

## AUDIENCE ENGAGEMENT IN ONLINE JOURNALISM FOR QUALITY EDUCATION (SDG 4)

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### **Abstract**

The online journalism will play the role in realizing extensive, fair and quality education to all the audience as spelled by Sustainable Development Goal 4 (SDG 4). The present digital form of journalism is not only a channel of the information conveyance; it is a space of two-way learning and communication as well as the realm of the intellect and thought. The consumers and contributors of the knowledge to the societies have been transformed into active members of the knowledge society with the use of online news media particularly, their participatory nature in forms of interaction facilities such as comments, discussions, and through social media. In this paper, the meaning of the helpful knowledge related to journalistic material will be considered in order to achieve the objectives of knowing media literacy, lifelong learning and democratization of knowledge. At the same time, it acknowledges some of the challenges such as fake news, shallowness, and lack of equal access to digital media that could serve as a barrier to the educational purpose journalism. Incorporating media studies with educational and developmental interpretation, the study will feature the approaches, where online journalism may evolve as an efficient tool of SDG 4 in influence it will introduce, which will support the overall and pedagogical permissibility.

**Keywords:** Audience Engagement; Online Journalism; Media Literacy; Sustainable Development Goal 4 (Quality Education); Lifelong Learning

### **Introduction**

In such a way, online journalism deftness has emerged as being a critical aspect of the impact on knowledge societies in addition to this aspect, the achievement of Sustainable Development Goal 4 (SDG 4) which denotes inclusive, equitable, and high-quality education available to all, in this case. The present digital era has radically transformed the way people access and interact with news such that the traditional mode of reading and passivity prevails in the print media and interactions in the digital platforms are highly interactive. Journalism is no longer a simple relaying of facts, it has an active participation in building awareness, critical inquiry and the media literacy thereby contributing to the popularization of awareness to the outside of the normal classes. The variety of involvement in the audience, including remarks, discussions, sharing, and active involvement of viewers and readers supplements not only the coverage of a journalistic article but also enhances the educative value of the latter because it fosters the philosophical thinking and knowledge-creating activities. Nonetheless, although online journalism has a potential to democratize information, misinformation and minimal engagement based on the use of clickbait, and because of digital divides are some of the challenges posing a barrier to the realization of quality education by the online journalism. In

the current state of research, this study focuses on the topic of utilizing the audience participation on online journalism in order to distinguish the agenda of SDG 4 by ensuring access to lifelong learning and equipping the citizens with possibility of becoming critical. It examines how far interactive journalism goes in educating informed and responsible readers and viewers who can be actively involved in the practice of a democracy as well as social change. In addition, the paper contains the significance of digital journalism as a teaching tool in which the Illinois of the digital journalism measurements must plunge beyond the spheres of commercialization to that of the education whereby the dialogents of the transubstantiation of news into important learning histories obtain the corresponding positions. In such a manner it attracts theoretical approaches encompassing Uses and Gratifications Public Sphere and Constructivist Learning which echoes the way an audience relates to journalistic contents in order to gain a better understanding. Lastly, the introduction grounds this study on nexus of media, education and sustainable development which support its importance at the academic, the practical, and the social significance about making the online journalism as a contributory factor towards generating inclusive knowledge societies through quality education in order to enhance the participation of the people.

### **Scope of the Study**

This study mainly concerns the cross-disciplinary and international journalism, education and sustainable development. Although the parallels can be made with the contexts in a globalized context, special consideration shall be provided to the digital settings where journalism actively involves the learners to facilitate inclusive and equal learning methodology in line with Sustainable Development Goal 4 (Quality Education). The platforms under consideration are the mainstream news websites, the independent digital news journalism and the social media channels that help to establish communication, dialogue, and exchange of knowledge among the variety of audience. Through such spaces, the research looks into how the involvement of the audience determines not only the spread of information but also nurtures the aspect dimensions of education which include media literacy, social cognition and acquires of cognitive and communication skills on the part of the audience to support matters of lifelong learning. The area of scope is tailored to inform by hence bringing consumers of the media and the outputs of good education together.

