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DIGITAL STORYTELLING IN JOURNALISM EDUCATION: CHALLENGES AND POSSIBLE TRAJECTORIES FOR DEVELOPING ECONOMIES

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Abstract: The pervasiveness of digital technologies is resulting in myriad problems that must be constantly dealt with in journalism education. Although the problems posed by digital storytelling in journalism have been recorded, there are no significant solutions sought for developing economies. The study aims to develop a model of training for digital storytelling in journalism applicable to developing economies and struggling higher education institutions A qualitative integrative literature review of journal articles was conducted to identify and synthesise recurrent themes indicating the nature of the challenges faced. Most reiterated are inadequate new media and visualisation skills among both students and faculty and limited research on the understanding of visual knowledge representations, challenges of upholding journalism ethics amid information saturation, failure to adapt curricula to the rapid change in digital spaces, and access. The model proposes using less expensive hardware tools available to students such as laptops, smartphones and freely available software to compose digital stories and edit the content to fit multiple channels. The model provides a guide for imparting basic digital storytelling skills in resource-constrained environments and adds to the body of knowledge in innovative digital storytelling in journalism. Importantly, the precipitous speed at which journalism is conducted and transformed requires innovative approaches to keep pace with the multimedia skills required.

Keywords: digital storytelling, digital technologies, multimedia, journalism education, new media literacy, innovation

The rise of digital storytelling in journalism

The pervasiveness of digital technologies has transformed journalism education into digital storytelling. According to Porter (2005), digital storytelling is the combination of "the ancient art of oral storytelling with a palette of technical tools to weave personal stories using digital images, graphics, music, and sound mixed with the author's own story voice". Different from traditionally linear narratives, digital storytelling shapes its power by "integrating digital technologies, thereby giving a deeper dimension and vivid colour to characters, situations, experiences and insights" (Wang and Zhang, 2010: 78). One of the leading authorities in digital journalism, Quinn (2009) highlights

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that the increasingly fragmented nature of audiences, demanding news to suit their gratifications has birthed a major change in technology that transmits information beyond geographic boundaries. However, Quinn (2009: 18) cautions, "Digital technologies make convergence possible but these tools cost money and take time to learn". Convergence is the production of multiple products for multiple platforms to reach a mass audience with interactive content (Quinn, 2009). The ideas of rapid speed, wide reach, the changing content format, and the surpassing of geographic boundaries in news dissemination are salient in the definition. Kolodzy (2012) suggests the use of mobile gadgets which could be seen to be cheaper and more available to journalism students, contrary to Quinn's caution about the high costs of digital multimedia production. Sidiropoulos et al. (2019) acknowledge the pervasiveness of mobile phones in technology-enhanced learning, but criticise them for poor quality and the consequent dissatisfaction among the professionals who use them for content creation. Despite this critique, mobile technology such as phones and tablets are the only cheaper alternative for digital resource-constrained Africa, and in journalism education schools where there is no conventional infrastructure for digital media production. There is a dearth of literature on the extent to which mobile technology has been used to teach digital storytelling for Journalism education in developing countries.

Journalists need to master digital storytelling skills because one crucial requirement indicated by Matsiola et al. (2022) is that the modern curriculum vitae of a journalist should include a portfolio of audiovisual productions. One problem identified by Ritzer and Jurgenson (2010: 13) in this digital era is the trend towards what he terms "amateur, unpaid, and abundant content generation within a system where scarcity and professional monopoly used to be the norm". This low quality could be a result of the pervasiveness of the media "prosumer", a term, coined by "futurologist" Alvin Toffller (1980), merging "producer" and "consumer", or "produser" (Wang, 2016), a hybrid of "producer" and "user" where media consumers can also produce content. Thus, professional journalism in the digital age implies the ability to be "an editor, a photographer, a videographer, a reporter, a layout designer and a writer all in one" (Kaul, 2013: 132). Journalists need in-depth training in digital storytelling to enable them to create content and publicize it in various formats as part of the "prosumer" audience. However, some challenges in imparting journalism skills need to be addressed contextually. The current study seeks to develop a training model for digital storytelling in resource-constrained environments.

