

Teaching Open Source Intelligence (OSINT) Journalism: Strategies and Priorities

Communication & Journalism Research

9 (1) pp 61-73

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ISSN 2348 – 5663

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Abstract

The Internet and social media have given rise to open-source intelligence (OSINT) as a specialized field in journalism. OSINT involves gathering, analyzing, and sharing information from publicly available sources to uncover hidden insights (Best, 2007; Williams & Blum, 2018). Journalists practicing OSINT require specific skills such as advanced search techniques, digital forensics, data analysis, and verification. Job roles in this field include open-source analysts, intelligence analysts, and information researchers. However, the ever-evolving technology and the Internet present challenges for journalism professionals and educators in keeping pace with the demands of this emerging domain. Continuous learning and training are necessary to stay up to date with the latest developments and techniques. Educators face the additional challenge of striking a balance between teaching traditional journalism skills and addressing emerging areas like OSINT. Furthermore, the absence of standardized OSINT training and education poses difficulties for professionals seeking to acquire the required skills and for educators aiming to develop effective training programs. This article aims to propose strategies for integrating OSINT into media pedagogy, recognizing journalism as a process of verification.

Keywords: OSINT, Digital Forensics, Digital Journalism, Journalism Education

Introduction

The dynamic nature of technology and the Internet poses a significant challenge for educators to keep pace with the latest advancements and techniques in their field. By staying updated, educators can contribute to the establishment of new industry standards and practices that align with the evolving demands (Deuze, 2006). The absence of standardized OSINT training and education hinders professionals from acquiring the necessary skills for success in this field. However, this challenge presents an opportunity for educators to develop effective training programs that

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cater to the specific requirements of OSINT and other specialized areas in journalism. To materialize this strategy, a two-pronged approach is essential:

The first step involves examining existing open-source investigation practices globally to determine the current state of OSINT training and education in various countries and industries. This analysis helps identify best practices that can be adapted to local contexts, as well as potential challenges that need to be addressed. The second step entails evaluating the effectiveness of the pedagogic strategy. This assessment can be conducted through surveys, interviews, and evaluations of student work.

The advent of digital investigation has transformed the landscape of journalism by expanding the possibilities for inquiry and reshaping the nature of journalistic practice. Digital investigation, or open-source intelligence (OSINT), encompasses the retrieval, analysis, and verification of information from publicly accessible sources, including social media platforms, online databases, and other digital reservoirs (NATO, 2001).

This approach has introduced new avenues for investigative journalism, granting journalists access to extensive data reserves and enabling the disclosure of information that was previously arduous or unattainable. Moreover, digital investigation has necessitated the acquisition of fresh proficiencies in data analysis, coding, and critical data literacy, altering the skill set required of journalists.

Furthermore, digital investigation has disrupted conventional conceptions of journalistic objectivity and independence. The utilization of OSINT tools and techniques frequently entails collaboration with online communities and citizen journalists, eroding the distinction between professional and amateur journalism. Additionally, ethical concerns surrounding privacy and data protection have emerged alongside the adoption of digital investigation, compelling journalists to navigate intricate legal and ethical quandaries.

There is a notable lack of research in the current area of inquiry, giving rise to significant philosophical questions that have long been subject to debate. This scarcity of literature is not coincidental, but rather a consequence of various intricate factors. Firstly, the integration of open-source intelligence (OSINT) into media activities is still in its early stages. While pioneering companies like Bellingcat have made advancements in this domain, mainstream media outlets have yet to fully embrace this methodology. While some incorporate open sources for news production, they primarily focus on publicly available data. Additionally, the prevalent practice of identifying trends within numerical data contrasts with the adoption of contemporary OSINT methodologies, including image analysis, video

analysis, audio analysis, geolocation analysis, and chrono-location analysis, for news content preparation.