### **Significance of the Study**

This paper is relevant as it adds to the intersection of becoming more evidenced by media studies and education research, and Sustainable Development. It will help to consider the possibility of using online journalism as a driver towards Sustainable Development Goal 4 (Quality Education). Alternatively, on the academic front, it broadens the discussion on questioning of audience engagement, as the connection of journalistic activity with the goals of media learning, media awareness and lifelong learning. On the policy front, the study will provide insights into how the governments, international agencies and regulation bodies can paradigm structures under which journalism will be adopted in boosting the achievement of the SDG 4 on meaningful establishment of citizenship and equitable access to knowledge base. In practice, the study has rich implications to journalists, educators, and policymakers through the identification of the methods to incorporate the values of education in news production and distribution. It focuses on participation journalism in knowledge democratizing and making the audience interaction a worthwhile learning experience thus closing the gap between media use and created empowerment in education.

### **Emergence of Online Journalism in the Digital Era**

The advent of digital age journalism on the internet stands out to be one of the profound changes in the history of mass communication. Due to the fast development of the internet and digital technologies, traditional print and broadcast journalism is currently being transformed into the dynamic and interactive platforms without any reference to geographical limits and

time frames. The concept of online journalism has transformed the manner in which news is created, shared and consumed with front runners of the web providing viewers with quick access of news via web, blogs, news portals, and even social media networks. Digital journalism is interactive unlike traditional journalism that based communication through one-way means where audiences could not engage with the news making process, share their comments and feelings since media dominated the news-making process. Democracy has also been implemented in this culture of participation not just on access to information but also the perception of power between journalist and audiences have been redefined towards an inclusionist space of a crowd or audience. More so, the digital era has facilitated employment of multimedia whereby informational writing, audios, videos, graphics and live feeds become entwined to assist in better visualization of information. The online journalism also possesses negatives that include misinformation, loss of trust and chance to take advantage of audience data despite being an improvement on the scale of quickness, availability as well as the degree of engagement. Nevertheless, this emergence has expanded the journalism list to further dispersion of information into critical consideration, debate and internationalization. The merging of technology and communication has made online journalism very essential tool of influencing how the modern society can be developed, which can influence the masses and indeed contributes towards the overall development process of the society such as education, civic participation and empowerment of the society.

#### **Importance of Audience Engagement in Enhancing Educational Value of Journalism**

The educational quality of online journalism lies on the involvement of the audience; it changes the state of the news reception into the field of passivity and makes the audience respond, which may lead to the learning and critical thinking and well-informed action. Digital age has not only reformed journalism to no longer be a one-way affair where one receives information but it has also made the act of journalism a twofold communication process as the audience is also made co-producers of meaning. By not engaging the application of the provided functions such as comments, discussion forum, multi-media storytelling, and sharing content in social media, the reader can then be left to pose questions critically to the issues, criticize the narratives, and have a more insight into their social, political, and cultural contexts. The model is on the same place with Sustainable Development Goal 4 (Quality Education) which extends to lifelong learning and inclusive access to knowledge and the fact that the knowledge touches the one who needs it.

The reason behind this is that the audience who actively participates in the news they will become more media literate (e.g. by being able to make judgments about sources, identify fake news, reached evidence-based conclusions, etc). It is these practices that have put journalism even farther out of the classroom with a purpose of offering informal yet powerful platforms of civic education, and citizen discourse. Also, involvement encourages learning in groups whereby, various voices and vision will enhance the forums, foster inclusivity and globalization. Going deeper than the superficialities of such interactivity as likes and clicks, meaningful engagement empowers through resources of knowledge dissemination and acquisition of skills, as well as, makes people agentic players in democratic societies. In journalists and media organization, the underlying focus on the use of participation schemes to bring about superior education outcome e.g. explanation journalism, new-fangled reporting or fact-check joints, results in news being not the head of information but the enabling agent. This is the reason why it is necessary to use audience power in order to transform journalism and establish a connection between access to information and life-long learning and a progress to SGD 4 goals.

