Impacts of Digital Technology and Directions for Data Journalism Training

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***Abstract**: This article discusses the changes in communication models, public characteristics of the mass media, the role and position of journalism in the context of the development of the internet, social networks and digital technologies. The aforementioned changes have posed challenges to the new trend of journalism towards data journalism and data journalism training. The role of journalism is no longer to detect problems, while promptly conveying issues to the public, but to analyze data, detect problems from data sources, and communicate with the public in an understandable language using new forms and technologies. This may be a new orientation that institutions of journalism training need to prepare, develop and renovate programs in order to catch up with practical needs.*

***Keywords:** mass communication, data journalism, journalism training.*

Introduction

The development of digital technology, in the form of the internet together with social networks and their popularity and encroachment on life has made journalism and communication face significant challenges that need innovation for survival and development. In the new context, all citizens can become "citizen journalists." They no longer play a passive role of waiting for news but can actively seek information from different sources, actively share information with each other, even act as information guides for groups in which they have gained trust and influence. In that context, to maintain their position, role and influence in society, professional journalists need to equip themselves with new skills. One of the skills recently mentioned by many universities and journalism training institutions in the world is the skill of using, searching, and analyzing data to become a "data journalist" in settings witnessing the development of digital technology, big data and social networks. This article deals with the transformations of the public in the current context, the definition of "data journalism" and its training orientation. It also mentions new challenges and values for professional journalists.

1. The context and impact of digital technology, the internet boom on the public, journalists and communicators

In the twenty-first century with its many changes in communication technology and development of social media, digital technology has directly influenced the public's concept of mass media and the role of the press. The public is no longer merely a loyal group of people, ready to wait for the broadcast time or issue date to

receive information. They have become active participants in the communication process. The media public's active interaction has greatly changed the approach to media and public research. Some differences or changing trends of the public in the current context can be summarized as follows.

– Public: from "passive" public to "active" public

Prior to the advent of the internet and smart devices such as phones, tablets, etc., mass media was considered as universal. In the world of an information explosion, the public in the early stages was mainly seen as the receiver or consumer of information. They were seen as passive people, receiving and consuming information provided by media agencies and newspapers. Some researchers consider this period to correspond to the industrialization of Western countries in the twentieth century when the media's main concern was to provide information, produce content and evaluate the public's accessibility to the content and information as well as the effective impact of information and messages on the public. For the public, they often had expectations about the information and content to access, on the basis of which they planned and arranged a reasonable time to receive information because they partly depended on discrete information channels, broadcast times, and newspaper release times. Over time, they took up a habit to receive the information they wanted[(1)].

In the current context, the public is no longer in a "passive" position to receive information. Most users actively participate in the communication process, creating content and messages. Proactivity is not only reflected in sending feedback to the editorial board of the newspaper, but also in choosing what information to access as well as how and when to access information according to their needs. They are active in the way they use the media according to their needs and preferences. This was discussed first by some researchers at the end of the twentieth century. In the theory of "Uses and Gratification," Blumler and Katz (1974) mention the change, the ability to actively choose information, content, tools and means of accessing information by the public. In addition, the "activeness" is also reflected in the ability to interpret information, on the basis of the users' own competence and knowledge[(2)].

With the emergence and popularity of the internet, digital technology, social networks, and smart connected devices such as cell phones, computers, etc., proactivity is not only reflected in the users' selection of content, channel, time, place and medium to access the information but also in the opportunities to critique and widely discuss the accessible content, and even to participate in content production in the rich and diverse information network present in the information flow. For example, today it is not uncommon for famous people in the online community, notably in Facebook and YouTube to acquire hundreds of subscribers and followers. The new communication model reflects the changes of communication processes and reflects their multi-dimensionality in today's

modern society. It is a circular communication model. In this model, every citizen participating in the information flow in society is a "communicator" within the communication process. There is no longer a clear distinction between the "sender" and the "recipient." The press and mass media are still official and influential channels of information, but they are no longer the only ones and their influence on young people has declined. In the flow of information, the public is not simply the "receiver" and "consumer" of information from the mass media, they have achieved a certain autonomy in such a continuous information cycle.

- Public: from a generation of simplicity to a generation of diversity and complexity in terms of structure and a behavior of accessing media

As the public has changed and become the subject of information processes, society has achieved the continuous circulation of information. The characteristics, nature and communication behavior of the public are no longer as simple as being a recipient of information. The public of the new generation has become more complex and diverse, with some specific manifestations.

– The public do not simply listen to the radio, watch TV, or read newspapers but they also access many media and their information at the same time.

– It is not necessary for the public to own a radio or television and not necessary to buy newspapers anymore to access information from the mass media. They can do that via smart devices.

– They both listen, read, watch and text, comment, and exchange and share ideas. They participate in online forums, look up additional information, and verify information from different sources. They even interact to create content. Mass media is no longer monopolistic in owning information, bringing messages to the public, and affecting the public in a linear model.

– The public no longer passively approaches information according to a fixed time frame set by the press agency and mass media, but most of the day they are online, frequently changing the way they access information, as well as how they receive, transmit, comment, and update information via different networks.

In addition to the diversity and complexity in the behavior of accessing information and mass media, the nature of the public is also gradually changing. Instead of watching TV or listening to the radio with relatives, friends and family members at the time of broadcast as before, people tend to personalize the way they access information. Family members use personal devices such as phones, computer and tablets at any place, at any time suitable for them to access information. They even indirectly watch television and listen to the radio through applications or through social networks.

