposure needed to succeed in this evolving field. To bridge this gap, the research will evaluate the current state of data journalism education within these institutions. Adopting a quantitative methodology, the study will investigate students' knowledge, skill sets, and perceptions of data journalism, as well as whether their programs offer dedicated courses or modules on the topic. It will further explore institutional limitations, resource constraints, and students' views on the importance of data journalism in their future media careers. Ultimately, the study aims to provide actionable recommendations for more effectively integrating data journalism into media education at the university level in Bangladesh.

2. Literature Review

Although the relationship between data literacy and journalism education has become a crucial issue on a global scale, its integration in developing countries, such as Bangladesh, remains unequal and poorly understood. Higher education institutions in South Asia struggle to meet the growing industry demands for digital storytelling and data literacy. The systematic undervaluation of data journalism in public university curricula, which hampers students' preparedness for modern newsrooms, is a notable issue in current literature.

Rhaman and Yesmine (2025) critique the limited focus on data-driven storytelling within climate journalism courses, noting that most journalism programs fail to include modules on data verification, visualization, or open-source investigation. Their review of Bangladeshi university curricula indicates a lack of structural emphasis on computational and statistical skills, which are vital in contemporary reporting.

This concern is reinforced by Ali et al.(2025), who explore similar issues in Pakistan and find a severe lack of formalized data journalism instruction. Their research identifies critical barriers such as outdated curricula, insufficient digital infrastructure, and a shortage of trained faculty.

Desai (2024) further critiques South Asian journalism education by emphasizing a disconnect between curriculum designers and media industry needs. According to her, institutions in India often focus on traditional reporting formats, sidelining the critical thinking and analytical skills needed for data-driven storytelling. This curricular mismatch is symptomatic of a broader failure to update journalism education in response to digital transformations.

Expanding on technological challenges, Goel et al.(2025) emphasize that even when institutions in developing countries have access to AI and digital platforms, practical implementation remains limited due to lack of resources and policy support. Their study suggests that without strategic investment in faculty development and infrastructure, technological tools cannot enhance journalism education meaningfully.

Meanwhile, Bhatia et al.(2025) show how integrating public health and development data into coursework enables students to produce more meaningful, community-focused journalism. This points to a curriculum model where students use real datasets to learn both storytelling and civic responsibility.

In terms of employability, Islam et al.(2024) emphasize that Bangladeshi graduates often lack both soft skills and digital competencies. Their study calls for educational reform, stressing that skills like teamwork, adaptability, and data handling are essential for modern media roles. Similarly, Mostert et al.(2025) advocate for holistic journalism training that integrates critical thinking and collaboration with technical instruction.

Kim et al.(2025) found that student-centered, data-informed approaches significantly improved learning outcomes in South Korea. This supports the notion that Bangladesh could benefit from adopting similar pedagogies, especially in public universities where traditional lecture formats dominate.

Anotherone focuses on improving an understanding of data journalism from Bangladesh's perspective. Additionally, this study analyzes the conceptual aspects of viewing reality through Big Data and data journalism while gathering, analyzing, explaining, understanding, and presenting it (Islam, 2018).

Although valuable insights exist, a comprehensive, country-specific evaluation of data journalism education in Bangladeshi public universities is lacking. This gap necessitates a systematic investigation into its status, curriculum, and institutional readiness within the country.

3. Methodology

Research Method

A methodology reflects a researcher's systematic and logical process for investigating a research problem. It outlines what information will be collected, from where, how it will be gathered, and how it will be analyzed. For this study, the survey method was selected due to its flexibility and effectiveness in collecting large-scale, quantifiable data efficiently. This method facilitates capturing attitudes, perceptions, and trends among a defined population through structured instruments.

Research Design

According to Akhtar (2016), research design serves as the blueprint that guides data collection, measurement, and analysis, ensuring the validity and reliability of the research outcomes. This study adopted a quantitative research design, an objective and empirical approach involving the collection and analysis of numerical data to understand patterns, relationships, and trends (Helmold, 2019). The choice was based on the nature of the research topic, the availability of data, and the researcher's proficiency in using structured statistical tools to analyze educational trends.

