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Kujawsko-Pomorskie
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Subsidized from the budget of the Kujawsko-Pomorskie Region



Ministerstwo Kultury i Dziedzictwa Narodowego

Dofinansowano ze środków Ministerstwa Kultury
i Dziedzictwa Narodowego pochodzących
z Funduszu Promocji Kultury

Samorząd Województwa
Kujawsko-Pomorskiego



Urząd Marszałkowski
Województwa
Kujawsko-Pomorskiego
w Toruniu

Dofinansowano z budżetu Samorządu Województwa Kujawsko-Pomorskiego

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pISSN 1641–3792

eISSN 2657–4837

DOI <http://dx.doi.org/10.12775/FT>

Editorial address:

The Provincial Public Library – the Copernicus Library in Toruń
Słowackiego 8, 87-100 Toruń, Poland

WWW: <http://apcz.umk.pl/czasopisma/index.php/FT/index>

E-mail: folia.toruniensia@gmail.com

The electronic version (eISSN 2657-4837) of the journal is its reference.



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All the texts in this journal are indexed and abstracted in their entirety in the Academic Journal Platform (apcz.umk.pl), the Central European Journal of Social Sciences and Humanities (<http://cejsh.icm.edu.pl>), and Library & Information Science Source (EBSCO).

Circulation: 350 copies

Typesetting, printing and binding:

Argrafpol sp. z o.o.

ul. Żmudzka 21, 51-354 Wrocław

tel. 507 096 545

email: argrafpol@argrafpol.pl

www.argrafpol.pl

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pISSN 1641–3792

eISSN 2657–4837

DOI <http://dx.doi.org/10.12775/FT>

Adres redakcji:

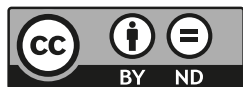
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<http://apcz.umk.pl/czasopisma/index.php/FT/index>

e-mail: folia.toruniensia@gmail.com

Redakcja informuje, że wersja elektroniczna czasopisma (eISSN 2657-4837) jest wersją pierwotną (referencyjną).



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All the texts in this journal are indexed and abstracted in their entirety in Library & Information Science Source (EBSCO).

Nakład 350 egz.

Skład, druk i oprawa:

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Polish Books Printed Anonymously in Early Modern Toruń

DOI: <http://dx.doi.org/10.12775/FT.2024.001>

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Received: 5 VI 2024

Accepted: 1 VIII 2024

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Keywords: typographic anonyms; printing; early modern Toruń; Polish books

A

Abstract: The first publication in Polish issued in Toruń appeared in 1581 in the publishing house of Melchior Nering and from that point onwards Polish books started to be regularly printed there. During the initial phase, they constituted approximately 25% of all works published in Copernicus’ city. A small proportion of them were published as typographic anonyms, i.e. without mentioning the printer’s name in the publication. The article aims to analyse anonymous printing production in Polish in Toruń until 1607: its range, statistics, topics, recipients, impact on literary culture and social function in the context of Toruń book culture and in comparison to anonymous printing in Cracow at that time.