Thus, the new generation of the public can be considered more diverse in roles, more complex in their behavior in accessing and using mass media, and at the same time they can actively produce information content in the information cycle within society.

Thus, the aforementioned changes in the public have posed various new challenges to the development of journalism, both in mass media as well as in journalists' role of repositioning themselves. In recent years, many journalism training universities around the world have discussed and brought forth new orientations on data journalism training. This is a new issue in Vietnam and there is a great need for more discussion and sharing about the role and position of data journalism as well as orientations for training and fostering adaptive data journalism in the current context.

2. Data journalism: perspectives, social roles and challenges in data journalism training

Until now, the views on the definition and specific role of data journalism have not been unified especially in respect to terminology. There are many ways to name it: data journalism, data-driven journalism, database journalism, etc. Author Simon Rogers, data editor at "The Guardian," defines "data journalism as such a wide range now of styles – from visualisation to long form articles. The key thing they have in common is that they're based on numbers and statistics – and that they should aim to get a 'story' from that data"[3]. Previously, in 2010, Lorens described data journalism as articles in which data is viewed as the fundamental analysis of content. Interpreting data through visual simulations is the most important narrative of an article [4]. As can be seen, data journalism focuses on data. Data is the source of information from which stories are shared. Findings, analysis, synthesis, and information are communicated to the public. They are no longer presented in the form of questions but are well backed up by data.

The question is what value data journalism will bring to survive and compete in today's new context

The explosion of the internet, big data and digital technology has facilitated data and information sharing. However, the authenticity of such data and information is at a different level. Unreliable data can cause public confusion and disorientation. The general public is not all trained to understand data, filter it or at least know what's important in a sea of shared data everyday. It is not prepared to discern what's remarkable or what trends are going on, from a very big data source. In the context of the digital age and big data, data journalism can act as a bridge between data sources and the public, turning complex data sets into readable stories with interesting new issues which are related to the public interest [5]. To attract public attention, especially to generate and influence public opinion, data journalism can look to topics and stories discovered from reliable, relevant data sources, related to the public interest, while contributing to increase the value and reliability of the press in a context where there is a flood of information and every citizen can be a citizen journalist. As the common public live in an information society with constantly rotating information – revolving matrices that make them easily overwhelmed and incapacitated – data journalism will assume a new social

role: making carefully curated and refined data available to the public. Then, the value of journalism is not always in the "fast and timely" reporting on issues and events, compelled to following the deadlines but is focused on analysis and content, connecting people with authorities who specialize in data disclosure. Data journalism can then create a new environment where the public can interact, even collaborate to exploit the possibilities that digital technology offers, and explore vast and endless databases together, bringing really valid, useful information to the community in real time on a daily basis[6].

Data journalism can become a bridge between the public, the community and authorities and social organizations as it is considered as a means to improve transparency in the media process as well as accountability of the authorities. It helps to direct public attention to authentic, evidence-based information, factual data, and also adds pressure on authorities to increase accountability in the face of evidence and actual data, with quantification of changes, progress, reforms and improvements. At the same time, it strengthens the supervisory function of the press. And so, data journalism not only performs the role of initiating issues, events, and phenomena of the public's interests or things that impact them, but it also promotes problem solving.

Data journalism training orientation and some data journalism training challenges

In recent years, data journalism training is a new direction introduced in a number of universities around the world, however, it is also facing certain challenges and controversies. Some researchers favor traditional journalism and are skeptical of data journalism. Their concern is mainly that the value of data journalism is not completely the same as traditional journalism that has existed for many years. It is a case in which the role of journalists changes. They not only transmit messages in a fast and timely manner, but they also need to read, interpret, analyze, and convey data that is easy to understand by the public. And so the priorities of journalistic values can change: fast, timely information is no longer the first priority in the context of data journalism. For data journalism, it is the accurately analyzed information, uncovered stories, valuable information, and effectively interpreted information that is the priority. Data journalists also need to learn many new skills and operations related to receiving, analyzing, presenting and transmitting data in a sea of information. According to the experts' assessment, in order to meet the above training needs of data journalism, training institutions need to prepare both resources and facilities in order to integrate journalism training as well as traditional data journalism in the curriculum[7]. Equipping strong facilities will make an important contribution to the effectiveness of data journalism training as it relates to data sources, data copyright and data accessibility. In addition, for data journalists to be able to promote their role and capacity, it is necessary to have a roadmap of integration and transformation because the editorial office needs both

journalists and data experts. Data professionals work full time or collaboratively, together with official data providers to make data mining possible and legal.

Conclusion

This article has analyzed the overall impact of the new context including the development of the internet, social networks, digital technology and big data in the changing trends of the press, the public and the mass media. In the face of changes and new characteristics of the public, there is an urgent need for the press and mass media to develop short-term as well as long-term development strategies to meet the new needs and characteristics of the public for consolidation of their position and sustainable development. One of the new developments that the article refers to is the development of data journalism. It raises the issue of data journalism training and the building of data journalism offices. These are very new issues in Vietnam which need continuous discussion with the participation of the many stakeholders, on which plans and strategies to develop data journalism in accordance within the new context and circumstances in Vietnam will be outlined.

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