Wartime and Online Education: A Bibliometric Analysis

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ABSTRACT

This study sheds light on the existing void regarding wartime and online education in Africa. Over three-quarters of African nations have experienced various forms of conflict over the past three decades, resulting in a significant loss of life and immense suffering for African citizens striving for education. The African continent has witnessed nearly 88% of conflict-related fatalities worldwide. The widespread destruction of schools and universities, from primary to higher education, has worsened the problem of limited technology resources. This lack of technology makes it even harder for educational institutions to function effectively. Recent insecurity poses a formidable challenge to many African higher education institutions, impeding efficient administration and management, disrupting academic calendars, claiming student lives, and damaging the critical infrastructure for teaching and learning. In addition, African higher education institutions still lag behind their counterparts on other continents in embracing digital transformation. Using the Scopus database, this study conducted a bibliometric analysis of publications from 2000 to 2024, focusing on wartime and online education. The gathered documents were meticulously analysed using visualisation tools like VOS Viewer. The findings highlight a significant research gap regarding the intersection of wartime conditions and online education in African institutions, as there are no publications on wartime and online learning from the African continent. The findings highlight that the publications are mainly from a Western perspective, marginalising African higher education institutions in the global knowledge production and dissemination landscape. The paper identifies promising areas for further research on improving education during African conflicts to guide future efforts.

KEYWORDS

Africa; bibliometric analysis; digital transformation; online education; wartime; organisation sustainability

INTRODUCTION

The use of information and communication technologies (ICT) since the 1990s has fueled the rise of online education in African universities. This growth coincides with a shift in many African countries towards more flexible higher education systems. These new policies allow for a mix of public and private institutions and various learning formats like distance programmes, evening classes, and summer courses. Before 1990, Africa had approximately 20 private higher education institutions. There was a dramatic increase in online learning in Africa. By 2007, the number of institutions offering it had more than doubled, and online courses accounted for a significant portion (24%) of student enrollment across the region (Varghese, 2009; Woldegiorgis & Doevenspeck, 2013). Notably, within five years (1990–1995), online education at institutions such as Makerere University in Uganda grew to constitute up to 30% of total enrolment, a remarkable increase from the previous 5%. Universities like the University of Cape Coast in Ghana and the Catholic University of Mozambique also saw significant online enrollment during this period, with online learners making up half of their student body (Siaciwena, 2000).

ICT has facilitated cross-border, long-distance, and online education in African education institutions. In the late 1990s, many African countries implemented ICT policies and digital strategies to enhance service delivery and increase productivity. The deregulation and liberalisation of the telecommunications sector in several African countries during this period have contributed to a noticeable improvement in the quality of ICT infrastructure across the continent (Woldegiorgis, 2022).

ICT has revolutionised African education by enabling cross-border learning, long-distance programmes, and online courses. This progress is linked to a surge in ICT-related policies and digital strategies implemented by many African countries in the late 1990s. These policies aimed to improve service delivery and productivity across various sectors, including education. Additionally, the deregulation of the telecommunications industry during this period significantly improved the quality of ICT infrastructure across the continent, further supporting the growth of ICT-based education (Woldegiorgis, 2022). However, despite these advancements, Africa still lags in Internet penetration rates compared to other regions globally. Despite having a population of 1.3 billion, representing 17.2% of the world's total, Africa faces a significant challenge with internet access. Only 6 million people on the continent have access to the internet. Consequently, Africa's internet penetration rate stands at a mere 47%, significantly lower than Asia's 60%, Europe's 87.2%, Latin America's 71.5%, and North America's 90.3% (Internet World Stats., 2020)

However, online education is not without its challenges. The transition to online education has encountered numerous hurdles in African education institutions. Many students who require additional assistance with self-directed learning may lack access to technology or reliable internet connectivity. African universities need to invest in training and support programmes to equip lecturers with the digital skills necessary for effective online teaching (Kuzhelev et al., 2023). Several roadblocks hinder the successful implementation of online

education in Africa. These challenges include weak ICT policies in education, a lack of skilled tech personnel, poor ICT infrastructure, limited internet affordability, difficulties in developing and accessing digital learning materials, and even resistance to technology among some educators (Barakabitze et al., 2019; Gunga & Ricketts, 2007; Mtebe & Raisamo, 2014). A key challenge lies in the preparedness of instructors for online teaching. Research by Mtebe and Raphael (2017) and Tulinayo et al. (2018) shows that many faculty members in African universities lack the necessary digital skills, and some are even resistant to adopting new technologies in their teaching.

Limited internet access, particularly in rural regions, presents another obstacle to African online education. Studies by Esteban-Navarro et al. (2020) and Ruiz-Martínez and Esparcia (2020) support this. Data reinforces this point: a significant gap exists between urban and rural internet access. In 2019, only 6.3% of rural African households had internet at home, compared to 28% in urban areas (International Telecommunication Union, 2020). This digital divide presents a considerable obstacle for students engaging in virtual learning environments from home. While the world embraces technology in education, many African universities are just starting their journey with digital solutions. This lack of infrastructure and preparedness adds complexity when transitioning to online learning platforms (Ndibalema, 2022).

Despite adopting ICT for online learning, African universities grapple with adapting their teaching methods (pedagogy) to these new digital platforms. Although transitioning traditional in-person classes to online platforms presents challenges in delivering and assessing courses, African universities have embraced Information and Communication Technologies (ICT) for online education since the late 1990s (Woldegiorgis, 2022). Improved ICT have boosted international collaboration in higher education and increased student mobility across borders and discussions about internationalisation. However, the sudden arrival of the COVID-19 pandemic exposed a lack of preparedness for online learning in many African universities. These institutions were caught off guard by the need to shift to online instruction rapidly. Many faculty members have not yet had the chance to fully develop the skills and knowledge needed to transition to online teaching. Educators need to become comfortable using online learning platforms to ensure a smooth shift and continued learning.

Online education offers a lifeline for universities during wartime. It allows continued learning despite disruptions, leverages existing digital technologies, and fosters valuable digital skills in students and faculty. However, successful online education requires targeted training programmes for educators and students. A significant challenge for African universities lies in the cost of acquiring and adapting existing technologies for their specific needs.

War in Africa

Over the past six centuries, Africa has been plagued by significant turmoil stemming from various sources, including ethnic conflicts, slave trade, European colonisation, struggles for independence, and subsequent post-independence disputes fuelled by factors such as ideological differences, tribal tensions, racism, and competition over resources. According to

Musisi and Kinyanda (2020), more than three-quarters of African nations have experienced warfare in the last three decades, resulting in profound human suffering and loss of life (Musisi, 2004, 2005). These conflicts have persistently erupted, leading to the displacement of millions who endure trauma, poverty, disease, hunger, and forced migration.

The 1970s and the 1980s were turbulent times in Africa, characterised by political upheaval and prolonged internal conflicts, many of which were influenced by the geopolitical dynamics of the Cold War. The period between the 1960s and 2000 saw a turbulent time in Africa, marked by a high frequency of attempted changes in leadership. There were 80 successful military coups, 108 failed attempts, and 130 reported plots for coups across the 48 independent African states. The 1980s accounted for 85% of these incidents (McGowan, 2003). Additionally, this period witnessed a significant exodus of African intellectuals from the continent, raising concerns about brain drains. A study by Teferra and Altbachl (2004) found that a significant portion, roughly one-third, of Africa's professional workforce left for developed countries during the 1980s. This emigration trend impacted various sectors, with education being a prime example. Woldegiorgis (2022) highlights a specific case: Sudan's universities lost 20% of their teaching staff in the early 1980s due to this outward migration.