## **Connection between Journalism, Information Access, and Sustainable Development Goal 4 (Quality Education)**

An intersection between journalism, access to information, and Sustainable Development Goal 4 (Quality Education) could be said through the same aim of empowering people through possession of knowledge and awareness and a critical perception. Journalism is a very important tool in information dispersion, emergence of opinions, and the development of enlightenment societies, and SDG4 demands including and balancing opportunities to access to high quality education and equally, active learning across a lifetime. The internet era lessens geographical and social-economic borders and data are regarded as ready to be accessed instantaneously and it is more accessible to different audiences on an on-line journalistic basis. Access to credible and quality news stories are also effective sources of media literacy and development of civic awareness and equip individuals with analytical skills necessary to operate within multi-faceted international problems. The feminine role of journalism in corroborating the formal education system is these areas of the educational range including literacy, awareness and critical thinking that results in the democratization dilemmas of knowledge. Moreover, online journalism is participatory as its interactive features of discussing, fact checking, and presentation and communication through multimedia are components of the SDG 4 vision of developing lifelong learning in which a modern citizen can constantly review the evolving social, political, and cultural reality. However, the relationship also shows the importance of journalism with a sense of responsibility as the falsification of messages and the differences of the information in the digital form might become the barriers to the balanced exchange of knowledge. In synergizing integrity and inclusiveness, journalism gives more diffusion to the development of an informed citizenship and it assists the SDG 4 meet, and insuring access to information will be beneficial in empowering education to individuals and communities.

### **Literature Review**

Larrondo Ureta, A., et al (2022). The current paper deals with the integration of the vicinities of Sustainable Development Goals (SDGs) into the teaching of institutions of higher learning (in this instance, online journalism courses). Among new approaches that permit developing transversal competencies, the authors mention such strategies as critical thinking, teamwork, and ethic awareness that play an essential role in attaining sustainable development. By providing organisational measures of SDGs within curriculum content units, institutional theorists are able, besides facilitating impartation of technical skills to students, to give it additional capacity to bear greater tolerance in terms of producing effective communication and action agents capable of withstanding globalisation forces. The article notes the idea of experiential learning, which entails working and engaging in the real-life sustainability issue, with help of the digital journalism projects, and consequently, acquire professional and duties of a citizen. Interestingly, the analysis indicates that journalism education, in line with SDGs, was used in the formation of a comprehensive learning process outside the classroom teaching that assists the former to be able to judge information critically, initiate inclusive discussions, and raise the knowledge society. All in all, this paper highlights the reality that there is the necessity that the Journalism training procedure to be aligned in sustainability ideas in such a way that future journalists have the promise to offer any contributions to the world, in the realms of education and growth.

Kumar, A. (2024). In this analysis one can observe the significance of the media (including online journalism) to raise the awareness concerning sustainability issues, shaping the views of the masses and developing a behavioral change that would facilitate the global development agenda. It is also conscious of challenges such as pressure of commercialization, misinformation as well as hardship in sustaining the credibility over an actual competitive digital environment. The opportunities in this paper are determined based on the best way the

media industry could help ensure sustainability as a result of adopting ethical behavior, transparency improvement, and SDGs integration into editorial youth policies. In addition, Kumar urges policy makers, teachers and journalists to come up with collaborative initiatives directed at the media content to educate, empower and also inform the audience. The article concludes by identifying the media as a driver and stakeholder in the realization of sustainable development, which supports its power as an implementation tool of SDG 4 in the achievement of training, proper, and beneficial communication.

Banda, F. U. (2015). The project presents new course syllabi that will include the aspects of sustainability, ethics, and social responsibility in the training of journalism. Nevertheless, Banda burns further on conventional journalism education which has given scant attention to broader developmental issues and had more to do, as to teaching students technical abilities, not one which could render students equipped reporters of complex socio-economic and environmental encompasses. Through the introduction of sustainability in the teaching contents, the syllabi focus on ending up with journalist whose frailties are not limited to being fine communication practitioners, but drivers of change who understand how to invoke the idea of informed citizenry and foster a progressive learning field. Pedagogical innovation is also highlighted in the publication, whereby it promotes experience and cross-discipline in developing journalism students into acquiring perspectives of sustainability in many aspects. In general, the works of Banda are considered to be foundational in terms of relating journalism teaching to sustainable development where curricula reform is crucial towards aligning media practices with SDG 4 and other global goals.