Research objectives

The study sought to

i). Synthesise the significant problems hindering digital storytelling in journalism education.

ii). Develop a sustainable model that can be applied to teach digital storytelling in resource-constrained environments.

Materials and Methods

The researcher synthesised the problems encountered in imparting digital storytelling skills in journalism education to develop a sustainable conceptual model which suggests innovative and applicable digital storytelling strategies for developing economies. An integrative qualitative literature review was conducted. Sources were sought within a ten-year time frame from 2014 to 2023 to identify the latest developments and assess the problems faced during the rapid growth in digitalisation, therefore, the literature review was not exhaustive. The main problems in the findings were categorised according to the similarity of the challenges faced in different empirical studies. The literature review was purposive, based on the availability of relevant articles documenting some problems encountered in implementing digital storytelling in journalism education. The dominance of themes emanating from the problems in the articles reviewed determined validity. A model of imparting digital storytelling skills was developed from the emerging descriptive themes.

Results and Discussion

The discussion of findings is used to develop a conceptual model of applying digital storytelling in teaching journalism as well as to point out areas for future research. Empirical studies were reviewed to determine dominant themes revealing problems encountered when applying digital storytelling in journalism education.

The difficulty of closing multiple divides of access in journalism education

Multiple divides hindering digital storytelling in journalism have been documented, and developing countries, particularly Africa, are the hardest hit. South Africa is used as an example in the current study. Therefore, it is imperative to conceptualise models of applying digital storytelling in resource-constrained environments to align with shifting digital spaces. Mobile technologies have been hailed as the most accessible tools that can be utilised for digital storytelling. Mobile Economy Sub-Saharan Africa (2020) acknowledges the rise of smartphone adoption in Africa, "reaching 50% of total connections in 2020, with an estimated rise in the number of smartphone connections in Sub-Saharan Africa to 678 million by the end of 2025, an adoption rate of 65%". However, in South Africa, for example, there are multiple divides in the social strata, such as "poverty, status, caste, class and inequality" (Journell, 2007) that make it difficult to teach journalism. These divides are exacerbated by the unavailability of electricity as the main source of energy, and data costs to conduct digital journalism. Despite improved access to mobile gadgets in Africa, energy challenges and data costs continue to hinder digital storytelling. This makes global inclusion difficult when compared to the

developed economies where digital storytelling is being utilised to improve communication using data journalism. A concern raised by Mutsvairo (2019) is that "big volumes of data, visuals and infographics seem to have emerged as the newest agents of Western-funded online activism" and this global unidirectional flow could be contributing to a lack of originality in African journalism.

Elsewhere, in Asia, Somooro et al. (2020) examined Pakistani Higher Education Faculty's motivational, physical, skills, and user access to ICT. The findings showed that physical access to ICT is poor, suggesting they do not have access to adequate ICT infrastructure. There were statistically significant differences in faculty access to ICT with respect to their personal and positional categories – age, gender, and type of university and the overall ICT access of the faculty of public sector universities was lower than that of faculty from private universities (Somooro et al. 2020). These findings correspond with those in South Africa, testifying that despite media development, De Beer et al. (2017); Botma (2011), there is still inadequate infrastructure and resources for university departments to prepare journalists for digital journalism. However, the physical access challenges have to a certain extent been curbed in the COVID-19 era where students had to adapt fully to using smartphones, I-pads, advanced laptops and computer software for lectures to proceed remotely as "regulations prohibited mass gatherings like face-to-face learning" (Motsaathebe, 2021). Therefore, digital journalism education can be offered using mobile gadgets that are easier available to students. Governments and higher education institutions in developing economies are thus implored to prioritise digital infrastructure.