In a 2003 paper titled "Who Killed Intellectualism in the Post-Colonial Era?", scholar Ali Mazrui argued that a significant decline in African intellectual thought occurred during the 1980s. He viewed the previous decades, the 1960s and 1970s, as a golden age for African intellectualism. Africa's higher education systems faced a critical period in the 1980s and early 1990s due to various social, economic, and political challenges. These included crumbling infrastructure, insufficient funding, poor quality facilities, questions about the educational content's relevance, a lack of qualified faculty, and a mass exodus of skilled professionals. The confluence of these challenges served to marginalise African higher education institutions within the global landscape of knowledge production and dissemination (Woldegiorgis, 2022).

In today's wars, civilian casualties often outnumber combatants, especially in African regions. Civilians are deliberately targeted by employing tactics such as recruiting child soldiers, genocide, using human shields, sexual violence, internal displacement, and forced migration. Modern warfare has shifted away from open battlefields and now targets civilian infrastructure in densely populated areas, including universities, religious sites, markets, and public spaces. Wars in Africa are fuelled by rigid ideologies and fundamental beliefs, rendering them difficult to resolve and impossible to win. Ideological and fundamentalist motives underpin these conflicts, making them deeply entrenched and difficult to resolve. Africa has seen a concerning trend: the application of military-style approaches in previously peaceful fields like science, medicine, space exploration, social media, and information technology, including drones and other sophisticated technologies (Musisi & Kinyanda, 2020).

The causes of modern conflicts in Africa are intricate and varied.

These include the resource and territorial disputes which form the basis for many civil wars and insurgencies, as seen in countries like Burkina Faso, Central African Republic, Ethiopia, Eritrea,

Nigeria, Uganda, South Sudan, Sudan, and Libya; the governance issues which Algeria and Egypt are prime examples of conflicts stemming from problems with leadership and government structures; the ideological extremism such as the fundamentalism, as witnessed in Mali, Somalia, and Sudan, can also fuel conflict; and the religious, racial, and ethnic tensions with historical grievances and divisions along religious, racial, and ethnic lines have contributed to violence in Burundi, Rwanda, and Kenya.

Human rights abuses, authoritarian regimes, and flawed elections further compound the situation. In some instances, leaders have resorted to manipulating constitutions to extend their terms in power, as seen in Gabon, the Democratic Republic of Congo, Kenya, Niger, and Uganda. Global forces also play a significant role in fuelling proxy wars by exploiting nationalism, ethnic conflicts, fundamentalism, international dominance, and resource control.

Global forces often align with local actors, contributing to "global" factors exacerbating conflict, including greed, corruption, and the arms trade, particularly the small arms trade (Tete, 2015). Africa bears the brunt of the world's deadly conflicts. A staggering 88% of conflict-related deaths occur in Africa, compared to just 9% in Asia and the Middle East, 2% in Europe, and a mere 1% in the Americas (Musisi & Kinyanda, 2020). War does not just cause physical destruction; it leaves deep scars. It can shatter people's sense of self, traditions, beliefs, languages, and even how they eat. In its place, war often tries to impose a new way of life. Societal infrastructure and systems, including governance, family structures, communities, economies, and the environment, are ravaged by warfare. War is a brutal tool of force used to control and manipulate populations. It aims to break people's will and impose new beliefs, sometimes resorting to torture to achieve obedience. In horrific acts, rape is used strategically as a weapon of war to try to change the very identity of a population group. Some conflicts escalate to genocide, as exemplified by events in Darfur and Rwanda. These traumatic experiences extend beyond normal human endurance, resulting in a myriad of post-traumatic sequelae observed across Africa, with some persisting across generations (Musisi & Kinyanda, 2020)

Africa's conflicts tragically impact civilians the most. According to studies by Kinyanda et al. (2010), Betancourt et al. (2009), and Okello et al. (2007), more than 70% of recent casualties in these conflicts have been civilians, not fighters. Women, children, and older adults constituted the majority of the population. The most affected are often the poor and uneducated, compounding tragedy. When talented and educated young people, especially men, leave their home countries in Africa due to conflict, it weakens the social fabric and essential skills needed for the continent's development. Communities endure heightened poverty as productivity declines and educational systems suffer from the destruction of African higher education institutions. Cultural, societal, and communal fabrics are torn apart, leading to widespread displacement and marginalisation with transgenerational consequences. The breakdown of law and order paves the way for militarism and political repression, exacerbating the suffering of the affected populations. Displacement triggers waves of refugees, internally displaced persons (IDPs), and asylum seekers, while the exodus of educated professionals

exacerbates brain drain and social capital flight (Amone-P'Olak, 2006; Kasozi, 2017). The toll of lives lost, property destruction, and citizens being rendered homeless is immense. Families are shattered as children are orphaned, facing bleak futures, and many women are left widowed as these repercussions reverberate through national development trajectories (Ogunode & Musa, 2020).

Wars introduced a new layer of insecurity, posing significant obstacles to African higher education institutions' effective administration and management. Many of these institutions have suffered disruptions to their academic programmes, resulting in the loss of students' and lecturers' lives and the destruction of vital infrastructure intended for teaching and learning (Ogunode & Musa, 2020). Educational facilities have borne the brunt of insecurity caused by warfare and experienced widespread damage and destruction. This insecurity has also hindered the proper deployment and administration of ICT resources within African education institutions. Abubakar (2016) noted that these facilities are often targeted and destroyed by militants during crises due to inadequate security measures in place. Obi (2015) underscores the significance of insecurity and terrorism as the major challenges numerous regional governments face.

Recent global crises have thrown a wrench into everyday life and education systems worldwide, from conflicts and natural disasters to pandemics. University closures and disrupted learning have become the norm during these upheavals. In response, distance learning has become a crucial alternative to traditional in-person education, offering a lifeline for continued learning in the face of disruption (Kuzhelev et al., 2023). In conflict zones, traditional educational systems are particularly vulnerable to severe disruptions, leading to interruptions in learning and a decline in education quality. African higher education institutions have suffered damage and destruction, hindering their students' ability to attend classes. Safety concerns for academic staff and students exacerbate attendance issues.

War's grip on a nation's economy creates a ripple effect, ultimately hindering education. Families burdened by poverty struggle to afford schooling, and children may be forced to work instead of attending classes. This results in a decline in both enrollment rates and student attendance. War often creates a shortage of qualified teachers and essential learning materials like textbooks and technology. These limitations make it difficult to deliver quality education in conflict zones. However, online education has emerged as a promising solution, offering a way to bypass these challenges and ensure continued learning. By harnessing the power of digital technologies and online platforms, students and lecturers can engage in the educational process remotely, irrespective of geographical limitations or security threats. Online education offers a double advantage for African universities that embrace digital tools in managing their academic programs. First, it ensures that learning can continue even during disruptions. Second, it expands access to educational opportunities for a wider range of students. Therefore, this study intends to shed light on the existing void regarding wartime and online education in African higher education institutions.

METHODOLOGY

Bibliometrics is a research technique used in comprehensive literature reviews to measure the impact and significance of scholarly publications through numerical analysis (Donthu et al., 2021; Kraus et al., 2022; Lim & Kumar, 2024; Mukherjee et al., 2022; Paul et al., 2021). Bibliometric analysis relies on numbers to study large sets of research publications. It uses techniques like citation analysis to track how often others reference these publications and also helps assess how productive researchers and institutions are and the impact of different research areas (Donthu et al., 2021). Performance analysis, a vital component of bibliometric analysis, scrutinises the contributions of various research entities within a specific field (Cobo et al., 2011; Ramos-Rodríguez & Ruíz-Navarro, 2004). Even in bibliometric studies that do not focus on creating maps of research connections, this kind of analysis using numbers is essential. It is a standard way to compare the performance of different researchers, universities, countries, and journals within a particular field. Unlike the background sections of research papers that primarily provide context, bibliometrics takes a more analytical approach, delving deeper to assess research trends. This performance analysis presents metrics, such as publications per country, citations per publication, publications per subject area, and publications per document type.

