AN EVALUATION OF JOURNALISTS' WORKING EFFECTIVENESS: THE ROLE OF DATA JOURNALISM AND JOURNALISM EXPERIENCES

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Abstract

The world has witnessed technological changes and transformations, with the penetration of new concepts and ideologies. Journalism has also rapidly adapted to these changes and is responding to the needs of the age with new journalistic practices. This study aims to evaluate the impact of data journalism on journalism experiences and its role in achieving journalist working effectiveness. It also examines the moderating role of institutional support between journalism experience and journalists' working effectiveness. By making use of a quantitative, descriptive research design, and adopting a random sampling design, this study collected data from 290 media employees in Turkey. A questionnaire was designed based on validated scales, and findings were analyzed using smart-PLS software. The findings suggest that data journalism has a positive impact on journalism experiences, which in turn makes a positive impact on journalists' working effectiveness. The results also show that institutional support positively moderates the relationship between journalism experiences and journalist working effectiveness. The study implications include suggestion how to improve the journalists' working effectiveness. It also recommends that newspaper companies must focus on data journalism and train their employees to contribute to employees' journalism experience.

Keywords: Journalism, Data Journalism, Working Journalists, Journalism Experiences.

1. INTRODUCTION

Technological and social changes have deeply affected almost every field, bringing a paradigm shift in professional execution of tasks. One of the professions most affected by these changes is the

profession of journalism. Despite a continuous change and transformation under important and global influences such as the French Revolution, the Industrial Revolution and the spread of the Internet (Dwivedi et al., 2023), the Journalistic practices have tried to meet the requirements of the period. The invention and widespread use of the Internet, especially the emergence and development of wikis, has added different features in the journalism profession. After the widespread use of the Internet, newspapers left the printing press environment and started to digitalize rapidly. Moreover, the Internet also brought about radical changes in the production and distribution process of news. The journalists who are employed by news media companies also play a fundamental role in accomplishing the goals of companies. They collect information about events, happening, accidents, government policies, foreign affairs, business, weather, labor, education, and societal issues (Pratiwi, Wahyuni, & Indrawati, 2022). They not only collect information to assure accuracy and truthfulness of information while acquiring, maintaining, processing, and reporting to general public. In order to get complete, clear, and accurate information and to ensure making effective interpretation of the news, journalists make online or personal visits to scenes or people involved in, conduct interviews, maintain contacts, perform quiet observations, search public records, read press releases, and search other sources (Viererbl & Koch, 2021). Journalists must have enthusiasm, high stamina, determination to meet the targets, confidence to conduct operations like facing issues, interviews, public discussion, and personal reporting etc. Perseverance, effective oral and writing skills, and interpersonal skills. When journalists work effectively, they help the news media companies to expose facts, come true to their words, win confidence of audience, and maintain their image in public (Abdullah, 2019).

In the post-2000 period, communication technologies have given birth to new terms in the profession of journalism. While new genres have emerged with the developing technology, on the other hand, the traditional understanding of journalism has taken on a new character through digitalization. Data journalism is one such genre that has emerged with digitalization and has changed journalistic practices, Being a rapidly developing field, data journalism requires working with types such as data, big data, open data and the size and importance of these types (Babu & Kanaga, 2021). Data journalism is the work of producing information, in other words news, by storing, editing, processing, sharing and visualizing data using developing technology resources. It is the style of journalism which includes quantitative data or statistics from sources like websites, databases, public records, or other online platforms. There is an increase in news writing or reporting with the examination and use of quantitative data with the purpose to give deeper insights into a news story and sheds brighter light on associated data. With such journalism method, journalists can be more familiar with the subject, the needs, risks, and opportunities and can make authentic propositions to audience. Thus, data journalism improves journalists' work effectiveness (Fahmy & Abdulmajeed Attia, 2024).

Accordingly, data journalists should also be data literate. It is an important requirement to make sense of data in this field, to have data skills and to know which programmes and software to transform data into information. The journalists should have a high degree of knowledge about journalism, showing required skills like writing, interviewing, reporting, and photography. The journalists with greater journalistic experience have greater ability to understand the matter, find quality information, and better report to audience. All these constitutes journalists' working effectiveness (Li, 2022). Although the journalists' working effectiveness depends on their own professional capabilities and qualification, it is also influenced by some factors like style of journalism and experience with their field, after being part of journalism professionally (Yu, 2020).