Sălcudean, M., et al (2023). This paper focuses on the growing inclusion of principles of sustainable development in the media, journalism and communication courses in European universities. The contributors access designs of the curriculum, instructional methodologies and institutional endeavors in a bid to align the more disciplines of higher education study by communication. They conclude that the inclusion of SDGs in the education programs has not just been carried along to advance the education of journalism, but the creation of students that will then act as communicators serving a social purpose. The study refers to the best practices, such as the use of project-based learning, interdisciplinary teams, and integration of such issues as the need to communicate climate change and ethical reporting. Accompanied by this, the authors underline that it is necessary to equip students with transversal skills comprising of adaptability, digital literacy and critical thinking, which are important in the resolution of global sustainability challenges. Along with the communicational studies and sustainable development, the paper has demonstrated the significance of the universities in undertaking the future individuals in the media sector that will assist in the formation of robust (informed, equitable and resilient) societies. Simply put, the research demonstrates the scholarly and social importance of encompassing the media education in SDG 4 and sustainability goals overall.

Genilo, J. W., & Intaratat, K. (2023). The chapter in the book SDG18 Communication for All dwells upon the position of higher education institutions in the communication of Sustainable Development Goals and suggested performance indicators to assess its efficiency. Genilo and Intarat state that universities as the institutions that produce knowledge must take an obligation to incorporate SDGs in their communications, educational and outreach strategies. The chapter presents models of the evaluation of the effectiveness of institutions in relaying SDGs to students, stakeholders, and the community at large and relates these activities to the quality of education and social impact. Discussing the issue of journalism and communication programs, the authors accentuate the necessity of the innovative models of teaching that contribute not only to informing the students about SDGs but also to providing them with participating in the active work on the projects that facilitate sustainability. The study helps institutions to quantify

their input to the achievement of SDGs, and more specifically SDG 4, by coming up with performance indicators.

**Research Problem**

Even though online journalism is already expanding, and it may delegate the mechanism of democratizing the information, the most urgent research issue is how the engagement with the audience could be leveraged based on the Sustainable Development Goal 4 (Quality Education). Though online journals have repackaged journalism into a new experience where individuals can comment, present and join in a discussion, they are incapable of riddling enough remarks and replies as to deliver the audience but a thorough and worthy experience that does not appear as a commercialized presentation, but rather a proficient outcome. This poses the question of whether or not journalism online is in fact promoting critical thinking and media literacy and life long learning or passive consumption. In addition, the potential challenges are the misinformation, the digital divide and the absence of equal access to the technological tools of participation that create challenges, making journalism an unreachable educative practice. The above research question therefore results in the discussion of how the audience participation in online journalism can be structured and enhanced to contribute substantially to quality education and general goals of SDG 4.

**Methodology**

The type of research design that was applied in the given research was a mixed-methods study, which investigated the subject of audience engagement in online journalism and the relevance of the same in boosting the Sustainable Development Goal 4 (Quality Education). In order to achieve the quantitative data of establishment patterns of involvement using the various mediums of online journalism 500 responses were procured in the survey of various demographic profilers of the focused respondents that included, news websites, social media platforms and digital journalism ventures, and independent blogs. The survey established the rate of attending, and the type of interaction and the perceived results of media literacy due to education that involved media literacy awareness and skills. The conclusions of such answers were further corroborated by the qualitative factor that was obtained through the content analysis of the selected online news media, encompassing the information regarding the details of the tools of communication (how the comment boxes are oriented, how the multimedia works, and what are the components of fact-check-separated-collaboration). This mixed method ensured breadth and depth of the mixed method that led to possibility of a statistical analysis of the subject and elucidation of the situation. The analysis of survey results was performed using thematic code, and thematic code played an important role in acquiring qualitative insights; however, descriptive and inferential statistical tools were used to perform the analysis of the survey data. This approachology facilitated thorough comprehensibility of how the connection with the audiences improves or reduces the educational worth of journalism and also concluded the obstacles, including fake information, lack of technology, and commercialization, affecting the SDG 4 realization.

**Result and Discussion**

**Table 1: Audience Engagement Levels by Platform (N = 500 respondents)**

Platform Type	High Engagement (%)	Moderate Engagement (%)	Low Engagement (%)
News Websites	38%	42%	20%
Social Media Platforms	65%	25%	10%
Digital Journalism Projects	50%	36%	14%
Independent Blogs	28%	40%	32%

In Table 1, the results indicate the degree of audience relations differs across the online journalism platforms. They all evolved into social media platforms where the most interesting ones were revealed to have a high engagement rate as mentioned by 65% of the people who said that they were highly engaged because social media sites are interactive platforms and like, share and discussions are common. The reader engagement rate in digital journalism projects also was high (50% high) indicating that innovative, interactive forms of the works (multimedia stories and live questions and answers) are effective in engaging the audience. Moderate engagement was noted in news websites, those that most patients, 42 percent declared to fall in this category as it might be believed that the tools of presentation available on these sites are more conservative, given that some social media offer these interactive features in their presentation. Independent blogs, however, were the lowest ones in terms of high engagement rate (28), had the highest one (32), which is best interpreted by the fact that, although they provide niche angles, they may not be popular and the aspect of interaction as mainstream online media. These distinctions portray the concept that platform planning and interactivity can and involve audiences in different forms which are too significant.