Bibliometrics is a powerful tool used for various research tasks. It includes identifying who researchers collaborate with, spotting new trends in research publications and journals, and understanding the intellectual landscape of a particular field (Donthu et al., 2021; Donthu et al., 2020; Verma & Gustafsson, 2020). The primary strength of bibliometric analysis is its extensive coverage and detailed examination. Bibliometrics is like a big data analysis tool for research publications. It uses technology to collect information from databases, then organises and analyses it using computer programmes (algorithms). It allows researchers to examine and present the data objectively. The significance of bibliometric analysis for this research stems from its ability to handle, organise, analyse, and report complex bibliometric data. These data encompass various attributes of publications, including country of publication, years of publication, document type, subject area, and keywords and occurrences. This comprehensive overview facilitates the identification of nuanced insights, knowledge gaps, implications, key trends, and future research directions.

The PRISMA flowchart in Figure 1 illustrates the clear and logical steps to ensure methodological rigour in this study. For this study, a four-step method was employed by Saif and Purbasha (2023) to collect data. The researchers follow a set process to analyse research on a topic, which includes finding relevant studies, choosing the most useful ones, extracting key information, and presenting the results. In this case, we searched comprehensively for published research papers on workplace cyberbullying. The Scopus database was initially selected for its extensive and multidisciplinary coverage during the literature exploration phase. Scopus is specifically tailored for bibliographic searches and citation analysis, effectively fulfilling

search-related tasks (Gaviria-Marin et al., 2019). According to Farooq (2024), Scopus covers a broader range of journals, and its citation analysis is more rapid, incorporating more articles.

Validity refers to the extent to which the analysis measures what it is intended to measure; thus, for this study, validity was achieved by including a comprehensive set of publications related to your research objective. Reliability refers to the consistency and stability of the results over time. This study used Scopus, a well-established and comprehensive database, to ensure reliability in bibliometric analysis. Using standardised methods for data extraction and analysis to document the search terms, filters, time frame, and any inclusion/exclusion criteria ensured the reliability of the data collected. Consequently, Scopus, a well-established database for research publications, served as the primary data source for this study used in bibliometric analysis. Scopus was utilised in this study to retrieve relevant metadata for research on wartime and online education. The Scopus database was compared for their use and relevance in the field of the data by comparing their use and relevance in the field, employing the terms "wartime," "wartime and education", and "wartime and online education" in the Scopus database.

Further, to collect the data, search filters were applied to specific criteria, encompassing subject area (wartime and online education), publication per country, publication per document type, publication per year, publication per year cites core, publication per source title, publication per keywords, occurrences, and source type. The Scopus database was used as the 'topic search option to retrieve the bibliographic information of articles published during wartime and online education. The search for studies was narrowed to publications between 2000 and 2024 to ensure we had substantial recent research, as bibliometrics works best when analysing large datasets. The search query focused on " wartime and online education" from 2000 to 2024 (although the earliest publication found was from 2009). Scopus initially screened 2140 articles with the "wartime". Upon further screening, narrowing it down to "wartime and online education", 90 documents were retrieved. After further screening focusing on "social sciences", 53 were deemed suitable for bibliometric analysis, while 37 were excluded, as shown in Figure 1. After gathering information about the research papers, we used software programs, Microsoft Excel and VOSviewer, to create visual maps showing connections between the studies. These maps helped us analyse the data and prepare our findings for presentation. The files were downloaded from the Scopus database separately as plain text and then combined and transformed so that Microsoft Excel could read them. Microsoft Excel was also used to count the data in publication and calculate the wartime and online education publication trends.

Figure 1.

Flow diagram of article selection and study methodology
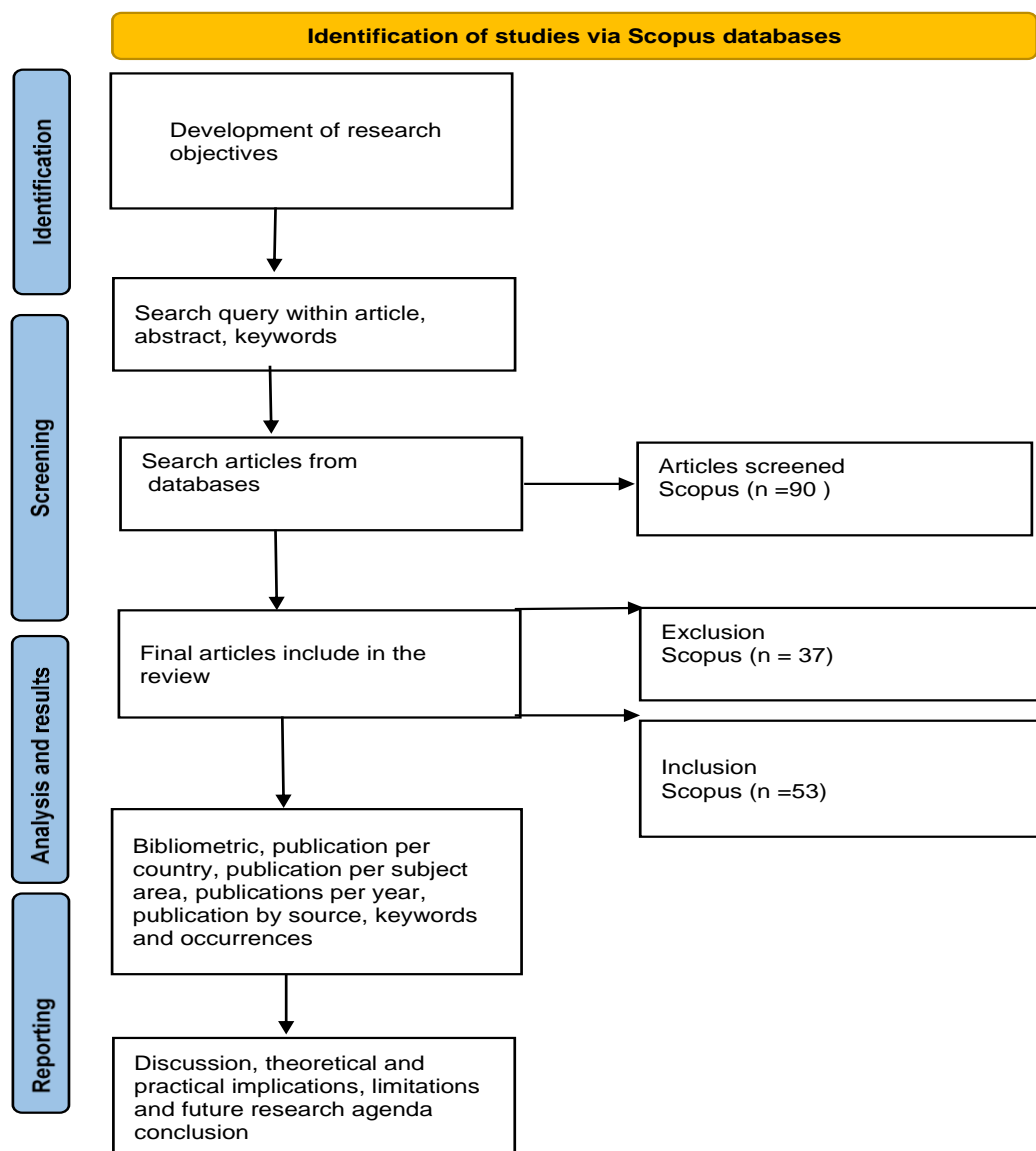

RESULTS/FINDINGS

Publications per country/territory

Scopus, a well-established database for research publications, served as the primary data source for this study used in bibliometric analysis. The search query focused on "wartime and online education " from 2000 to 2024. Initially, 90 documents were retrieved; after further selection, 53 were deemed suitable for bibliometric analysis. These documents originated from ten countries, as shown in Table 1. Figure 2 illustrates the top 10 countries with the most wartime and educational publications. The United States has 21 publications, marking the highest count by any country in the Scopus database. Ukraine had the second-highest number of publications, followed by the United Kingdom and France, which had two publications each. Australia, Austria, Belgium, Brazil, China, Italy, South Korea, and Spain each had one publication.