However, computer-based OSINT studies offer a wealth of insights on the subject, although they primarily focus on non-media aspects. Surprisingly, there is a dearth of research specifically addressing an OSINT-based journalism curriculum. In contrast, there have been notable research papers exploring the integration of OSINT into the curriculum of digital technology and criminology. These studies have been instrumental in stimulating discourse and generating innovative ideas for the development of an OSINT-based journalism curriculum.

Journalists have various methodologies at their disposal for conducting OSINT, including manual searching, automated searching, and social network analysis. Manual searching entails conducting keyword searches on search engines and social media platforms to find pertinent information. Journalists must exercise caution in selecting and evaluating sources to ensure the accuracy and reliability of the information.

Automated searching involves employing software tools and algorithms to extract substantial amounts of data from publicly available sources. Although more efficient than manual searching, this method necessitates meticulous filtering and analysis to ensure information accuracy (Stalder & Hirsh, 2002).

Social network analysis involves scrutinizing communication patterns and relationships among individuals and organizations on social media platforms to identify influential figures and information sources. This approach can aid in developing leads and pinpointing potential story sources. Regardless of the chosen methodology, verification is an essential component of OSINT in journalism. Journalists must carefully assess and corroborate information from multiple sources to ascertain its accuracy and reliability. OSINT should supplement traditional reporting methods rather than replace meticulous fact-checking and verification processes.

In recent times, the inclusion of open source intelligence within the digital journalism curriculum offered by esteemed institutions in the Western world has emerged as a topic of critical significance. The novelty of this development has sparked a longing for in-depth scholarly inquiry and rigorous investigation into its manifold implications. While the field awaits the emergence of more robust studies, a handful of case studies have been published which, regrettably, remain confined to the realm of general digital journalism. As such, these studies predominantly focus on the indispensable role of data journalism in this domain.

The present study deploys a novel approach that seeks to cultivate a curriculum design which is attuned to the emergent trends within the journalistic landscape, specifically the industry. With this goal in mind, the potentialities afforded by open-source intelligence (OSINT) hold significant promise for a fundamental reconsideration of the philosophical underpinnings of education within the field of journalism. The scientific and analytical framework that undergirds OSINT warrants educators and learners alike to elevate the principle of journalism as a verification process to new heights. Notably, the crux of OSINT's analysis is anchored in the most objective of data, be it visual, auditory, or otherwise. Pertinently, a theoretical exploration of how digital objectivity diverges from human objectivity acquires salience in this context.

Furthermore, it is imperative to examine how OSINT shapes the verification methodology that constitutes the bedrock of journalism. This approach has the potential to induce a radical shift in perspective. In this regard, studies that investigate the integration of data journalism within the curriculum acquire relevance vis-à-vis OSINT. While some of these studies are theoretical in nature, others delve into practical problems. Additionally, these studies explore the ethical considerations that inform the process of integrating data journalism into the curriculum.

However, the incorporation of OSINT into the curriculum poses significant challenges. The complexities inherent in the infusion of digital technology into a humanities discipline are manifold. Moreover, the technophobia exhibited by both teachers and students adds to the difficulty. While the difficulties that were characteristic of the early years of the digital era have receded, the gap is yet to be entirely bridged. The constant interplay between the digital world and human experience, coupled with the increasingly human face of technology, has contributed to the narrowing of this gap. Nonetheless, considerable work remains to be done.

In recent years, several learning approaches in journalism and media have been proposed and studied particularly focusing on imparting practical training in digital and non digital ecosystems (Sanjay B. P. (2012)). One approach involves dividing students into small groups and providing personalized attention, (Hewett, 2016), which has been shown to lead to improved learning outcomes. Another approach involves using simulations as a means of learning, which can increase students' confidence. Additionally, there have been studies on the effectiveness of case review methods in learning.

However, these approaches are limited in that they focus primarily on teaching technical skills, without considering the socially conscious aspect of journalism that has traditionally been emphasized. To truly educate future journalists, a

combination of technical skills and social awareness is necessary. Ultimately, journalism is a human analytical process, and this must be taken into account in the teaching methodology as well.