Early modern typographers of the Kingdom of Poland (with the exception of those in Kraków) started to publish books in Polish quite late compared to their colleagues who printed in vernacular languages in other European publishing houses (Dlabačová – van Leerdam, 2023, p. 1; Kapeluś, 1965). It was not until the second half of the century that printers from cities other than the capital began to press books in Polish: in Königsberg (1543), Brest-Litovsk (1553), Pińczów (1558), Wrocław (1562), Nieśwież (1563), Łosk (1570), Węgrów (1570), Lusławice (1572), Zaslów (1572), Vilnius (1576), Lviv (1578), Toruń (1581), Gdańsk (1594) and Nowy Wereszczyn (1597)¹. Nevertheless, the majority of their Polish book production was incidental and irregular. Only in four northern cities: Königsberg, Brest-Litovsk, Vilnius and Toruń, printing in Polish became a permanent part of the city's cultural life². From the end of the 16th century to the mid-17th century, Copernicus' city served as the publishing centre for Polish Lutheranism (*Drukarze*, 1962, p. 432). The first typographer who successfully introduced Polish publications to Toruń was Melchior Nering. Starting from 1581, during his eight years of work, the printer published at least 15 Polish publications, including the first Polish *New Testament* printed in Royal Prussia (in the Calvinist translation, the so-called Brzeg Bible), Martin Luther's catechism and the first Polish Toruń hymn book (Smolarek, 2014, p. 175; Tujakowski, 1970, pp. 14–22). Nering operated in Copernicus' city until 1587, and after his death in the same year, the publishing house passed into the hands of the typesetter working there, Andrzej Koteniusz, who for the next 21 years printed at least 130 books, including 29 in Polish (*Drukarze*, 1962, p. 215). Like his predecessor, he published hymn books, catechisms and dictionaries; he also printed pro-reformation polemical writings in Polish. After Koteniusz's death in 1607, the printing house became *de facto* the property of the Torunian institution called *Economia* (*Drukarze*, 1962, pp. 433–444; Buchwald-Pelcowa, 1997, p. 105; Tujakowski, 1970, pp. 22–38).

The printing offices of Nering and Koteniusz issued at least 52 publications in the Polish language³ out of 189 books published by them in total. It constituted ca. 27% of the total book production in Toruń at that time. In terms of the language, Polish publications were ranked second, just behind Latin books, whereas in terms of volume, they placed first (see table 1).

¹ Sources: own elaboration based on data from *Drukarze*, 1959–2001.

² In Königsberg, more than any other location, Polish printing had a significant role in establishing the norms of the Polish language (Sawa 2011/2012).

³ The two earliest booklets dated 1581 have been omitted as it is presumed that Melchior Nering pressed them in Grodzisk. The list of Polish publications also includes titles mentioned in bibliographies whose copies are currently unknown. There are several of them, so it does not affect the general statistics (Wojciechowska, 1927, p. 148).

Year	Polish		Latin		German	
	Number	Sheets	Number	Sheets	Number	Sheets
1569	-	-	3	20	3	67.5+?
1581	3	28	2	2	-	-
1582	4	40	6	15	-	-
1583	4	16.5+?	3	26	-	-
1584	-	-	5	15+?	6	85
1585	2	84 + ?	2	5.5	1	?
Ca 1586	-	-	1	1	-	-
1586	1	1.5	6	123	1	4
1587	1	54	4	129+?	-	-
1588	2	3+?	2	114.5	1	?
1589	-	-	6	6.5	2	20+?
1590	2	18+?	5	27.5+?	-	-
1591	2	5.5+?	2	8.5	1	3.5
1592	1	5.5	10	93.5+?	-	-
inter 1592–1596	1	14	-	-	-	-
1593	3	9+?	5	28.5	2	5+?
1594	1	171	5	14	-	-
1595	2	10	2	25	-	-
1596	2	71.5	7	16.25+?	-	-
1597	3	119	3	21+?	-	-
1598	-	-	6	9.5	1	24
1599	3	19.5+1	4	12.5	-	-
1600	3	13+?	5	15+?	-	-
1601	3	12.5	1	2	1	?
1602	2	29	2	1	-	-
1603	1	3	3	4	-	-
1604	2	?	4	10.5	1	14
1605	-	-	1	2.5	2	19
1606	1	1.5	5	13	-	-
1607	2	?	3	49.5	-	-
b.r.	1	?	1	1	1	?
Total	52	560.5	114	495	23	149.5

Table 1: Total book production (in Polish, Latin and German) in Toruń up to 1607

Sources: own elaboration based on data from: *Drukarze*, 1962, pp. 207–215, 272–291; Jarzębowski, 1969, pp. 29–182; Estreicher 1891–2014.