Interestingly, five publications were unidentified for any country/territory; upon further screening the publications on Scopus, online education was added to the search engine as war, education, and online education, as shown in Table 2. Figures 3 and 4 show that only five publications per country or territory were identified. Ukraine had the highest number of publications, followed by Austria and the United States, with one publication each.

Figure 2.

Publication per country/territory
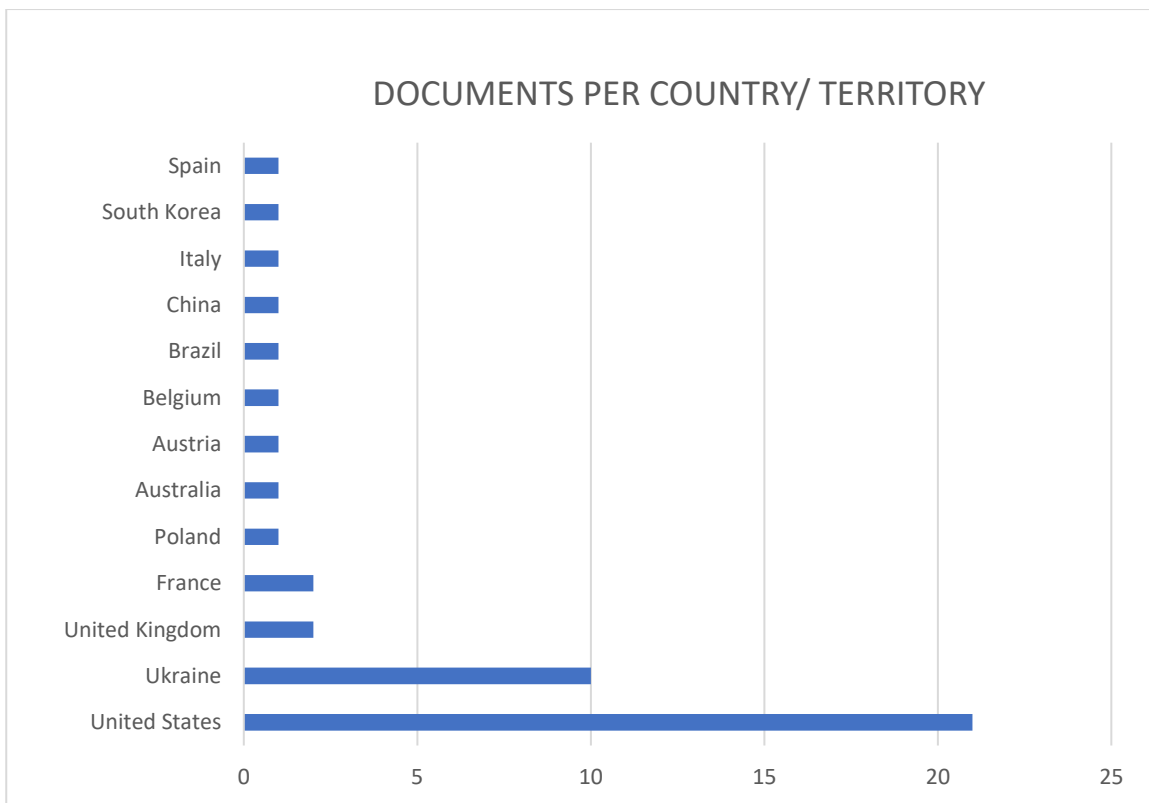
Table 1.

Publication per country/territory

COUNTRY/TERRITORY	NO. OF PUBLICATIONS
United States	21
Ukraine	10
United Kingdom	2
France	2
Poland	1
Australia	1
Austria	1
Belgium	1
Brazil	1
China	1
Italy	1
South Korea	1
Spain	1
Undefined	5

Figure 3.

Publication per country/territory
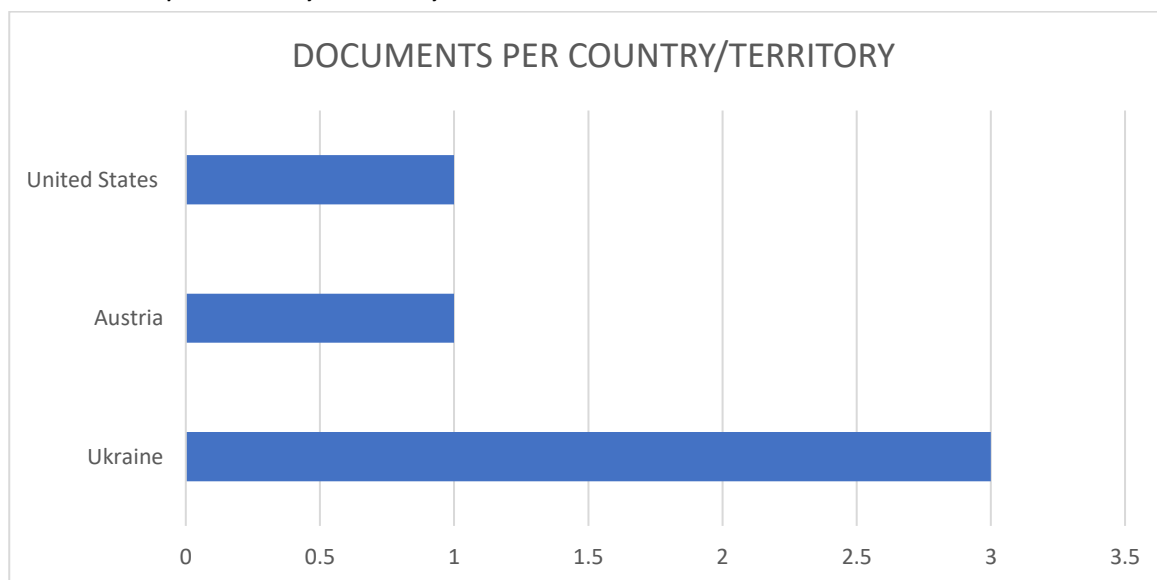
Table 2.

Publications per country/territory

COUNTRY/TERRITORY	DOCUMENTS PER COUNTRY/TERRITORY
Ukraine	3
Austria	1
United States	1

Figure 4.

Network visualisation of publication per country
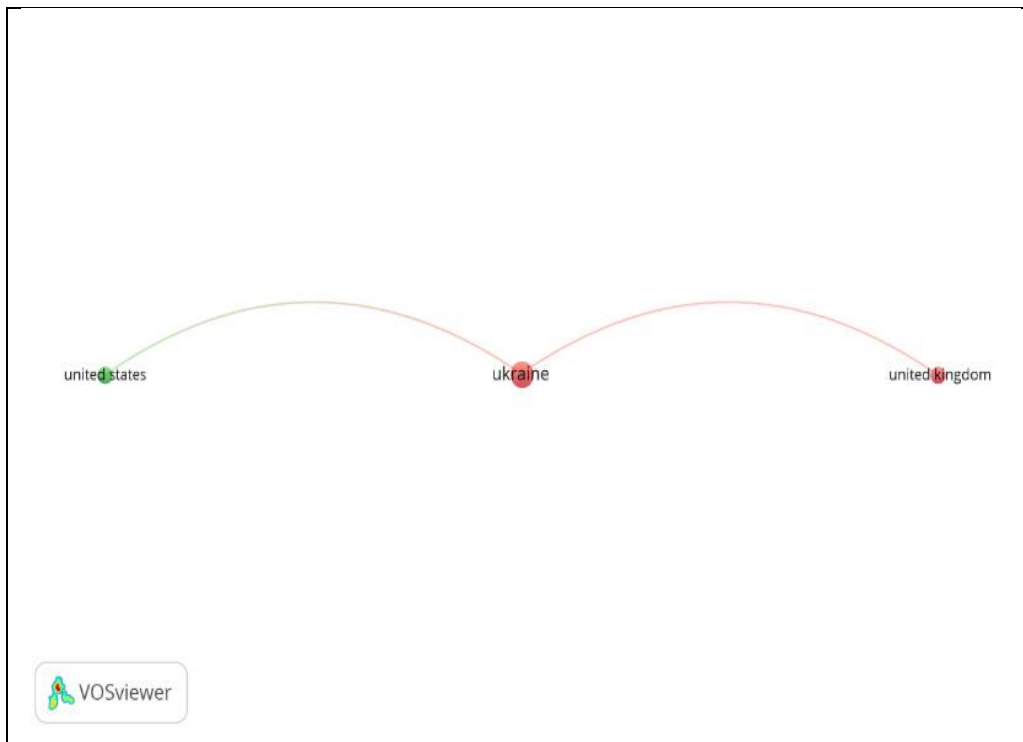
Publication per year