The conventional approach to education and profession dictates that curricula be designed to meet industry demands. However, this investigation presents a fresh perspective, as its novel methodology has not yet been applied to the realm of OSINT-based investigative journalism. In order to progress, this approach must address the limitations of traditional scientific inquiry. Crucially, it must transcend the limitations of industry practices and create a curriculum that is theoretically sound. A theoretical approach based in scientific principles will ensure that the curriculum is widely accepted and respected.

Striking a balance between academic instruction and practical training is crucial, as an excessive focus on academics can impede efficiency. Therefore, it is important to maintain a proactive equilibrium. In the past, academia has aided industry by developing new specializations, and once a sufficient level of understanding was reached, academic theories were pursued independently. The field of OSINT-based journalism will likely follow a similar trajectory.

Data-driven journalism is more familiar and well-publicized than digital intelligence. Digital intelligence journalism has many lessons to learn from pedagogical approach of data journalism.

To enhance this investigation, it would be valuable to examine current programs. For this study, some such programs were selected. They are self-directed course available as a Massive Open Online Course (MOOC). Their content of the syllabus provide insights into the utilization of Internet sources for investigative journalism. The syllabus outlines techniques for newsgathering, such as analyzing social media accounts, verifying website credibility, and sourcing images. A collection of digital tools, which are all free, is required for this process. Since these are a globally accessible courses, they also offer suggestions for accessing digital tools from any region.

OSINT as a Mindset

The syllabi of the courses not only cover practical aspects but also delve into theoretical information about open source intelligence. The lesson that stands out is that OSINT is not just a set of skills, but an attitude. This approach validates the traditional view that journalism is more than just a profession; it is an attitude. This attitude is centered around the inquisitive nature of journalists and their ability to formulate questions to find sources and answers to those questions.

In this context, general attitude of journalism students towards technology is worth discussing.

The aversion of students towards technology can present a significant challenge when it comes to integrating OSINT (Open Source Intelligence) into journalism pedagogy. While the use of OSINT can offer many benefits, such as improving the accuracy and depth of reporting and providing journalists with access to new sources of information, students who are not comfortable with technology may struggle to effectively utilize these tools.

The integration of OSINT (Open Source Intelligence) in journalism pedagogy can be impeded by students' reluctance towards technology. Despite the potential advantages of OSINT, such as improved reporting accuracy, enhanced depth of analysis, and access to novel information sources, students' lack of comfort with technology can hinder their ability to use these tools effectively.

The reluctance to use technology can result in students' reduced engagement with OSINT and hinder their acquisition of the necessary skills to use these tools effectively, thereby constraining their journalism education and career prospects

To overcome this challenge, journalism educators should adopt a proactive approach towards integrating OSINT into pedagogy, which includes providing additional training and support to help students build technical skills and integrating OSINT tools and techniques into the curriculum in a way that is accessible and engaging to students with varying technological backgrounds. By doing so, educators can equip students with the competencies and knowledge required to meet the demands of an ever-evolving media landscape and succeed in journalism.

Students who are resistant to using technology may be less likely to engage with OSINT and may struggle to develop the necessary skills to use these tools effectively. This can limit the potential impact of OSINT on their journalism education and career prospects.

To overcome this challenge, journalism educators may need to take a more proactive approach to integrating OSINT into their teaching methods. This may involve providing additional training and support to help students develop the necessary technical skills, as well as incorporating OSINT tools and techniques into the curriculum in a way that is engaging and accessible to students of all technological backgrounds. By doing so, educators can help to ensure that students are prepared to meet the demands of a rapidly evolving media landscape and are equipped with the skills and knowledge needed to succeed in the field of journalism.