Polish books printed in Toruń included publications on current affairs (ephemeral booklets, e.g. funeral texts, prognostics, pamphlets), religious writings (polemics, catechisms, including a catechism for children, the *New Testament*, hymn books, sermons, postils) and humanistic texts (description of Prussia, Polish-German dictionaries for young people, poems by Jan Rybiński). The books on religious issues or used during worship formed the largest group. The subject matter of all three types of Polish publications indicates that they were intended to be practical and were intended for a broader audience with varying levels of education, rather than exclusively for the elite members of society⁴. The ephemeral booklets and humanistic texts dealt with local issues or were written by local authors; thereby, for the most part, they filled the market void, which, due to their localism, was not filled by similar Polish publications from Kraków. Hence, the typographers produced those books in Polish, which would undoubtedly be purchased by the inhabitants of Toruń (Jarzębowski, 1969, p. 11). It is noteworthy that the significance of books, particularly Polish-German ones, whose initial objective was to satisfy the city market, was swiftly recognised in other bilingual domains, as publications such as *Nomenclator* or *Wokabularz* were purchased and utilised by readers far beyond Toruń. The printing of Polish protestant books was associated with the growing popularity of Protestantism observed in the town from the mid-16th century. In addition to the predominant German trend, Polish Protestantism was also gaining popularity in the city, and it was evident that Polish protestants required books as well⁵. Whereas it was effortless to obtain dissident (primarily Lutheran) literature in German thanks to constant contact with cities such as Wittenberg and Leipzig (where, for example, future Toruń pastors were educated), the market for Polish protestant literature was much smaller (Salmonowicz 2005, p. 50; Wagner 2020, pp. 201–202, 209–215). Thus, printing houses in Toruń initiated the production of extensive Protestant publications in Polish, primarily intended for local audiences. Subsequently, they spread throughout Poland and Ducal Prussia (Salmonowicz, 2005, p. 50–51; Maliszewski, 1994, p. 264)⁶.

Among the at least 52 Polish publications printed in Toruń from 1581 to 1607, approximately 30% were issued without indicating the publisher's name on the title page. From a chronological perspective, the first typographer who published Polish books in town, Melchior Nering, printed them anonymously more often at the beginning of his work. During the period between 1581 and 1583, approximately half of his productions were published anonymously. Later on, this proportion experienced a significant decrease (see Table 2). In 1581, he

⁴ It is necessary to notice, however, that Latin and German publications were mostly of practical nature as well; additionally, among Latin books, there were also school textbooks published (e.g. six volumes of *Poetica* by Johann Sturm, Aesop's fables and Cicero's speeches).

⁵ On Polish population in Toruń, see: Cackowski, 1994, p. 23; Salmonowicz, 1994, pp. 247–248; Salmonowicz 1999, pp. 115–116.

⁶ Salmonowicz, 2005, pp. 50–51; Maliszewski, 1994, p. 264.

issued two typographic anonyms: *Rozmowy jezuitów poznańskich*⁷ by Andrzej Prażmowski and *Acrostichis własnego wyobrażenia kniazia wielkiego moskiewskiego* by Valentinus Neothebel. Whether his two other anonymous works from this period (*Prawdziwe i gruntowne nowiny* and variant B of *Kronika* by Eutrophius) were published in Toruń or Grodzisk Wielkopolski is unknown. Since variant B is missing the publishing address (variant A: *W Grodzisku*) and the foreword by the translator Erazm Gliczner, it is assumed that Nering reprinted the *Kronika* in Toruń without Gliczner's consent. Nonetheless, the composition of the primary text in variant B is identical to that of variant A, with the exception of minor imperfections such as a shifted dot, which the printer would undoubtedly rectify in the second composition. Hence, it can be inferred that Nering added an additional title page to a portion of the unsold edition from Grodzisk, removed the preface, and republished it as a new publication after 1581 while operating in Toruń. It still remains, however, a product of the Grodzisk publishing house (*Drukarze*, 1962, pp. 282–282, 284).