Population of the Study

Arias-Gómez et al.(2016) define a study population as the group from which a sample is drawn, serving as the basis for generalizing research findings. In this study, the population includes students enrolled in Mass Communication and Journalism, Journalism and Media Communication, or Media Studies programs at public universities in Bangladesh.

Sampling Technique:

Sampling is a significant component of study design as it entails selecting a sample of a population to represent the entire (Bhardwaj, 2019). In this study a stratified random sampling method was used to ensure fair representation across Bangladesh's seven administrative divisions. Two universities were selected from the Dhaka and Chattogram divisions, which host a higher concentration of relevant academic programs, while one was selected from each remaining division. The selected universities include: Barishal University, Begum Rokeya University,

Rangpur, Bangladesh University of Professionals, Comilla University, Jahangirnagar University, Jagannath University, Khulna University, Rajshahi University, University of Chittagong

Sample Size

Sample size is a critical element in research design, determining the extent to which results can be generalized (Chander, 2017). Referring to Cohen (1992)statistical power analysis and Krejcie & Morgan (1970) sample size table, a total of 180 final-year undergraduate and master's students were selected from the identified universities. This sample size balances statistical reliability with practical feasibility.

Data Collection Method:

Data was collected through an online survey created using Google Forms. The self-administered questionnaire comprised two sections: demographics (age, gender, university, and educational background) and the variables under investigation. The latter included Likert scale items, rating questions, and closed-ended questions. A pilot study with 20 participants refined the questionnaire before it was disseminated via Facebook, Messenger, and WhatsApp to media studies students. Data collection took place from January to February 2024. Secondary data from publications, research papers, and journals supplemented the primary data.

Data Analysis:

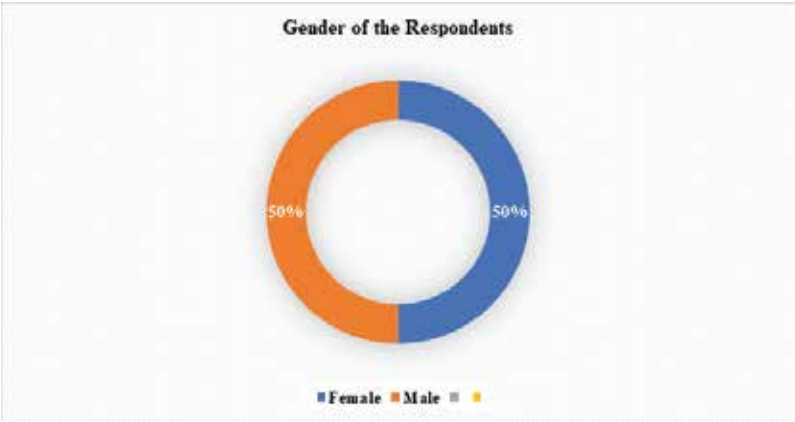
After gathering the data, it was sorted and error-free data was injected into the SPSS program -25. The researcher conducted descriptive research and used inferential statistics to investigate the correlations between the dependent and independent variables. Demographic indicators were presented using descriptive statistics, while inferential statistics, such as correlation, were used to examine the strength of correlations and differences across groups.

Ethics of the Study:

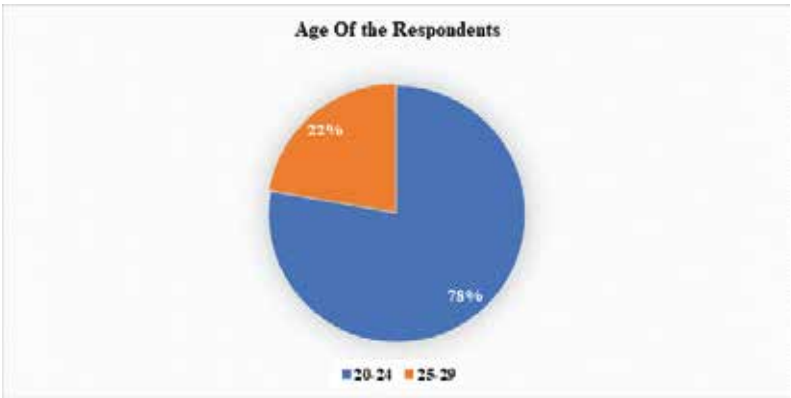
The researcher provides the participants a consent form that clearly states the aim of the study and their involvement in it. The research only included those who willingly agreed to participate. The researcher assured participants that their privacy and anonymity would be completely accepted, and that the data obtained would be used solely for research purposes. Ethical standards shall also be maintained by properly citing sources and avoiding plagiarism throughout the study process.