Need for Looking at Industry Models

The course covers both practical and theoretical aspects of open source intelligence. One of the essential lessons is that OSINT is not just a skill set but an attitude. This is similar to the traditional notion that journalism is also an attitude that involves inquiry and the formulation of questions to obtain answers from various sources. The course also emphasizes the importance of precise categorization in digital investigation. This includes research questions, sub-questions, keywords for search, and sources with platform-based categorization such as social media, websites, and forums. Tools, codes, processes such as distillation, sorting, refining raw data, and analysis are also discussed. While data and trends are emphasized in data journalism, OSINT-based questions are more relevant, as the answers obtained become evidence.

Bellingcat (2018) is a digital intelligence initiative operating within the industry, which has made a significant amount of information about their work available on their industry website. The main objective of Bellingcat is to increase OSINT (Open Source Intelligence) literacy among a larger audience and encourage more people to consume their content. They regularly organize workshops as well, in an effort to educate people on their approach to digital intelligence.

As an action-oriented enterprise, Belling Cat has developed a pedagogy that goes beyond that of a typical educational institution. While they do not provide a specific syllabus, they have established a theoretical framework that is reflected in their approach. Their framework is more comprehensive than the MUQ course mentioned earlier. They have categorized their management methodology tools in the table below, which outlines their approach to digital intelligence. By utilizing this framework, Belling Cat aims to provide a more comprehensive understanding of OSINT and how it can be applied in various contexts.

The analysis of both content shows that the industry-based model offers a more detailed and comprehensive framework. Belling Cat continually updates its methodology to attract more consumers to their content and to support their global contributor circuit. This contributor base conducts its own research and shares information regularly. Writing a digital investigation story requires explaining the data collection process and constructing the news narrative, which is equally important.

The key takeaway is that industry-based syllabus building is more effective for developing open source intelligence curriculum. This methodology emphasizes up-to-date innovation, experimental approach, and empiricism. However, it's important to note that this approach may only be effective in the early stages. As the

curriculum progresses, a more serious theoretical framework is necessary, and independent cognitive models should be developed.

Enterprises such as Belling Cat do not consider the related specialties of digital intelligence, such as data journalism and fake news verification. A comprehensive curriculum should integrate these related disciplines to provide students with a holistic understanding of the field.

This approach reflects a commitment to the philosophical idea of pragmatism, which holds that knowledge is valuable to the extent that it is useful in practical applications. By aligning journalism pedagogy with the needs of the industry, educators are taking a pragmatic approach to education, ensuring that students are equipped with the skills and knowledge needed to succeed in the real world.

At the same time, this approach is rooted in a philosophical commitment to continuous learning and adaptation. By engaging in ongoing research and assessment, educators are demonstrating a willingness to learn from experience and to adapt their pedagogy in response to changing circumstances. This commitment to ongoing learning reflects a broader philosophical orientation towards empiricism, which emphasizes the importance of observation and evidence-based knowledge.

In this way, the alignment of journalism pedagogy with industry needs reflects a deep philosophical commitment to both practicality and learning, reflecting a belief in the value of education as a means of empowering individuals to succeed in the world

How to transact the syllabus to the students and in classrooms is the yet another question to be addressed. As digital segment is inevitable practical part of the enterprise, different methods are offered. It is essential to revisit the existing methods of case analysis and its efficacy in classroom transaction.

Case Study Analysis as an Approach

Case studies have become an increasingly significant tool in journalism education in the era (Treadwell et al., 2016). This is due to the fact that journalism education today must address a rapidly evolving media landscape in which traditional news models are being disrupted by digital technologies and the changing consumption habits of audiences.

Incorporating case studies in journalism education provides students with real-world examples of how news organizations (Davies K. & Cullen 2016). are adapting to these changes. This allows them to analyze the successes and failures of different approaches and gain a deeper understanding of the challenges facing the industry.

Case studies also provide students with a practical framework for applying theoretical concepts to real-world situations. By examining case studies, students can learn about the various journalistic practices, such as data journalism, digital investigation, and multimedia storytelling, and develop an understanding of how to apply them to their own work.