Before explaining the importance, characteristics and stages of data journalism, it is necessary to define data, because today, data and data processing, interpretation and analysis are of great importance. Data is defined as raw information that does not make sense or cannot be used on its own, but needs

to be grouped, interpreted, made meaningful and analyzed. Information is formed by processing, analyzing and interpreting the data. When analyzed, there are many types of data. However, in the context of new journalism practices, the use of concepts such as Big Data and Open Data is rapidly becoming widespread and important (Zahra, Ma, & Khong, 2025).

The present study examines how data journalism and journalism experience can improve journalists' working effectiveness. The objective of the study is to examine the role of data journalism and that of the journalists' working effectiveness. One of its objectives is also to analyze the role of institutional support between journalism experience and the journalists' working effectiveness. The current study makes significant contributions to literature. First, the previous studies have examined the role of data journalism and journalism experience in journalists' working effectiveness. But there are a few studies which check the influence of these two factors on journalists' working effectiveness side by side. The present study extends the literature because it examines the role of both data journalism and journalism experience in journalists' working effectiveness. Second, in previous literature only the direct association of institutional support with journalists' working effectiveness has been analyzed. The present study addresses the moderating role of institutional support between journalism experience and journalists' working effectiveness. Last, but not the least, the current study checks the research model in the news media companies in Turkey.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Journalism is defined as gathering, analyzing, processing, and providing information to target audience about events, accidents, political issues, geographical and weather conditions, particular personalities, crimes, and foreign issues (Cardaş-Răduţa, 2024). Journalists carry the responsibility to expose the facts and provide quality information to public. It is journalists' working effectiveness that maintains the image of the news media companies and predicts its progress. The journalists' working effectiveness can be influenced by factors like institutional support, data journalism, journalism experience, and journalists' working effectiveness. Journalists collect information, examine and process it logically, and report it clearly with some meaning. Data journalism focuses on journalists not only narrating the story about concerned events, happenings, or issues but strengthening their claims with the examination and use of quantitative data collected from statistical records. The examination of previous public records or online sources of quantitative data provides information about the things, events, happenings, issues, and personalities in past. The journalists have a chance to learn more and improve professionally required capabilities. This improves journalism experience (Cao, Chen, & Cao, 2024).

A study conducted by Mauri-Ríos, Marcos-García and Zuberogoitia-Espilla (2020), checks the association between data journalism and journalism experience. Applying survey technique, the data was collected from Spain. The study implied that data journalism not only focuses to acquire qualitative data and generate information to report a story on particular subjects but journalists are forced to pay heed to quantities values shared in online records and examine the facts minutely to create a clear, understandable and acceptable story. This not only increases the journalists knowledge and but improves their professional capabilities contributing to journalism experience. Appelgren and Lindén (2020) identify the relationship of data journalism with journalism experience in Nordic during 2012 to 2019. The study explains that when journalists work on subjects like social issues, they may get enough data, qualitative or quantitative, from previous records on online platforms. Under data journalism, journalists not only rely on qualitative information to produce story to audience but they also turn an eye to statistical records and support their story before audience. In this way,

they improve their knowledge and cognitive skills adding to their journalism experience. Hence, this necessitates to test the following hypothesis:

H1: Data journalism has a positive association with journalism experience.
Journalism experience is the time spent by candidates or employees to news media companies with professional journalists as internee, working on journalism projects during study, and the years passed as journalists being professional. The journalists' professional experience determines their knowledge, thinking, observation, decision making, confidence, and communication skills, all of which are crucial in journalism processes. Such employees are able to better understand the social, political, economic, geographic, or foreign issues in face, create information from ready sources, personal visits, or interviews, and better to present the relevant information to public. The journalism experience improves journalists working effectiveness (Yu, 2020). Perreault and Tham (2024) investigate the association of journalism experience with journalists working effectiveness. This study applied field theory and tested its research model with data from US journalists. The study revealed that the rising experience in journalism enhanced the journalists' knowledge, understanding of the behavior of suspected people, and create ability to interact with complicated people and force them to reveal the truth. This creates easiness for the journalists to meet the tasks and accomplish goals.