4. Data Analysis and Presentation

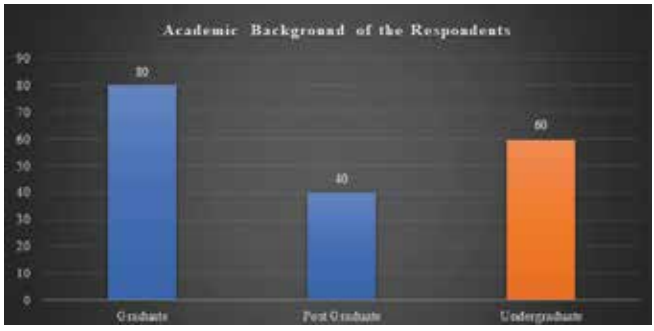
Data Analysis and Result



The study's sample comprised 180 Mass Communication and Journalism students from nine Bangladeshi universities, with an equal gender distribution of 50% male and 50% female participants.

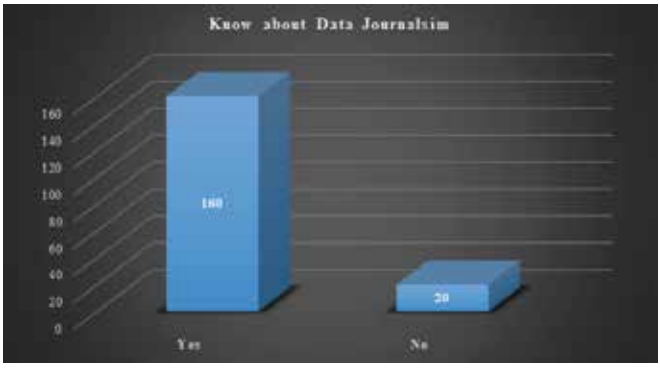


The majority of respondents (96.8%) fall within the 20 to 24 age range, with a small minority (3.2%) aged between 25 and 29.

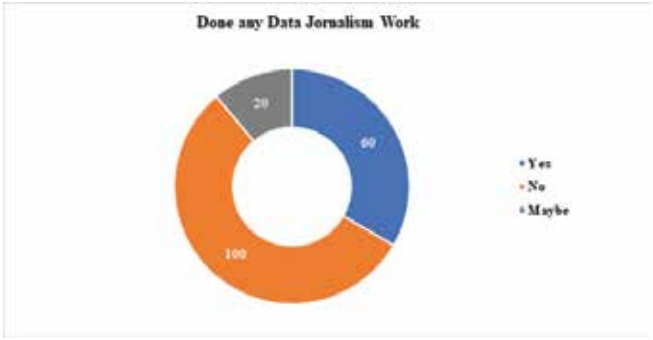


In terms of academic background, the study sample comprised approximately 44% graduates, 22% postgraduates, and 33% undergraduates.

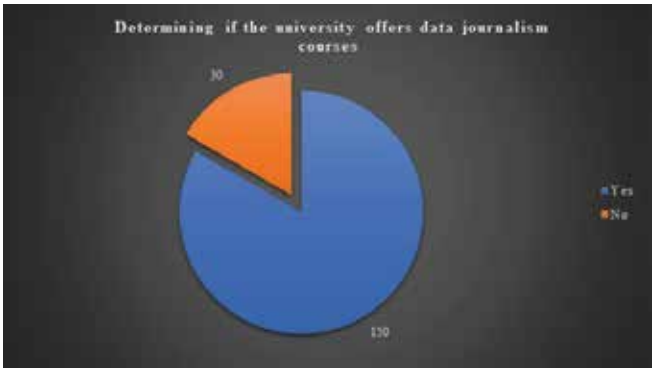
The pie chart indicates that approximately 56% of respondents are not employed by any media organization, while 28% work for one or two media outlets, and 17% are involved with more than two organizations.