Year	Anonymous production	Total production
1581	4	5
1582	4	10
1583	4	7
1584	-	11
1585	1	5
ca. 1586	-	1
1586	3	9
1587	-	5
1588	2	5
1589	-	8
1590	2	7
1591	2	5
1592	1	11
inter 1592-1596	1	1
1593	3	10
1594	1	6
1595	2	4
1596	2	9
1597	3	6

⁷ Czartoryski Library, call number 1458 I Cim. (only one copy survived). Another copy was supposed to be published with a publication *Questia o Kościele Bożym, iż błędzić nie może*. It was seen by Waclaw Aleksander Maciejowski before 1852 in Sieniawa in the Czartoryski library. Already a “defective copy” then, now it is completely lost. The Czartoryski copy of *Rozmowy jezuitów* does not include *Questia o Kościele Bożym*. See: Maciejowski, 1852, p. 171.

1598	-	7
1599	3	7
1600	3	8
1601	3	5
1602	2	4
1603	-	3
1604	2	7
1605	-	3
1606	1	6
1607	1	5
s.a.	1	1
Total	51	181

Table 2. Anonymous book production in Toruń up to 1607

Sources: own elaboration based on data from: *Drukarze*, 1962, pp. 207–215, 272–291; Jarzębowski, 1969, pp. 29–182; Estreicher 1891–2014.

From a chronological point of view, the first typographic anonym in Polish and, at the same time, the earliest publication that Nering published in Toruń was *Acrostichis własnego wyobrażenia kniazia wielkiego moskiewskiego* by Walenty Neothebel. The political pamphlet was published in late summer or early autumn of 1581 and, aimed at Ivan the Terrible, called for a general crackdown on the tsar. It belonged to a large group of anti-Moscow ephemeral information and propaganda publications, which were commissioned by Stephen Batory during the Polish-Russian war in 1577–1582. The royal camp was the first in Polish history to use the art of printing in warfare on such a large scale. It was nothing new, however – the art of printing had been used in war propaganda long before in Europe by all sides of the conflict, not only by the Europeans, but also e.g. by the Ottoman Turks attacking Europe (Tafiłowski, 2013, p. 171).

When Stephen Batory started to organise, as it is often called, “a war press office to inform Poland and abroad about military operations against Moscow” (Nowak-Dłużewski, 1969, p. 231), he commissioned the work to two printers. In the south of Poland, he employed the royal typographer Mikołaj Scharfenberg, who published anti-Moscow pamphlets in Kraków but also sent his employee Walenty Łapka to the army with a field printing house. In the northern part of the Polish-Lithuanian Commonwealth, it was Melchior Nering who published such publications (Franczak, 2016, p. 6). The printer had already worked promoting Batorian propaganda: in Poznań during Batory’s war with Gdańsk in 1576–1577 (Ptaszyński, 2003, p. 91) and in Grodzisk (there, for example, *Prawdziwe i gruntowne nowiny, jako król polski wojnę przeciwko Moskwie zaczął i 1580 roku zwycięstwo otrzymał* were published). *Acrostichis* is considered to be the most peculiar work of

anti-Moscow propaganda literature from the times of Stephen Batory. Written in simple language, full of colloquialisms and blunt comparisons, it has the form of a verse dialogue between Conscience and Tsar Ivan the Terrible, and its main part is Conscience's accusatory speech with a list of crimes committed by the Russian Tsar, full of macabre details (Franczak, 2016, pp. 5–6, 48). The work was published anonymously: the printer did not include his name on the title page, whereas the author concealed his name in an acrostic. The latter may have caused "omitting the place of printing and the printer's name in the work" (Mocarski, 1934, p. 26). A few months later, at the end of 1581, Nering published, as a typographic anonym, Andrzej Prażmowski's exegetical and dogmatic writing *Rozmowy z jezuitami o małżeństwie i bezżeństwie kapłańskim*. Out of the remaining three writings issued in 1581 (a Latin elegy following the demise of the very young Nicholas Czerny, who perished in the Battle of Pskov on September 29, 1581, a Latin aggressive polemic against anti-Trinitarians by Walenty Neothebel and a Latin Protestant writing by the Gdańsk theologian Johann Kittel), only the one by Neothebel was not a typographic anonym. In the upcoming two years, the anonymous production will account for an average of half of the publications pressed by Nering. In 1582, he published 10 works, four of which were published anonymously, and in 1583, he published seven works, four of which were published anonymously. In 1582, two of them were issued in Polish (*Consensus abo ugoda w nabożeństwie chrześcijańskim i Questia o Kościele Bożym*), in 1583 r. – none. Since *Questia* is most likely a co-published work (now lost) of the *Rozmowy jezuitów poznańskich* (Drukarze, 1962, p. 287), *Consensus*, comprising the texts of the Sandomierz consent agreements of 1570, remains the sole typographic anonym work published in Polish at that time.