Furthermore, case studies can help to bridge the gap between theory and practice, allowing students to develop a more nuanced understanding of the complexities of the news industry. For instance, case studies on the use of social media in news reporting can highlight the ethical considerations involved in sourcing information from these platforms. Although case studies have numerous advantages as a pedagogical instrument, it is important for educators to be aware of certain limitations. The following are some limitations of case studies:

Due to the fact that case studies concentrate on a specific context or organization, it may be difficult to apply the results to other contexts or situations. This restricts their usefulness in establishing extensive theories or principles that can be applied more widely.

Case studies frequently include a degree of subjectivity and bias in the selection and interpretation of data. This may make it difficult to ensure that the findings are objective and dependable. In a case study, researchers have no control over the variables they are studying. This can make it difficult to draw causal conclusions or to establish a clear relationship between variables. Conducting a case study can be a time and resource-intensive process, requiring extensive research and analysis to gain a detailed understanding of the context and organization being studied. Case studies can be limited in scope, focusing on a specific aspect of a larger issue or phenomenon. This can make it difficult to develop a comprehensive understanding of the topic or to identify all relevant factors that may be influencing the situation.

Despite these limitations, case studies can be a valuable pedagogical tool, particularly when used in conjunction with other methods such as surveys, interviews, or experiments. By carefully considering the design and analysis of case studies, some of these limitations can be addressed and meaningful insights into the topics being studied can be obtained.

Case studies, for instance, encourage students to analyze real-world scenarios and apply critical thinking skills to evaluate evidence and identify potential sources of bias or inaccuracy. Simulations, on the other hand, provide a controlled environment where students can practice techniques and experiment with different investigative strategies without the risk of causing harm or violating privacy laws.

Hands-on exercises offer students practical experience in collecting and analyzing digital evidence, while guest speakers can provide valuable insights into the challenges and opportunities associated with investigative journalism in a digital age. Collaboration, in turn, emphasizes teamwork and communication skills, fostering a sense of community and shared purpose among students as they work together to tackle complex problems.

Project-based Pedagogy

Project-based pedagogy is a student-centered approach that emphasizes hands-on learning experiences. In the context of digital journalism, this approach involves the creation of multimedia content, such as videos, podcasts, and data visualizations, that can be shared and distributed online.(Coddington M. (2015).

One of the primary advantages of project-based pedagogy is that it promotes active learning. Students are encouraged to take an active role in the learning process and develop practical skills that are directly applicable to the field of journalism. Collaboration is another benefit of this approach, as it promotes teamwork and communication skills that are highly valued in the workplace. By engaging in real-world projects, students gain insights into the challenges and opportunities faced by digital journalists, which can enhance their understanding of the practicalities of working in the field. Finally, project-based learning provides students with the freedom to experiment with new ideas and approaches, which can help them develop their own unique voices as digital storytellers.

However, project-based pedagogy is not without its challenges. One of the main disadvantages is the limited structure of this approach. For some students who may prefer a more guided learning experience, this can be a challenge. Additionally, project-based learning can be time-consuming, both for students and educators, who must provide guidance and support throughout the process. Technical challenges can also arise, as project-based learning often involves the use of technology and multimedia tools, which can be intimidating for some students who may not be familiar with these tools or may struggle with technical issues. Lastly, assessing project-based learning can be challenging, as it may be difficult to evaluate students' work objectively and consistently.

Project-based pedagogy can be an effective approach to teaching digital journalism, particularly for students who are interested in developing practical skills and gaining real-world experience. However, educators must be aware of the challenges involved in implementing this approach, and must be prepared to provide the necessary guidance and support to ensure that students are able to succeed in this learning environment.