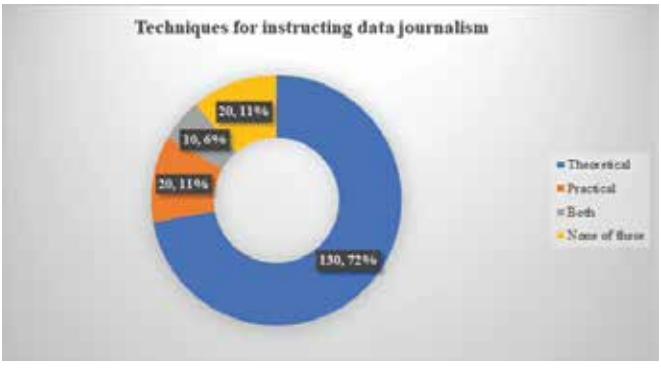
The majority of respondents (89%) reported being knowledgeable about data journalism, while only a small portion (11%) indicated they were unaware of it.



According to the survey findings, a majority of respondents (56%) reported that they were not involved in data journalism within their organizations. Approximately one-third (33%) indicated that they did engage in data journalism, while the remaining 11% were uncertain about their involvement in this area.



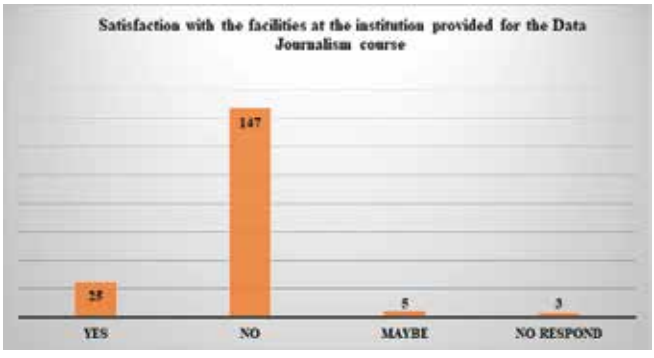
The survey results indicate that the majority of participants (83%) reported that their institution offers data journalism-related courses, while a smaller portion (17%) indicated that their university does not provide such courses.



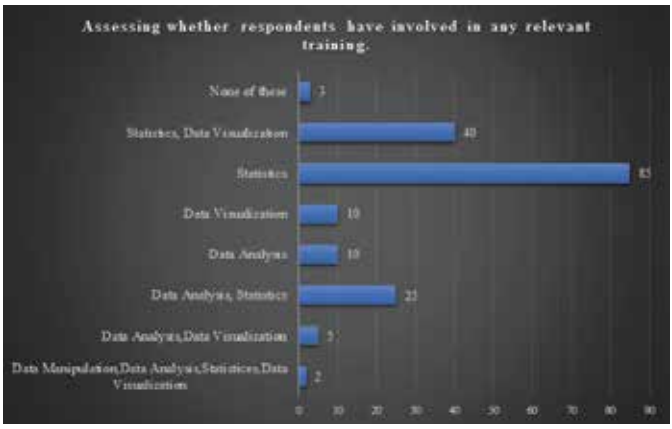
Based on the survey results, the pie chart shows that a significant majority of

participants (72%) agree that data journalism is taught primarily through theoretical methods in their universities. A smaller portion (6%) believe that both theoretical and practical methods are utilized, while only 11% feel that the approach is predominantly practical. Additionally, 11% of respondents chose not to comment on the teaching methods used in their institutions.

According to the study's findings, a significant proportion of respondents (44%) reported that their universities provide one or two software tools for practicing data journalism, while 14% indicated that their institutions offer more than two tools. In contrast, 37% of participants stated that their universities do not provide any tools for data journalism. Additionally, 4% of respondents declined to comment on the availability of data journalism tools.