Hence, journalism experience improves the journalists' working effectiveness. Viererbl and Koch (2021), checks the relationship of journalism experience with journalists' working effectiveness in Germany using qualitative semi-structured interviews with journalists. The study conveys that as the increase in journalism experience enhances journalists' knowledge about the sources of information, increases contacts, and improves keen observation of people, places, or things related to the case. In this situation, journalists are able to learn about the facts and deliver quality information to audience. Hence, it is premised that high journalism experience brings an improvement in journalists' working effectiveness. To prove this premise, the following hypothesis needs to be tested:

H2: Journalism experience has a positive association with journalists' working effectiveness.
In data journalism, journalists also check the statistical values of the issues under discussion. These statistical values cover a specific period of time demonstrating periodical change. For example, the statistics of a particular crime in the country over years gives information how severe is the situation, how much effective steps are taken by crime control departments, and which areas are more affected. Although, the journalists are not physically present at the spot of crime each time in past, they may have knowledge and better judgment adding to their journalism experience. With the rising journalism experience, journalists are more efficient to tackle with the issues, collect information, and find authentic story to report. This shows improvement in journalists' working effectiveness (Wright & Doyle, 2019). Showkat and Baumer (2021) integrates the relationship among data journalism, journalism experience, and journalists' working effectiveness. Semi-structured interviews were conducted for analysis. The study highlights that the adoption of data journalism motivate the journalists not simply observe the situation, listen to witnesses and create a story for reports but to research the subject minutely, strengthens their views, and judge the accuracy of information shared by witnesses. It increases journalism experience. The resultant learning and development, enhances journalists' passion for work and journalism engagement. It improves journalists working effectiveness. Wright and Doyle (2019), also wrote about the association among data journalism, journalism experience, and journalists' working effectiveness. The study explains that if journalists adopt data journalism, they have a chance to learn from previous cases in the same scenario. They enhance their knowledge and learn skills from other expert journalists. It increases journalism experience and enables journalist to perform their functions effectively. This requires testing the following hypothesis:

H3: Journalism experience is a significant mediator between data journalism and journalists' working effectiveness.

Journalists who work for news media companies work professionally. They are responsible to follow the company policies, work on suggested strategies, and achieve the goals decided by the companies' management. The behaviors of institutional management and its inclinations always influence these journalist employees. When management is supportive to its employees, they try their best to facilitate journalism through HR policies like training, research, and development. In this situation, journalists professional experience is enriched with broader knowledge and cognitive abilities. By getting more knowledge, information, skills, these journalists show effective performance, thus satisfying both audience and employers. Thus, institutional support strengthens the relationship between journalism experience and journalists' working effectiveness (Tandoc Jr, Cheng, & Chew, 2022).

Marta-Lazo, Peñalva and Rodríguez Rodríguez (2020) examine the association among institutional support, journalism experience, and journalists' working effectiveness. This study reviewed 119 indexed articles from Web of Science and Scopus between 1998 until 2017. The study implied that when media institutions are supportive to their employees, they also carry training sessions and gain cooperation from senior journalists to teach and guide the employees for their career. Working under the guidance of seniors, journalists enhance their professional experience. With the rise in journalism experience, journalists' understanding, increased stamina, and higher confidence improve journalists' working effectiveness. Hence, institutional support improves the relationship between journalism experience and journalists' working effectiveness. Bhalla and Kang (2020) also identify the association among institutional support, journalism experience, and journalists' working effectiveness. The study finds that when institution is supportive to employed journalists, they are emotionally attached with the employer, and institution's image is dear to them. They not only practice the traditional techniques of journalism but improve journalism experience according to modern journalism standards. The knowledgeable and experienced journalists perform their functions effectively. On the basis of above discussion, it can be hypothesized:

H4: Institutional support plays a significant moderating role between journalism experience and journalists' working effectiveness.

This study has used one independent variable data journalism (DJ), one mediating variable journalism experiences (JE), one moderating variable institutional support (IS) and one dependent variable journalist working effectiveness (JWE). Figure 1 illustrates the relationship between these variables.
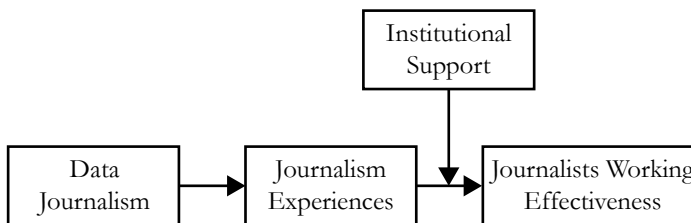

Figure 1: Theoretical Model.