Creating Sandbox Environment

In the realm of Open Source Intelligence (OSINT), the creation of a sandbox environment represents a promising method for facilitating learning. Through this approach, a controlled and isolated space is established, allowing students to explore and experiment without the risk of adversely affecting actual systems. Such environments typically feature simulated real-world systems, including prominent social media platforms and search engines.

In these simulated environments, students can hone their OSINT skills, acquiring knowledge and analyzing data without the worry of transgressing ethical or legal boundaries. This approach is highly effective, providing a secure, structured setting for students to refine their abilities. However, the establishment of a sandbox environment for OSINT training is not without challenges. Realistic simulations that accurately reflect the systems students will face in their professional lives must be created, and the creation and maintenance of such environments can be a costly endeavor requiring specialized resources and expertise.

Despite these obstacles, the potential benefits of creating sandbox environments for OSINT training cannot be denied. Such settings offer a controlled space for practical learning, allowing students to develop their skills in a risk-free manner. To ensure that the resulting educational experiences are truly beneficial, however, it is crucial to design and maintain sandbox environments with the utmost care, accurately representing authentic scenarios while maintaining clear guidelines regarding ethical and legal boundaries to ensure that students acquire good practices and exhibit respect for data privacy and protection

Integration with Digital Forensics

The use of digital forensic investigation in journalism can potentially bring to light significant information that might otherwise be obscured or hidden. It can also serve as evidence to substantiate or challenge claims made by individuals or organizations, thereby bolstering the accuracy and credibility of journalistic reports.

Nevertheless, journalists must approach the use of digital forensic investigation with caution, as there exist ethical and legal consequences associated with the acquisition and use of digital evidence. Journalists must be cognizant of the potential for their investigations to result in harm or infringe upon individual privacy rights.

In conclusion, the use of digital forensic investigation in journalism is an invaluable tool for promoting accuracy and credibility in journalistic reporting. However, the practice demands thoughtful consideration and a keen awareness of ethical considerations to guarantee its positive impact on journalism.

The integration of OSINT and digital forensics represents a compelling and multifaceted field of inquiry that holds great promise for a range of domains. At its core, this integration is predicated on the notion that the combination of publicly available information and digital data can provide a more comprehensive and nuanced understanding of a given situation or individual.

Conclusion

The holistic nature of a pedagogical method that teaches OSINT in journalism is constituted by several key factors, including a balanced syllabus, industry model, case study method, creation of a sandbox environment, and integration of digital forensics. Each component serves as an essential building block that elevates the overall structure of this method towards excellence.

A balanced syllabus affords students a comprehensive and multifaceted education in OSINT in journalism. This approach offers a symbiotic mixture of theoretical concepts and practical application, thereby equipping the students with the critical thinking capacity and skills that would allow them to grapple with and triumph over real-world challenges. The industry model provides a robust framework for understanding the expectations and demands of the field of OSINT in journalism. Through this model, students can gain a comprehensive grasp of the varying types of information sources, how to assess their credibility, and the ethical and legal considerations that underlie the practice of OSINT.

The case study method is a powerful tool that enables students to apply their knowledge in real-world scenarios, facilitating a deeper comprehension of the intricacies of OSINT in journalism. Through this approach, students can learn to make informed and ethical decisions, even in complex and challenging situations. The creation of a sandbox environment provides a safe and controlled setting that allows students to refine their skills without fear of undue consequences. This practice encompasses using various OSINT tools and techniques to collect and analyze information, collaborating with peers, and receiving feedback from instructors. The integration of digital forensics represents a vital component of the pedagogical method of teaching OSINT in journalism. By incorporating this element, students can attain a deeper understanding of the intricacies involved in collecting and analyzing digital evidence, as well as in presenting the evidence in a lucid and compelling manner.

In summary, the combination of these factors confers a comprehensive and highly effective pedagogical method that instills students with the knowledge, skills, and ethical fortitude to succeed in the field of OSINT in journalism. Through this approach, students can develop into responsible and ethical journalists capable of positively impacting society.

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