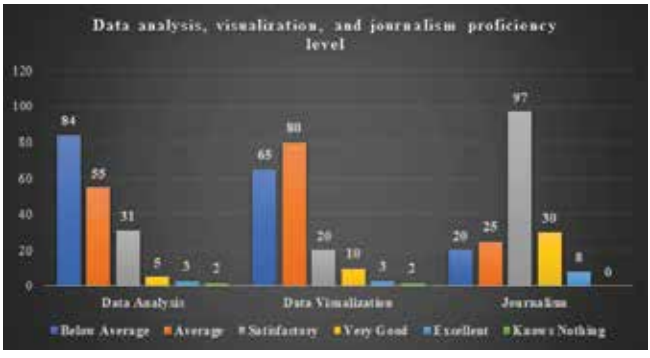


The bar graph reveals that only 14% of respondents expressed satisfaction with the facilities provided by universities for data journalism, while a significant majority, 82%, reported dissatisfaction. Additionally, 2% of respondents did not answer the question, and 3% appeared uncertain in their response.



The bar graphs illustrate participants' training in key data journalism-related areas, including data analysis, data visualization, and statistics. Survey results reveal that a small portion of respondents (6%) received high-quality training in data analysis, while 6% and 47% reported excellent training in data visualization and statistics, respectively. Additionally, 14% of participants indicated good training in both data analysis and statistics, 22% in both statistics and data visualization, and only 3% in both data analysis and data visualization.

Moreover, only 1% of respondents reported receiving training across all areas—data manipulation, data analysis, statistics, and data visualization. Conversely, 2% of participants indicated that they had not received any training in any of these data journalism-related areas. These findings highlight the varying levels of training in essential data journalism skills among participants.



The levels of experience among participants in data analysis, data visualization, and journalism are illustrated in the accompanying bar chart. The majority of participants exhibited below-average, average, or satisfactory skills in these areas, with approximately 47%, 44%, and 54% reporting such levels in data analysis, data

visualization, and journalism, respectively. Conversely, around 31% and 36% had below-average or average skills in data visualization and data analysis, while 11% reported average skills in journalism. In terms of satisfactory and average levels, approximately 17%, 11%, and 14% were recorded for data analysis, data visualization, and journalism, respectively. Notably, only about 4%, 7%, and 21% of respondents assessed their skills as excellent or very good in data analysis, data visualization, and journalism, respectively. Additionally, 1% of participants opted not to answer this question.

The respondents' primary concerns regarding the learning of data journalism are depicted in the accompanying bar chart. The data indicates that a significant portion of respondents (44%) identified a lack of field experience as the most considerable barrier to studying data journalism. Meanwhile, 28% believed that limited funding, field experience, and internship opportunities posed the greatest obstacles. Additionally, 8% of respondents cited a lack of funds and insufficient internship opportunities as major hindrances. Conversely, 11% identified a combination of insufficient funding, field experience, and internship opportunities as key challenges in pursuing data journalism education.

The respondents' opinions on the challenges faced in the practice of journalism are illustrated in the accompanying bar chart data. According to the graph, the primary obstacles to data journalism include a shortage of appropriate software for data

visualization (39%), time pressure (22%), lack of funding (14%), and accessibility to reliable data (8%). The graph further indicates that 11% of respondents perceive time constraints, financial limitations, access to accurate data, and inadequate data visualization tools as significant barriers to the profession of data journalism. Additionally, 8% of respondents identified the lack of suitable data visualization software, financial resources, ethical use of data, or access to reliable data as hindrances to effective data journalism.

5. Discussions and Conclusion

The findings of this study reveal significant gaps in data journalism education within Bangladeshi public universities, reflecting similar challenges identified in the literature concerning journalism education in developing countries.While the incorporation of data journalism courses in university programs suggests a growing acknowledgment of its importance, significant student dissatisfaction with resources indicates that these courses may not be sufficiently structured to meet the evolving demands of the field. Prior research has underscored that data journalism education must move beyond foundational theories and concepts to integrate hands-on experience and technological tools (Coddington, 2015; Lewis & Westlund, 2015). Without such practical approaches, students struggle to develop the essential analytical and technical proficiencies required for data-driven reporting, as highlighted by Lewis & Usher (2016) in their study on data journalism pedagogy.