Inadequate media literacy skills for multimedia storytelling in journalism

Incorporating media literacy skills in journalism courses has become complicated due to the rapid transformation in digital spaces. In South Africa, many students entering universities do not have new media literacy knowledge due to inadequate secondary school training, often compelling educators to "waive innovative, hands-on teaching and focus instead on new media literacy" (De Beer et al., 2017). Some of the complications include the difficulty of being analytical to discern inaccuracies such as "misinformation, disinformation, and malformation" (Drake, 2017) that have become prevalent with the pervasiveness of digital and social media.

Findings of a study by Kuan (2019), that sought to provide "theoretical and elaborative discussion on among other objectives, new conceptualized definitions and meanings of appropriating digital-storytelling tasks and identifying problems in knowledge representations (creator's input) and interpretation (audience perception) modes", indicate a lack of new media studies that explore the mindset of human activities as they consume digital stories Strategies within audience studies such as audience feedback, available in the current era of digital storytelling should be optimised to align

messages with audience interpretations and efforts should be made to categorise fragmented audiences as much as possible. Learning visualisation skills could assist with defining meaning in story creation.

Data visualisation emerged in journalism because of big data sets using visualisation and narrative techniques to convey complex information and the rise of "prosumer-based media" (Sewchurran and Hofmeyr, 2020). Though not new, the contemporary form of visualisation involves "augmented reality presentations which are based on big data sets" (Roels et al., 2017). Data visualisation is considered unsuccessful if it fails to engage, entertain and retain audiences (Roels et al., 2017), who only skim and scan through information. Contemporary visual communication entails "signs, images, typography, infographics; and visual perception, including illustrations photos, infographics such as graphs, charts, diagrams; multimedia content such as videos, clips, installations, flash animation, slide shows, flash presentations; and modern visual content, like memes and selfies" (Muratova et al., 2019). Data visualisation in South Africa has developed mostly in basic formats of "texts and photographs which are static and linear, with news being taken from traditional formats and pasted into digital formats without any significant augmentation" (Blewett, 2015). This results from an inadequate understanding of visual knowledge production, and it poses problems for digital storytelling in journalism.

Khotari and Hickerson (2020) conducted a pilot study to explore how journalism instructors are preparing future journalists for advances in automated journalism. They sent individual emails to some journalism faculty around the world using peer-referral and online listings. Their findings reported a shortage of faculty who can teach computational journalism courses that require some training in information science as it is an emerging field. Khoatari and Hickerson (2020) recommend that journalism instructors should partner with news organisations to keep up with industry changes. Based on the argument that digital journalism is less expensive to produce than network television (Orgeret, 2017), it should be possible to impart digital journalism skills using mobile gadgets like cellular phones. However, the noted lack of skills in the faculty implies that training must start at the instructor level. Journalism faculty should also prioritise multi-disciplinary collaborations to enhance digital storytelling training.

The challenge of adapting the journalism education curriculum in the digital era

Concerning curricula adaptation, one problem that remains unaddressed is the higher learning institutions' slow rate of adapting suitable curricula, affecting journalism education, and limiting the rate of innovation and future journalists' capacity to deliver data visualisations (Sewchurran and Hofmeyr, 2020; Jiang and Rafeeq, 2019). According to Zhang (2022), an example is that "journalism

education change in China lags behind the development of the news communication industry as there are misunderstandings in the training objectives of talents and inadequate reform". Elsewhere, in Kosovo, Hoxha et al. (2017) indicate that the "curriculums of journalism education are struggling to adapt to needs and changes in accordance with the new political and technological demands because teaching plans must be accredited every three years and new subjects cannot be brought in without agreement by the Kosovo Accreditation Agency", and this is the case in most parts of the world. Accreditation bodies should engage with faculty to relax accreditation regulations and accommodate digital shifts.