Figure 5 displays the trends of publications on wartime and education from 2009 to 2024 and the fluctuations in publication rates over time. Notably, there was a decrease in publications from 2009 to 2024, followed by relatively steady numbers from 2009 with one publication, and a steady increase to three publications from 2010 to 2011. The number of publications dropped to two in 2012 and increased to three in 2013. There was a consistent drop in publications from 2014 to 2015, with only one publication year. However, a notable annual decrease was observed from 2018 to 2017 to 2 publications yearly. There was a slight increase to three publications in 2019 and a further decrease from 2020 to 2021 to two publications yearly. Interest in research on wartime and education surged, increasing to four publications in 2022, and then the trend continued with an increase to 12 publications in 2023. In 2024, the number of publications dropped to five in the year. Upon further screening the Scopus database, when including wartime, education, and online learning, as shown in Figure 6, it was displayed for only 2023 to

2024. The publications were the highest in 2023, with four publications and further dropped in 2024 with one publication.
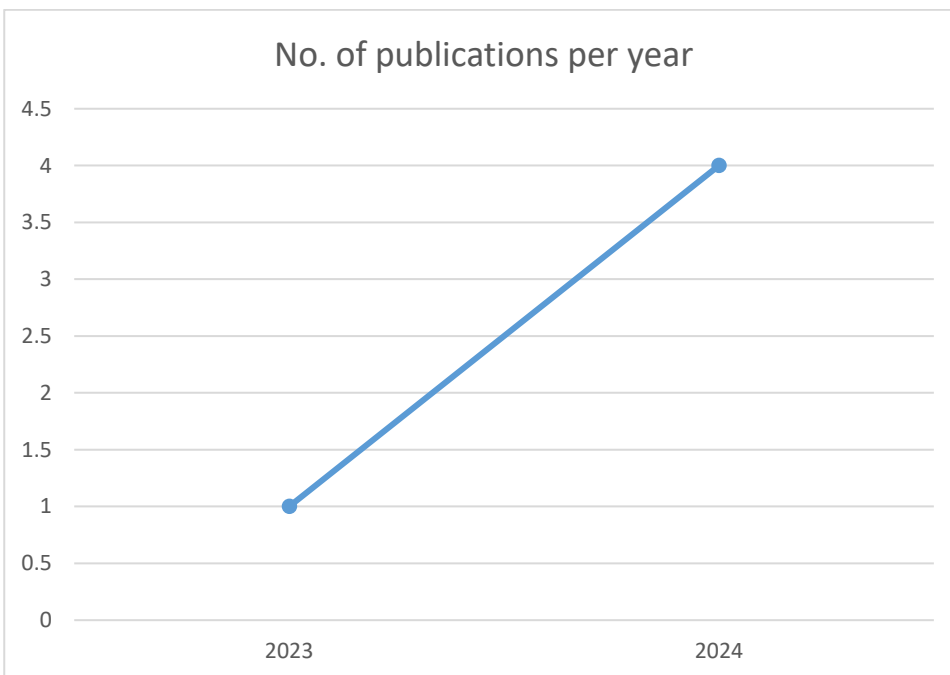
Figure 5.

Publication per year
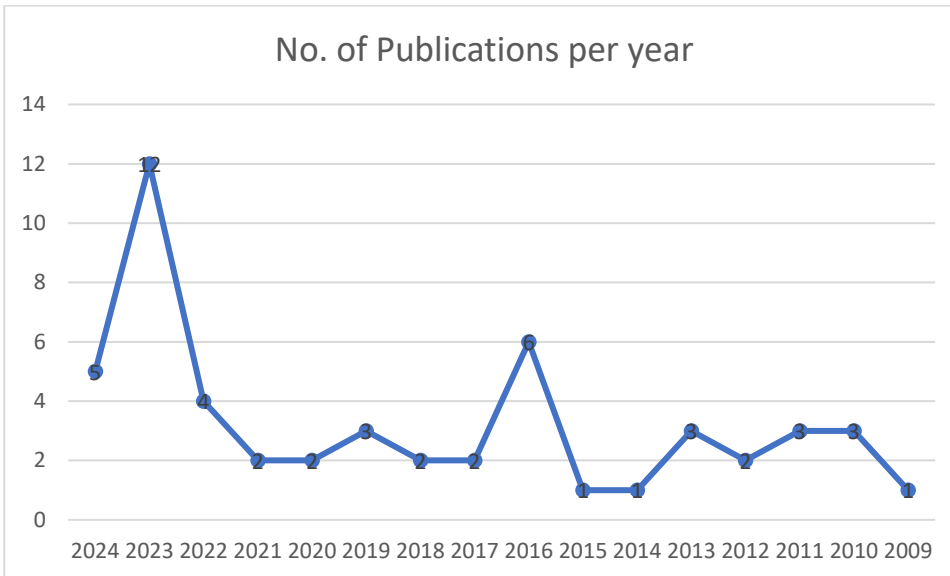
Figure 6.

Publication per year

Publication per year by source

The publication rates of the eight journals across the study period are visualised in Figure 7. The Paedagogic Historia had the highest with three publications between 2013-2022. There was a steady decrease from the European Journal of Education in 2023 with two publications, History in Education between 2018 and 2021 with two publications, International Journal of Emerging Technologies in Learning in 2023 with two publications, and Problems and Perspectives in Management between 2019 and 2024 with two publications, and Asia Pacific Review in 2023 with two publications. The journal with the lowest number of publications is Asia Review of World Histories, with only one publication in 2023. As shown in Figure 8, only journals with publications on the subject area during wartime, education, and online learning were included upon further screening. Among the eight journals, the International Journal of Emerging Technology in Learning was the most productive in 2023, publishing two articles. The Journal of Intellectual Disability Diagnosis and Treatment and Journalism and Mass Communication Educator had one publication in 2024.
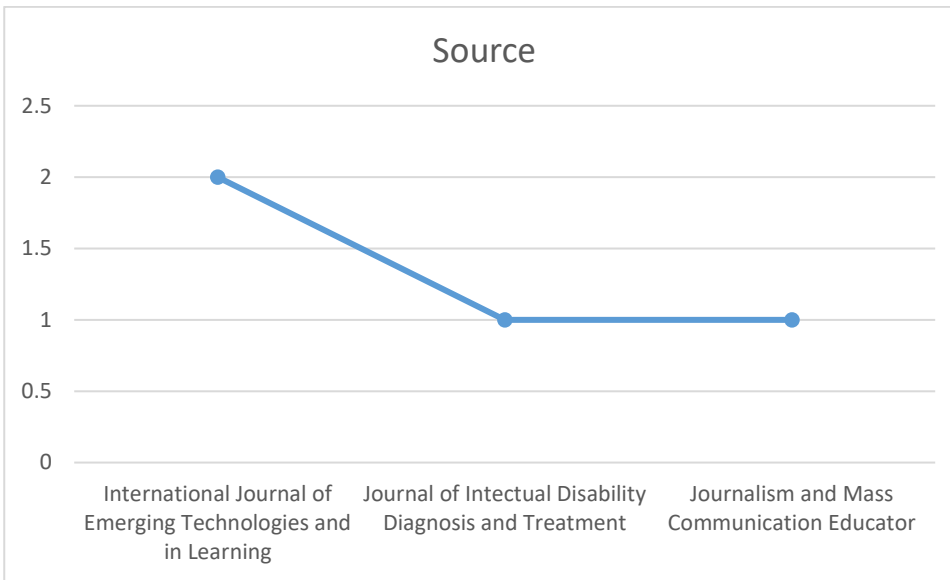
Figure 6.