3. RESEARCH METHODS

A quantitative, descriptive research design guided this study. By making use of the empirical study patterns, this study aims to evaluate the impact of data journalism on journalism experiences and its role in journalist working effectiveness. The study examines the moderating role of institutional support among journalism experiences and journalist working effectiveness. The data was collected and variables were measured using survey items. These items were taken from past literature such as data journalism

was measured with six items taken from Stray (2021), journalism experiences was measured with five questions adapted from Costera Meijer (2022); institutional support was measured with six items taken from Sexton et al. (2021); and journalist working effectiveness was measured with eight items adopted from Rahman, Wijayati and Kistyanto (2023).

A total of 534 questionnaires were distributed to respondents by personal visits. The population of the study comprised all journalists who were members of İzmir Journalists Association in the Aegean Region. By the use of random sampling, 290 media employees who were also members of the Izmir Journalists' Association were identified for this study, and who had also returned the filled-in responses, showing approximately 54.31 percent response. Finally, the data was analyzed using smart-PLS software. İt is a commonly used tool for the analysis of primary data that provides best results using large data sets (Hair, Howard, & Nitzl, 2020).

4. RESEARCH FINDINGS

The outcomes show the convergent validity that exposed the correlation between the items. The values of Alpha and composite reliability (CR) are more than 0.70 and the values of average variance extracted (AVE) and factor loadings are more than 0.50. These values indicated a high correlation between items. These values are mentioned in Table 1 and Figure 2.

Table 1: Convergent Validity.

Variables	Items	Loadings	Alpha	CR	AVE
Data Journalism	DJ1	0.850			
	DJ2	0.873			
	DJ3	0.879	0.934	0.948	0.752
	DJ4	0.840			
	DJ5	0.892			
	DJ6	0.869			
Institutional Support	IS1	0.953			
	IS2	0.830			
	IS3	0.951	0.959	0.968	0.834
	IS4	0.954			
	IS5	0.828			
	IS6	0.953			
Journalism Experiences	JE1	0.925			
	JE2	0.943			
	JE3	0.905	0.960	0.969	0.861
	JE4	0.932			
	JE5	0.932			
Journalists Working Effectiveness	JWE1	0.842			
	JWE2	0.661			
	JWE3	0.816			
	JWE4	0.833	0.917	0.933	0.635
	JWE5	0.790			
	JWE6	0.836			
	JWE7	0.806			
	JWE8	0.775			

The outcomes also show the discriminant validity that expose the correlation between the variables. The values of Heterotrait Monotrait (HTMT) ratios are not more than 0.90. These values indicate a low correlation between variables. These values are mentioned in Table 2.

Table 2: Discriminant Validity.

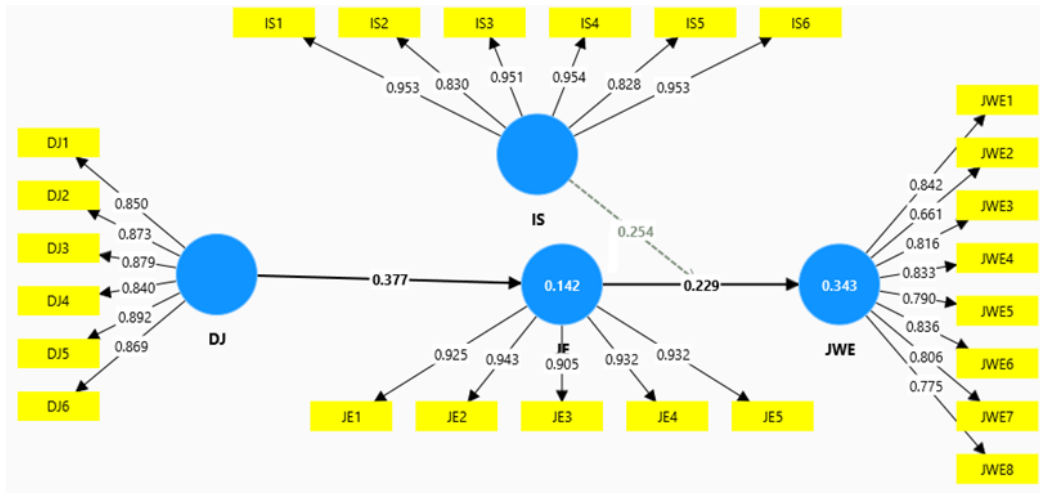|	DJ	IS	JE	JWE
DJ				
IS	0.381			
JE	0.398	0.513		
JWE	0.402	0.495	0.478	