The perpetual transformation of digitalisation has made the standardisation of journalism curricula difficult. Wotkyns III (2014) indicates that "Europeans teach convergent skills as an additional in their journalism departments rather than changing their programmes". Similarly, a study by Khotari and Hickerson (2020) reports that more curricula changes are at the individual than at the programme levels, which makes the "scalability and sustainability of such courses problematic". These findings relate to those by Powers and Incollingo (2016), citing that institutions and accreditation organisations set discipline-specific packages and restrictions which can further limit department or school-level changes to the curriculum. These limitations result in curriculums that are mainly focused on the theoretical aspect of journalism with less practical focus (Hoxha et al., 2017) as is the case in some developing countries. Related findings by Drake (2017) and Blom and Davenport (2012), in agreement with Zhang (2022) highlight not only the "lack of consensus among faculty about what the journalism programmes should be focusing on but also inadequate curricula innovation", and this portrays the exponential speed at which the digital media keeps changing. This implies more consultation between higher education institutions and the industry to align their objectives. However, while some universities have been slow to respond to the emerging trends, others have addressed the shift in the media industry with convergence (Frost, 2016; Folkerts, 2014) to impart the multiple skills required of a journalist.

Jiang and Rafeeq (2019) analysed journalism curricula in six universities in the United Arab Emirates (UAE), the United Kingdom and the United States of America to ascertain whether there is any regional difference between journalism curricula. All universities have a course in digital production, including data journalism, visualisation, online and converged news production and mobile application development. The University of Missouri's journalism school offers the most comprehensive journalism programmes that focus on digital and convergent media. There are several interest areas for specialisation, including "convergence photojournalism, convergence radio reporting and producing, convergence television reporting, data journalism, emerging media, multimedia producing, photojournalism, strategic communication, video storytelling and visual editing and

management" (Jiang and Rafeeq, 2019). However, Jiang and Rafeeq note that students "lacked awareness of the willingness to learn and talent in journalism in the sample". Jiang and Rafeeq suggest training programmes and workshops for faculty members and students to produce more qualified personnel and competent journalists. Jiang and Rafeeq (2019) further explored whether there is a disconnection between journalism education and journalism practice using the same universities given their long-established journalism tradition, media industry and journalism education and innovation, with the British and US universities being used as a benchmark for comparison with the journalism curricula at UAE universities. The findings agree with those of Mensing (2016: 132), indicating that "the biggest challenge for journalism educators is developing a strategy to respond to the disruptive changes universities and the news industry face" (Jiang and Rafeeq, 2019). One of the intervention measures could be to relax the accreditation rules so that the syllabus is revised accordingly.

Bucknell (2020) conducted a qualitative study to identify common digital journalism practices of United Kingdom news providers. The participating organisations were Vice (UK), BBC Yorkshire, Financial Times, Sky News, JPI Media (formerly Johnston Press), ITV News and Bauer Media. An observation shared by most interviewees was that a major challenge they face as digital journalism leaders is keeping up with the pace of change and this corresponds with the challenge of failing to remain relevant in a constantly changing environment as confirmed by (Zhang, 2022; Sewchurran and Hofmeyr, 2020; Kuan, 2019; Jiang and Rafeeq, 2019 and Mensing 2016). The respondents in Bucknell's study suggested that "they learn formats and genres, rather than specific processes, software and skills that they may never use or could acquire on the job. They instead highlighted the importance of being a willing learner who can master change" (Bucknell, 2020). Sharing ideas in areas of interest and innovation has been a major suggestion in Bucknell's study and yet the fact remains that the technical skills are required to master digital storytelling.