Publication per year by source
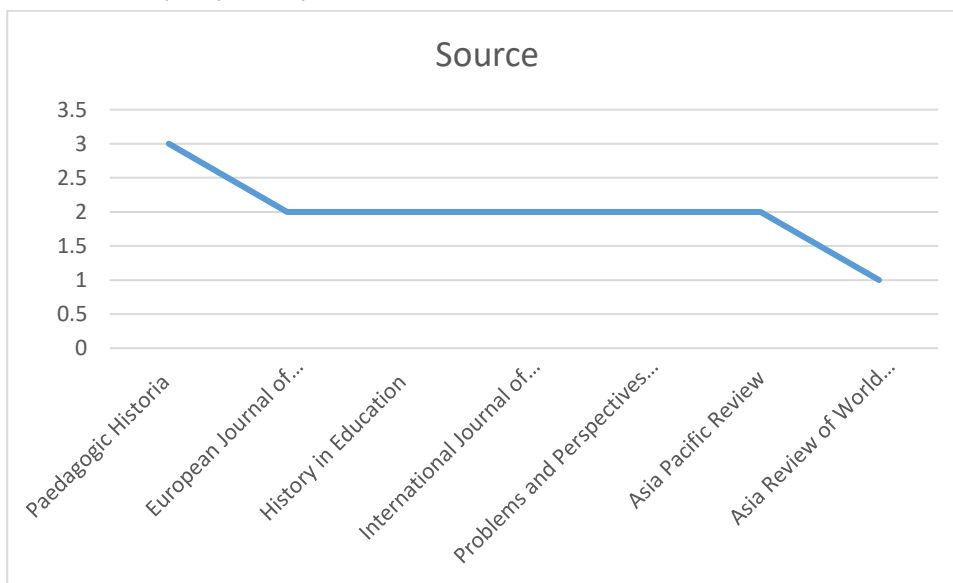
Figure 7.

Publication per year by source

Publication per document type

Figure 8.

Publication per document type
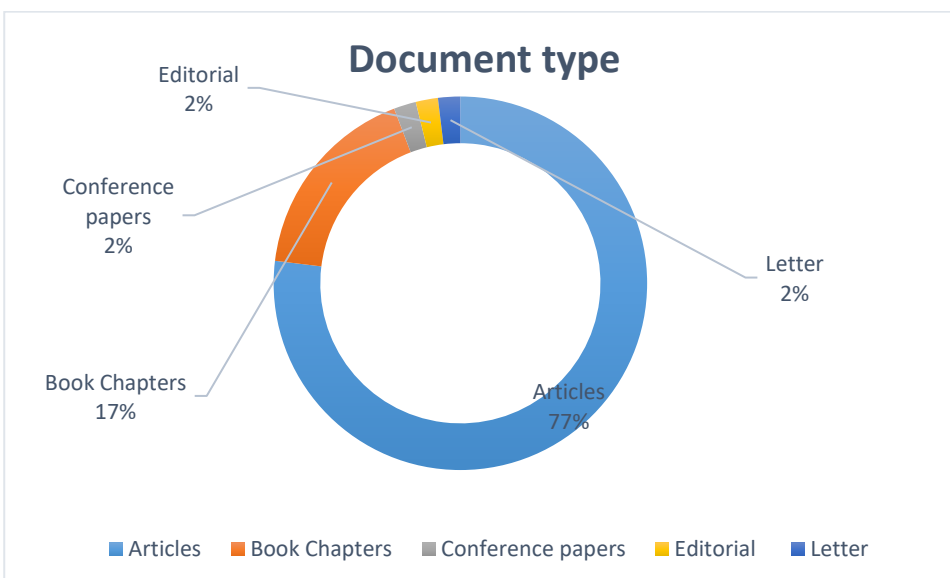
The collected data reveal various documents in which wartime and education research has been published. According to Figure 8, the highest proportion of publications per document was 40 articles, with 76.9% of the documentation published, followed by nine book chapters and 17.3% of the publications per document. With one publication, there was a steady decline in publications per document of 1.9% for conference papers, editorials, and letters. Upon further screening of wartime and education and online learning, only four articles were published, with 80%, and one book chapter made up 20%, as shown in Figure 9.