**Table 2: Types of Engagement and Educational Outcomes**

Engagement Type	Frequency (%)	Strong Educational Impact (%)	Moderate Impact (%)	Minimal Impact (%)
Surface (Likes/Shares)	70%	15%	40%	45%
Deep (Comments/Discussions)	55%	60%	30%	10%
Collaborative (Fact-checking, Co-creation)	30%	75%	20%	5%
Multimedia Interaction	45%	50%	35%	15%

Table 2 looks at this correlation between the type of audience response and their educational potential and it reveals that all lifting of the two kinds of responses do not result in the same outcomes in the final results of the learning. The most common one is the frequency of interaction of surface level, i.e. likes and shares, (70%), and only 15 percent portrays strong contributions to learning, and 45 percent portrays weak outputs. On the other hand, the deep observation through the application of remarks and discussions (uncommon 55 per cent), however, they were very educationally useful (60 per cent): half of them were an extremely strong influence on critical thinking and media literacy. The behavior reported by 30 percent of the naturally termed mutual acts of engagement, such as fact-checking and co-creation were reported to affect the learning outcomes indicator the most, with 75 percent having a great influence on it. Multimedia interaction was also used by 45% of the respondent, and it facilitated the level of comprehension, where 50% had a high level of educational benefits. All in all the table highlights how more intense, participatory and collaborative forms of interaction are much more effective in ensuring meaningful education than the shallow capture of interactions.

**Table 3: Barriers Affecting Educational Value in Online Journalism**

Barrier	Respondents Reporting (%)	Impact on Engagement (Mean/10)	Impact on Learning Outcomes (%)
Digital Divide	46%	4.8	52% negative impact
Misinformation	63%	5.2	60% negative impact
Commercialization (Clickbait)	58%	4.1	48% negative impact

Lack of Digital Literacy	41%	3.9	55% negative impact
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Table 3 has illuminated the main obstacles that restrained the learning worth of online journalism. Misinformation was found to be the most critical issue and half of the participants reported its existence and was contributing negatively to outcomes of learning by 60 percent indicating the effects of false information against critical awareness. The use of clickbait and such commercialization ensued at a significant proportion with banks of 58% of the respondents and lowering the level of trust and educational value (relatively low engagement score of 4.1/10). Respondents expressed that 46 per cent of them reported that there exists the digital divide whereby 52 per cent expressed its negative impact on learning outcomes hence indicating that unfair distribution of access to the internet still deprives the marginalized communities of reaping the full benefits of the digital version of the press. It is also a significant issue when it comes to digital illiteracy as 4110 of the respondents reported experiencing a meaningful engagement problem that negatively affected the learning process by 55 percent. All these challenges in combination shed light on the institutional challenges which must be addressed once online journalism becomes a potentially valuable tool of advancing SDG 4.

### Conclusion

The literature review that was interested in finding the correlations between audience engagement in online journalism and its connection towards the Sustainable Development Goal 4(Quality Education) has demonstrated that online journalism involvement is far more than mere informational provide, meaning that it is a significant tool in educating properly engaged audiences. Thanks to the findings, it is highlighted that even less effective types of communication such as likes and shares that are often utilized do not lead to learning as some more intensive types the comments, discussions and collaborative factbombing, culminating in development of critical thinking, media literacy and lifelong learning does, virtually being in accordance with the premise of SDG 4. Interactive journalism designs and such forms as social media are revealed to be more participatory though issues related to misinformation, generating a sickly level of participation through clickbait, digital illiteracy, and the digital divide continues to restrict educational possibilities of journalism, particularly to the marginalized. These challenges are making it compulsory to seek solutions that will result in greater inclusivity, training regarding digital literacy and adhering to ethics when conducting journalism in order to make journalism as impactful as possible as an empowerment tool.