Figure 2: Measurement Assessment Model.
Note: DJ-Data Journalism; IS-Institutional Support; JE-Journalism Experiences;
JWE-Journalists Working Effectiveness.

Table 3: Path Analysis.

Relationships	Beta	Standard Deviation	T Statistics	P Values
DJ -> JE	0.377	0.038	9.898	0.000
IS -> JWE	0.298	0.044	6.708	0.000
JE -> JWE	0.229	0.047	4.863	0.000
IS x JE -> JWE	0.254	0.043	5.913	0.000
DJ -> JE -> JWE	0.087	0.021	4.209	0.000

Note: DJ-Data Journalism; IS-Institutional Support; JE-Journalism Experiences; JWE-Journalists Working Effectiveness.

The path analysis shows the association among variables and the outcomes indicate that the data journalism has a positive impact on the journalism experiences and hence H1 is accepted. The outcomes also exposed that the journalism experiences have a positive impact on Turkish journalist working effectiveness and H2 is also accepted. The results also expose that journalism experiences positively mediates among data journalism and Turkish journalist working effectiveness and H3 is also accepted. Finally, the results also show that institutional support positively moderates among journalism experiences and Turkish journalist working effectiveness, therefore, H4 is also accepted. This analysis is illustrated in Table 3 and Figure 3.
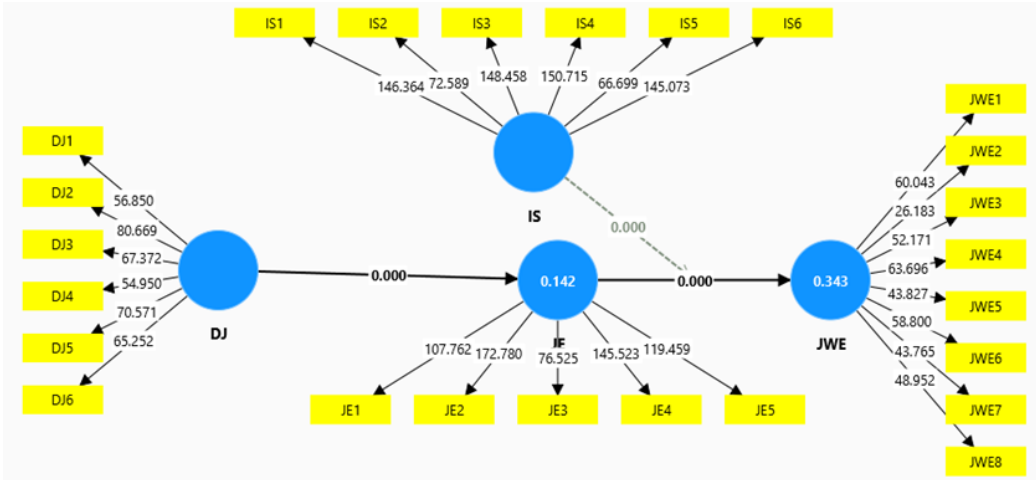
Figure 3: Structural Assessment Model.
Note: DJ-Data Journalism; IS-Institutional Support; JE-Journalism Experiences;
JWE-Journalists Working Effectiveness.

5. DISCUSSION

The study collected evidence that data journalism has a positive association with journalism experience. These results are supported by Ramsälv, Ekström and Westlund (2024), which implies that the organizations where data journalism is adopted by journalist to report on the audience, they themselves come to know many factual things gone through in past and they gain ability to handle with issues. Hence, data journalism enhances journalists' professional experience. These results are also in line with Tong and Zuo's (2021), which examines the role of data journalism in journalism experience of journalists. The study posits that the adoption of data journalism, increases journalist experience by creating ability to think broad, resolve issues, and provide accurate, influencing news to audience.