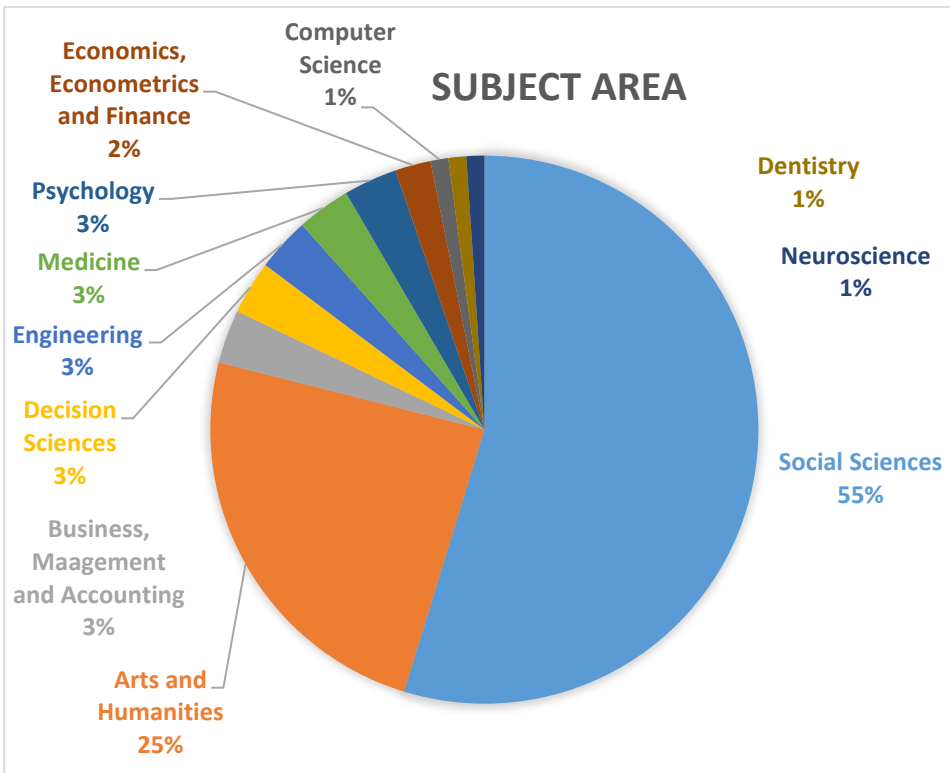**Figure 9.**

Publication per Document type
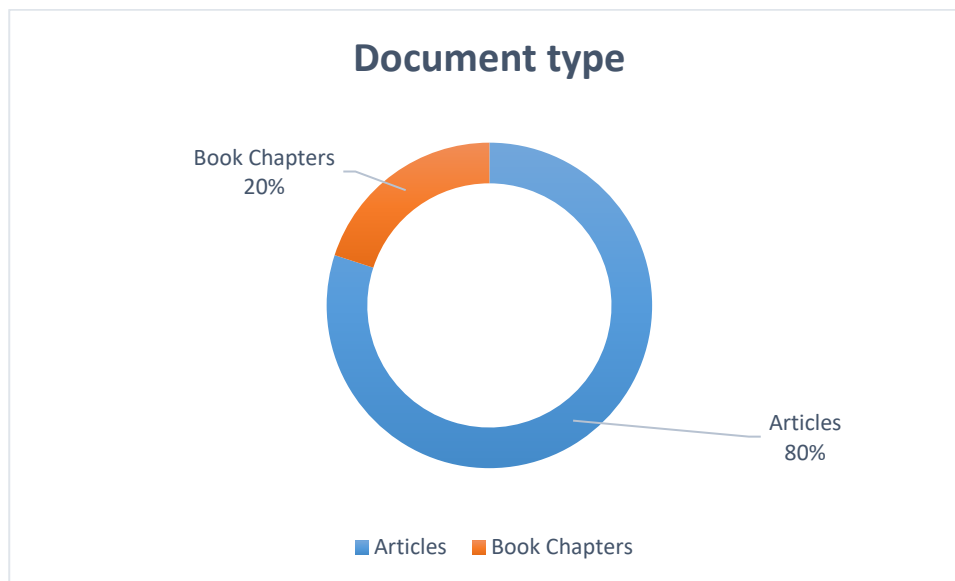
Publications per subject area

Figure 10 illustrates the publications per subject area of the various academic disciplines in which wartime and educational research has been published from the data collected. Social sciences had the highest per subject area, with 52 (55 %) publications. The arts and humanities are second, with 23 publications per subject area. There was a consistent rate of 3%, with three publications in Business, Management, Accounting, Decision Sciences, Engineering, Medicine, and Psychology per subject area. There was a decline of 2% in Economics, Econometrics, and Finance with two publications, followed by a steady decline in Computer Science, Dentistry, and Neuroscience publications per subject area, with one publication each accounting for 1%. Upon further screening, as shown in Figure 11, including wartime, education, and online learning, Social Sciences had the highest publication per subject area at 50% with five publications, followed by engineering with two publications, making 20% of publications per subject area. There was a steady publication rate per subject area for Arts and Humanities and Neuroscience, with one publication each at 10%.
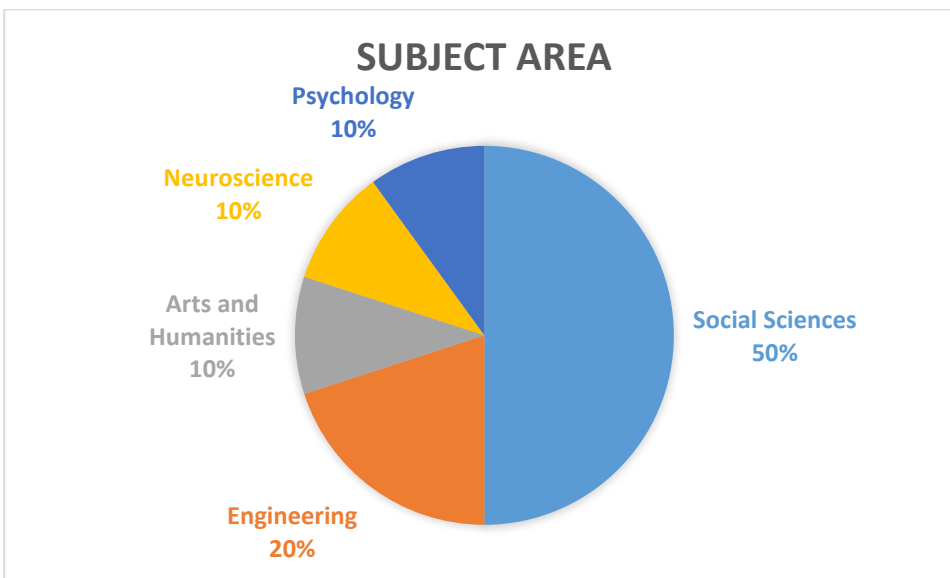
Figure 10.

Publication per subject area

Figure 11.

Publications per subject area

Publication keywords co-occurrence

The network visualisation analysis illustrated 50 words, with the top 13 highest having no cluster connectedness, as illustrated in Figure 12. Table 3 illustrates the main keywords and their occurrences in the publications screened on wartime and education. The data collected indicated that the common keyword occurrences were China (1), civil war (1), commemoration (1), education (1), educational attainment (1), enslavement (1), historical perspective (1), Japanese empire (1), occupation (1), second world war (1), student (1), and university sector (1). Upon further screening wartime, education, online learning, and network visualisation analysis, 66 keywords were identified, with only eight words that met the threshold. Two clusters were identified: Cluster 1 learning (e-learning, online, online teaching, and university teacher) and Cluster 2 warfare(student, teacher, Ukraine, and war). Table 4 illustrates the main keywords and occurrences in the publication Ukraine (3), e-learning (2), online (2), online teaching (2), university teacher (2), student (2) and war (2), respectively.

Figure 12.

Network visualisation of publication keywords co-occurrence
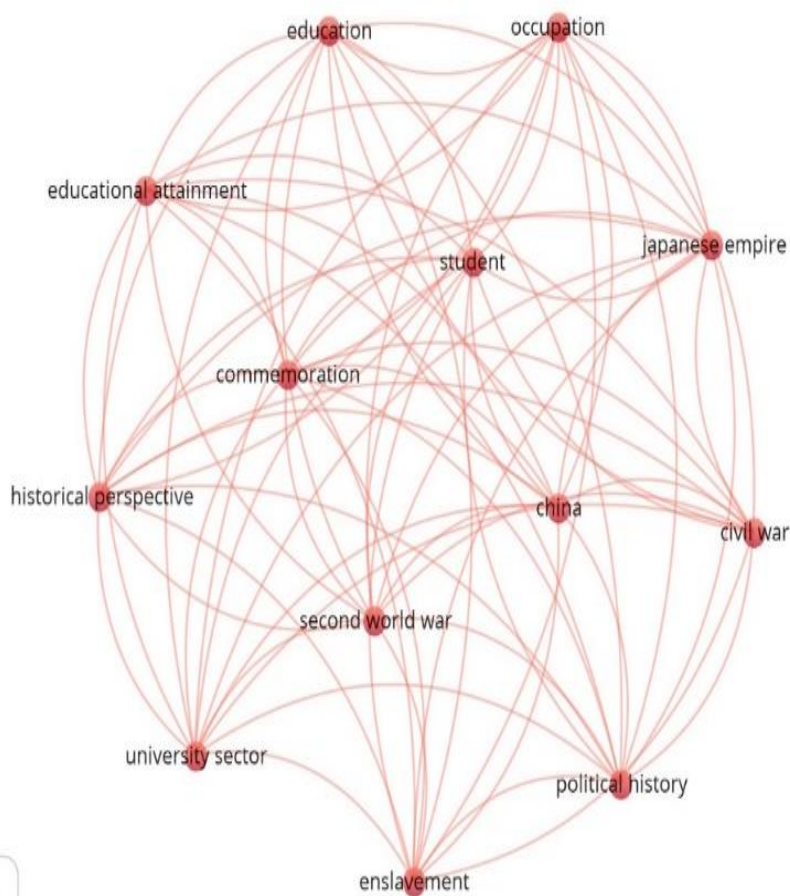
Table 3.