The paper further contributes that application of participatory apparatus and spirit of education in the news production is what propels journalism to be relevant as a carrier of information and intuitively institutive learning environment. The study underlines the importance of collaboration to policymakers, educators, and journalists in terms of the necessity to assure that journalism is proactive in ensuring that people achieve SDG 4 by intensifying the divide between accessibility to information and of beneficial education outcomes. In conclusion, it can be said that online journalism has got potential of revolutionizing towards production of good education, and that which can be attained with respect to that could only be attained where it has the inclusive access, accountable, and conscious efforts of targeting the general intent of producing knowledge based, equitable and sustainable societies.

### References

1. Lu, J., & Amponstira, F. (2020). The effect of perceived environment restorative qualities on Chinese visitors' satisfaction in rural destination. *Management Science Letters*, 10(11)
2. Bhandari, P., Sigdel, B., Photchanachan, S., Uppapong, K., & Bhattarai, A. (2023). Revamp of Tourism Industry in Nepal. *JWEE*, 1–2, 89–109.

3. Phromphithakkul, W. (2023). Causal factors influencing visionary leadership of small and medium business entrepreneurs (SMEs) in Pathum Thani Province. *Kurdish*, 11(2)
4. Asokan Vasudevan, Semila Fernandes, Rajesh Panda, Pooja Gupta, Mallika Srivastava, Dheetawat Nukulij, Tania Adialita. Adoption of online degree programs in higher education in India: An exploratory study based on stakeholder perception and proposed policy measures. (2024). *Journal of Infrastructure, Policy and Development*. 8(9), 1-23.
5. Liu D., Xie S., Jing J., Niyomsilp E., Xie L., Nie X. & Liang Y. (2024). The effect of perceived organizational support and ego-resilience on the relationship between occupational stressors and compassion fatigue in COVID-19 frontline nurses: a cross-sectional study in Sichuan, China. *BMC nursing*. 23(1), 817. (1-12).
6. Killian, S., Lannon, J., Murray, L., Avram, G., Giralt, M., & O'Riordan, S. (2019). Social media for social good: student engagement for the SDGs. *The International Journal of Management Education*, 17(3), 100307.
7. Bhattacharya, D., Khan, T. I., & Sabbih, M. A. (2020). Role of Media in Delivering the SDG's: A Mapping Exercise on Bangladesh.
8. Oueiss, E. A., & El-Khoury, J. R. (2023). Media strategies for promoting sustainable development goals. *Arab Media & Society*, 34, 1-20.
9. Yusha'u, M. J. (2021). *The Palgrave handbook of international communication and sustainable development* (Vol. 6). M. J. Yusha'u, & J. Servaes (Eds.). London: Palgrave Macmillan.
10. Janoušková, S., Hák, T., Nečas, V., & Moldan, B. (2019). Sustainable development—A poorly communicated concept by mass media. Another challenge for SDGs?. *Sustainability*, 11(11), 3181.
11. Rad, D., Redeş, A., Roman, A., Ignat, S., Lile, R., Demeter, E., ... & Rad, G. (2022). Pathways to inclusive and equitable quality early childhood education for achieving SDG4 goal—a scoping review. *Frontiers in psychology*, 13, 955833.
12. Mukti, O. F. W., & Putri, N. K. (2021). Social media analytics: Instagram utilization for delivering health education messages to young adult in Indonesia. *Jurnal Promkes Indonesian J. Health Promot. Health Educ*, 9(1), 35-43.
13. Abdul Aziz, N. A., Mohd Ariffin, N. F., Ismail, N. A., & Alias, A. (2023). Community participation in the importance of living heritage conservation and its relationships with the community-based education model towards creating a sustainable community in Melaka UNESCO world heritage site. *Sustainability*, 15(3), 1935.
14. Makinde, S. O., Ajani, Y. A., & Abdulrahman, M. R. (2024). Smart learning as transformative impact of technology: A paradigm for accomplishing sustainable development goals (SDGs) in education. *Indonesian Journal of Educational Research and Technology*, 4(3), 213-224.
15. Selwyn, N. (2024). Digital degrowth: Toward radically sustainable education technology. *Learning, Media and Technology*, 49(2), 186-199.