The dilemma of upholding Journalism ethics in the digital era

Information seeking in the new media poses challenges such as "the information-seeking process itself, the analysis, selection, and evaluation of the information found, and the appropriation, integration and organisation of information in a useful knowledge structure," and these challenges are associated with an ethical dimension (Da Mota/Matos, 2016). Journalism ethics is defined by Ward (2009) as "a species of applied media ethics that investigates the micro problems of what individual journalists should do in particular situations, and the macro problems of what news media should do, given their role in society". Ward (2009), reinforcing earlier research such as Reaves (1989), emphasises that ethical considerations have become a cause for concern in the era of digital journalism, for example, "when should journalists publish graphic or gruesome images? When do

published images constitute sensationalism or exploitation? When and how should images be altered?" The negatives can also be produced from an altered image to make proof that the photograph is real, and this raises the ethical question of the extent to which photo editors alter while still claiming to present a genuine image to readers (Tilak, 2020). The literature is scarce on ethics in digital journalism; therefore, future studies should tap into new challenges and how ethics can be upheld in this era of information saturation.

Digital storytelling poses challenges for maintaining verification standards and conveying authorship, including who or what should be responsible for errors in a news story due to automation through algorithms, bots, and the spread of fake news on social media (Khotari and Hickerson, 2020). Concerning fact-checking existing stories, "both students and faculty struggle to keep up with information saturation in the era of automation" (Khothari and Hickerson, 2020). There is an apparent dearth of literature portraying the challenges of digital journalism in Africa, despite it being the hardest hit by developmental challenges. A conceptual model of digital storytelling training in journalism education is developed as presented in Figure 1.