Keywords and occurrences

Keywords	Occurrences	Total link strength
China	1	12
Civil war	1	12
Commemoration	1	12
Education	1	12
Educational attainment	1	12
Enslavement	1	12
Historical perspective	1	12
Japanese empire	1	12
Occupation	1	12
Political History	1	12
Second world war	1	12
Student	1	12
University sector	1	12
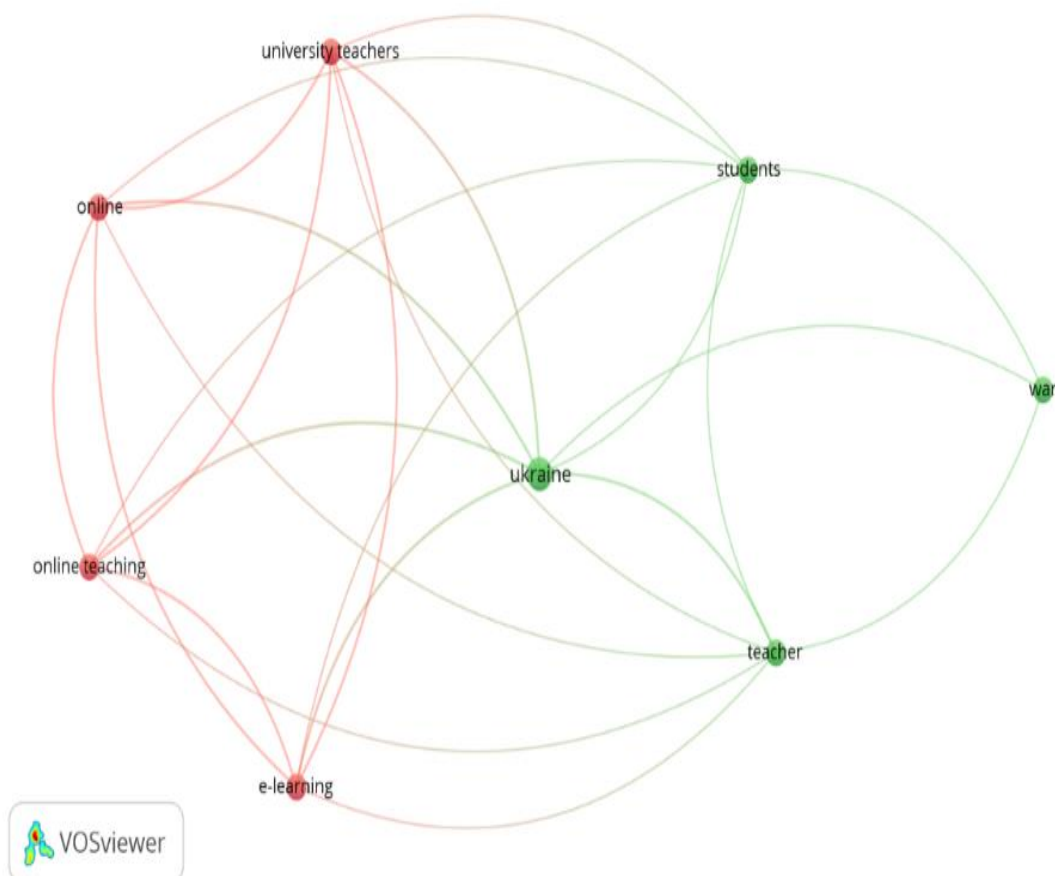
Table 4.

Keywords and occurrences

Keywords	Occurrences	Total link strength
Ukraine	3	12
E-Learning	2	10
Online	2	10
Online Teaching	2	10
University Teachers	2	10
Teacher	2	8
Student	2	7
War	2	3

DISCUSSION

Musisi and Kinyanda (2020) underscored that over three-quarters of African nations have faced armed conflicts in the past three decades, causing significant human suffering and loss of life. These wars have added a new dimension of insecurity, creating substantial challenges for African higher education institutions' effective governance and operation. Despite the frequency of conflict in African countries, there has been a noticeable lack of research on the intersection of war and education, as highlighted in recent publications across various countries. The findings indicate no African countries among the highlighted countries (the United States, Ukraine, United Kingdom, France, Poland, Australia, Austria, Belgium, Brazil, China, Italy, South Korea, and Spain). This gap becomes evident from further analysis, including war, education, and online learning, in which the findings identified that only three countries were represented (Ukraine, Austria, and the United States). None of these findings were from an African country. These findings underscore the significant research gap regarding the impact of wartime on African online learning. If this is not addressed, African higher education will continue to be excluded from the important discussions happening on the world stage.

Online learning has become a feasible alternative to traditional in-person education (Kuzhelev et al., 2023), particularly crucial in enhancing the management of academic processes at universities during times of war. It ensures continuous access to education, utilises digital technologies and promotes digital skill development. However, the impact of war has hindered the effective deployment and management of ICT resources in African education institutions. Despite the pivotal role of online learning in facilitating education during wartime, a notable research gap remains in understanding this intersection in African higher education institutions. Existing literature reveals significant deficiencies within the social sciences and related fields, particularly regarding wartime and online learning in the African context. The findings confirm that despite extensive exploration of wartime and online learning in social sciences -

publications per subject area–significant gaps persist in the current body of literature, especially in Africa.

Ogunode and Musa (2020) emphasised that war presents a significant obstacle to the effective management and administration of African higher education institutions. A study by Kuzhelev et al. (2023) found that war creates significant difficulties for online university learning. This reasoning explains the increasing number of publications on this topic from 2009 to 2024, reflecting growing scholarly interest with a noticeable rise in publications per year from 2013 to 2023. Despite this increase, Ogunode and Musa (2020) noted that wars impede ICT resources' proper deployment and management in African education institutions. These findings highlight a critical gap that requires exploring the intersection of wartime challenges and online learning in Africa.

Despite the widespread impact of wartime on online learning, there is a research gap in understanding why this critical issue, particularly in Africa, has not received adequate attention. The current findings reveal no cohesive clustering of keywords or occurrences in publications related to wartime and education. Instead, items such as China, civil war commemoration, education, and historical perspectives are scattered without clear interconnectedness. In contrast, two distinct clusters emerged when examining the keywords and the occurrence of war, education, and online. One cluster focuses on learning aspects such as e-learning, online teaching, and university education, while the other centres on warfare that focuses on students, teachers, Ukraine, and war. These clusters highlight the different thematic areas and perspectives in the field. Cluster analysis of these clusters underscores the complex network of relationships between learning and warfare, suggesting promising directions for future research and emphasising the diverse perspectives relevant to African higher education institutions.

CONCLUSION

Research findings indicate that wartime and online learning are more prevalent in developing countries, as most studies on this topic originate from developed nations. This disparity underscores a significant gap, particularly in African countries, with little published research. Online education offers a lifeline for universities during conflicts by keeping learning uninterrupted. It utilises technology and fosters digital skills, both crucial for progress. However, despite worldwide efforts to promote educational technology and the urgent need driven by war, many African universities are still in the early stages of developing these digital solutions, leaving them disadvantaged. Urgent research is essential for devising effective strategies to tackle these challenges and foster African educational development.

There is an urgent need to address the intersection of wartime challenges and online learning in developing countries, particularly African nations that have experienced prolonged conflict over the past three decades. Given the significant negative impacts of wartime on the continent, it is crucial to incorporate measures that enhance online learning and mitigate the effects of conflict into policies that promote organisational sustainability and achieve

Sustainable Development Goals. There is a clear call to increase research efforts on wartime and online learning, moving beyond understanding its occurrence and examining its specific impact on organisational sustainability, especially within African higher education institutions.

It is important to acknowledge that this study, like many others, has some limitations. One constraint is that it only used Scopus, a major database, and excluded others like Web of Science or ScienceDirect, which might mean the findings are not as comprehensive as possible. Additionally, the study did not analyse factors like authorship, affiliations, citations, or connections between references. Future research could provide a more complete picture by considering these aspects.

This research suggests several key areas for further investigation in African universities during wartime, three of which are the impact of conflict on faculty: exploring the phenomenon of "brain drain," where skilled professionals leave universities due to war; the psychological impact of war: understanding the experience of trauma among students and faculty in war-torn educational settings; and inclusive online learning: examining the specific challenges faced by people with disabilities in accessing online education during conflicts. These avenues for research are crucial in developing effective strategies to support education in African higher education institutions affected by prolonged conflicts.

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