It was also made evident in this study that journalism experience has a positive association with journalists' working effectiveness. These results align with Liu and Liang's (2021), which states that increase in journalism experience reduces journalists' confusions and problems increasing their working effectiveness. The results also are supported by Posetti et al. (2020), which states that the journalists with higher journalism experience know better how to gather accurate and clear information about the subject. They can better process the assembled information, and present the fact-based story to audience. Thus, higher journalism experience increases the journalists' working effectiveness.

The results also show that journalism experience is a significant mediator between data journalism and journalists' working effectiveness. These results agree with Heravi and Lorenz's (2020), which is about journalists working effectiveness. The study demonstrates that the adoption of data journalism increases experience with the profession. As the increase in journalism professional refines journalists' capabilities, they can work more effectively. These results are also in line with Davies's (2018), which implies that journalism experience increased by data journalism, improves journalists' working effectiveness.

Finally, these results also revealed that institutional support plays a significant moderating role between journalism experience and journalists' working effectiveness. The results are supported by Arcalas, Tuazon and Opiniano (2024), which shows that when institutions are supportive towards work personnel, they are concerning about employees professional competences and do their best

to enhance their journalism experience. The rising journalism experience increases journalists' working effectiveness. These results also match with Royal and Kiesow's (2021), which conveys that with higher institutional support, journalists increases professional experience and their working effectiveness is better.

6. CONCLUSION

The current study aimed to explore the role of data journalism in establishing a relationship between journalism experience and journalists' working effectiveness. The objective of this study was also to examine the mediating role of institutional support between journalism experience and journalists' working effectiveness. The data was collected from newspaper establishments in Turkey. The study findings showed that data journalism has a positive influence on journalism experience. When journalists apply data journalism strategies, they may learn more about events, happenings, persons or things involved in, and associated laws and principles. In this situation, their analysis, vigilance, steadiness, and interpretation improve. It also enhances their journalism experience.

It is found that journalism experience has a positive influence on journalists' working effectiveness. When institutional personnel have high journalism experience, they are sure about the accuracy of their work; they perform their functions well; and achieve the desired goals. Hence, journalism experience improves journalists' working effectiveness. The study reveals that journalism experience plays a mediating role between data journalism and journalists' working effectiveness. The adoption of data journalism assists journalists to increase professional experience and higher journalism experience improves journalists' working effectiveness. The study also shows that institutional support is a significant moderator between journalism experience and journalists' working effectiveness. In case, there is higher institutional support to journalists, they may acquire greater journalism experience and it improves journalists' working effectiveness.

6.1. Implications and Limitations

The finding of the study would have a great significance to researchers and academics, particularly those who are interested in journalism. This study addresses the significance of journalists and checks their working effectiveness, by investigating the role of data journalism and journalism experience in journalists' working effectiveness. As a contribution to the domain of journalism, this study deliberates two significant things: one, it examines the journalism experience as a mediator between data journalism and journalists' working effectiveness; two, it examines how institutional support influences the relationship between journalism experience and journalists' working effectiveness.

This study also has great significance to Turkey and all other countries as it promotes effective journalism as a social –friendly practice. The study provides the ways on how to improve the journalists' working effectiveness. The study guides that the newspaper companies must focus on data journalism and train their employees accordingly so that they may contribute to employees' journalism experience. This study suggests that the human resources management in news companies should apply effective policies to ensure high journalism experience of employees serving the company. It would enhance the journalists' working effectiveness. There is also a guideline that administrators of news companies should guide and train the employees as they must apply data journalism in performing their duties. It would surely enhance employees' journalism experience and thus, the journalists' working effectiveness can be improved. Moreover, the study conveys that in newspaper companies, the top management must be supportive to institutional personnel. It would add to employees' journalism experience and improve its role in journalists' working effectiveness.

The study also faced a few limitations. First, the research model formed for the study just checks the relationaship of data journalism with journalism experience and journalists' working effectiveness. There are numerous other factors that can influence journalists' working effectiveness but they are not captured by the research. In future research, the scope of the study must be enhanced and it must cover all possible factors playing significant role in improving journalists' working effectiveness. Second, the current study is based on the data from Turkey. The principles, styles, rules, and regulations for journalism may be different in other countries. Moreover, a study with analyzed data from a single country cannot be satisfactory. Hence, there is need to collect data from multiple journalism scenarios of different countries.

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