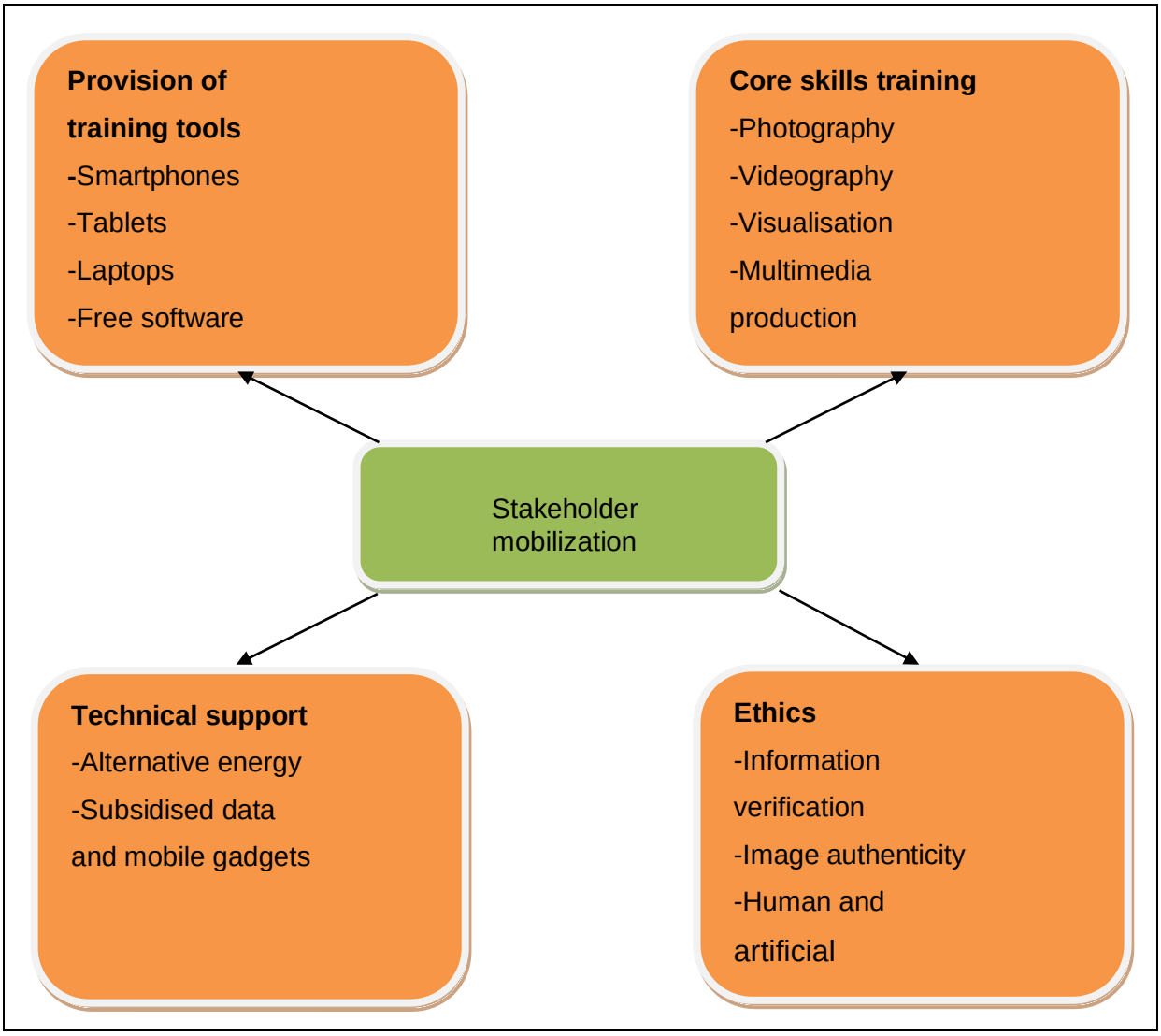

Figure 1: A conceptual model of digital storytelling in Journalism education

The model in Figure 1 is centred on the pooling of human resource expertise through collaboration across faculty and institutions as well as institutional-industrial partnerships to impart the core and basic skills required for digital storytelling such as writing, editing, photography, videography, page layout, and gathering and combining data into engaging visualisations, as well as formatting the story and editing content to fit the various media formats. Training tools should be provided and subsidised to students such as sustainable hardware, including mobile smartphones, tablets and laptops, freely available digital storytelling software programmes and technical support to impart these practical skills. Furthermore, alternative energy sources for connection such as solar should be considered where electricity challenges exist, for example, in some parts of Southern Africa. The ethical dimension is particularly crucial in an era of information saturation, therefore intensive training should be imparted to journalism students so that they uphold journalism ethics by mastering information verification using the available websites and strategies, deciphering image authenticity as well as human and artificial intelligence as these are the core of journalism. The model is adaptable to

developing economies and struggling institutions, particularly in Africa. Using the model, data visualisations like interactive charts, graphs, maps and animations, intended for simplifying and presenting complex data (Orgeret, 2017), can be produced using less expensive tools. Once they have mastered the basic digital storytelling skill and its dynamics, journalism students can actively participate in citizen journalism, which is prevalent, collecting, reporting, analysing and disseminating news and information for the contemporary "prosumer" audience. This measure will reduce the gap between training institutions and industry, considering that work-integrated learning is an emerging concept in some developing countries, particularly on the African continent.

Conclusion

Myriad digital storytelling challenges in journalism education have been documented in both developed and developing economies. Though the current literature was not exhaustive, major themes identified include visual illiteracy, curriculum alignment challenges, ethical concerns, and multiple divides. The model developed is applicable to developing economies lacking the resources for digital storytelling. Thus, the findings are significant insomuch as they add to the body of literature on how journalism education in resource-constrained parts of the world can continue to strive for existence amid the various challenges birthed by digitalisation. The study is relevant as solutions continue to be sought in journalism as in other sectors to align with the fourth and in some parts of the world, the fifth industrial revolution. The shifting digital spaces have seen journalism education curriculums, particularly in developing economies, struggle to adapt to the needs and changes of the new technological demands, considering the processes followed in changing curricula. Relaxation of curricula change restrictions and contextualization could ease curricula adaptation challenges. Future studies should explore the practical measures put by individual institutions to impart digital storytelling and visualisation skills to develop as much standardised as possible but applicable and sustainable models of journalism curriculum change. At policy levels, the code of journalism ethics should be reviewed continually in alignment with digitalisation changes. Cross-faculty collaborations and institutional-industrial partnerships should be prioritised in journalism education to keep pace with the dynamic digital spaces requiring continued training.

Declaration of conflict of interest statement

The author declares that there is no conflict of interest.

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