One of the primary limitations identified is the heavy reliance on theoretical teaching in data journalism courses, a trend that mirrors findings from research on journalism programs in other low-resource educational contexts (Hermida & Young, 2019). This theoretical emphasis, with minimal practical exposure, restricts students' ability to master crucial skills such as data processing, visualization, and computational analysis. Studies on data journalism education stress the importance of hands-on learning in building these capabilities, as familiarity with real-world applications enables students to bridge the gap between theoretical knowledge and reporting skills in practical settings (Radcliffe & Ali, 2017). Hermida & Young (2019) argue that in disciplines as reliant on technology as data journalism, practical learning opportunities are essential for fostering the level of technical competency expected in contemporary media markets.

Another significant finding from this study is the shortage of resources essential for data visualization—a key skill for data journalism. Research by Ferrucci (2020) emphasizes that data visualization not only strengthens storytelling but also enhances comprehension by making complex information more accessible

to audiences. However, Bangladeshi universities often face financial and technological constraints that limit access to advanced tools, a challenge that is consistent with findings on journalism education in other under-resourced contexts (Knight, 2015). Without proper resources, students lack opportunities to refine their data visualization skills, an issue that ultimately limits their effectiveness as future journalists in a media environment where visual storytelling is increasingly critical. The study highlights a critical gap in practical experience within the curriculum, a gap that resonates with research emphasizing experiential learning as essential for skill development in journalism education. Scholars have argued that experiential learning—where students engage in real-world practice and reflection—allows journalism students to gain practical skills that theoretical instruction alone cannot provide (Kolb, 1984; Petty, 2014). Prior studies indicate that practical experience in data journalism not only enhances technical proficiency but also builds students' confidence in handling datasets, producing data-based reports, and communicating findings accurately (Appelgren & Nygren, 2014). Experiential learning strategies, such as lab sessions, internships, and collaborative projects, have been shown to significantly improve student competency in data journalism by exposing them to real datasets and encouraging original analysis (Radcliffe, 2020). This approach aligns with Radcliffe (2020) findings on the effectiveness of data journalism programs in developed countries, where curricula are structured to provide extensive training in data collection, analysis, and visualization.

In developed nations, data journalism has become an integral part of journalism programs, with students regularly trained in sophisticated data methods and visualization techniques, as shown in studies by Lewis & Usher (2016) and Knight (2015). These practices support media organizations in delivering impartial, data-driven information to the public, contributing to transparency, accountability, and media trust. Comparatively, the findings of this study point to a significant gap in Bangladeshi universities, which lag in incorporating these essential tools and experiential learning opportunities into their curricula. For Bangladeshi public universities to align their programs with global standards, there is a pressing need for funding, updated infrastructure, and a strategic shift towards technology-oriented, practical instruction.

To truly enhance data journalism education in Bangladesh, there is an urgent need for a strategic shift towards technology-oriented, practical instruction. As highlighted in the objectives of this study, understanding the landscape of data journalism education—what universities offer, the facilities they provide, and the overall state of data journalism training—is essential for driving meaningful reform. As data journalism continues to grow in significance, addressing the identified gaps in educational practices will not only strengthen the journalism profession in

Bangladesh but also contribute to a media environment that is better equipped to serve the public interest.

In conclusion, while Bangladeshi public universities have made initial strides in integrating data journalism into their curricula, substantial improvements are necessary to create a genuinely effective learning environment. By addressing the existing shortcomings through increased investment in resources and technology, as well as curriculum reform and faculty development, universities can equip students with the skills necessary to thrive in the data-driven media landscape. The ongoing evolution of data journalism demands that educational institutions rise to the challenge, ensuring a robust and competitive journalism profession in Bangladesh.

6. Recommendations

Currently, data journalism is becoming popular in the developed world as well as in this country. As a result, the country's universities can play an important role in developing skilled manpower for data journalism. This study demonstrates that, despite the fact that data journalism is taught in the country's universities, few facilities are available. So, this study taking some of the steps mentioned below can help this new field of journalism flourish as well as create skilled manpower…

- Universities should spend more funds to develop laboratory facilities for journalism students.
- To enhance the number of internship opportunities for journalism students, universities should get into partnerships with media organizations.
- Taking the necessary initiatives to practice data journalism in universities.
- Universities need to appoint a data journalism specialist as a faculty.

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