Considering the diverse subject matter of the anonymous books published during the initial three years, it appears unlikely that Nering's decisions regarding the placement of his name on the title pages were influenced at that time by external factors such as censorship. Later on, however, one may observe an interesting occurrence: from 1584 onwards, the number of typographic anonyms decreased significantly, and by 1587, there were only six of them issued out of 31 books printed at that time. These included two funeral poems, one of which was penned by Kasper Frise on the occasion of the demise of Jan Stroband, the father of Mayor Henryk Stroband, who brought Nering to Toruń, and the other by Jan Międzyński on the occasion of the demise of Stefan Batory. Apart from them, Nering also printed anonymously the *Consensus in fide et religione Christiana* (1586) in Polish and Latin and may have printed the second volume of *Institutio literata* (1587). The diminution in the quantity of typographic anonyms published by Nering coincided with Henryk Stroband's investment in his printing establishment. Their cooperation was necessitated by Nering's financial difficulties: in 1583, Jakub Niemojewski pledged his printing house and books as a pledge for debts incurred in Grodzisk. Stroband repaid Nering's debt, purchased the pledged books, ordered new books for Nering's bookshop, allowed him to move his print-

ing house into his tenement house without paying rent, and finally provided the printing house with a new press and fonts. It helped save Nering's printing house, but at the same time, it deprived him of independence. It could be easily noticed as from 1584 onwards, one may observe an increasing number of publications on Toruń gymnasium and Stroband issued in Nering's printing house. Officially, Stroband entered into an agreement with Nering in 1586, and the terms outlined therein were of a censorship nature. The printer was prohibited from printing even small ephemera, particularly pamphlets, without Stroband's authorization (Mocar-ski, 1934, pp. 28–31). Since polemics and pamphlets were removed from Nering's publishing repertoire in 1583, it is possible that in 1586 Stroband formalised what he had already demanded from the printer before. Taking all this into consideration, the absence of typographic anonyms can be attributed to an external entity exercising some sort of control over the printer.

Nering's successor, Andrzej Kocieniusz, assumed control of the printing office with all the associated responsibilities. Kocieniusz was formerly an employee (typesetter) at Nering's publishing house (probably from 1583). In the agreement that Nering reached in 1586 with Stroband, the printer agreed not to dispose of the publishing house prior to remunerating the mayor for the debt. Since the printing house later passed into the hands of Kocieniusz, either he paid off the debt for Nering's heirs or Stroband took over the printing house and appointed Kocieniusz manager. Regardless of the circumstance, Stroband and the city remained closely associated with the publishing house. Kocieniusz received a new workspace from Stroband and the city's resources, and during the period of 1601–1602, the city councillors, upon the printer's request, assisted him in overcoming financial difficulties. Kocieniusz's primary areas of production are publications related to Toruń High School and Protestant writings. He did produce publications for Catholics as well (most likely around 1589, he published *Ewangelie i epistoły według rzymskiego mszału drukowane*, and calendars by Marcin Ruff for 1589 and 1593 dedicated to the Płock chapter). However, papist publications were banned in 1601 by the resolution of the Toruń city council (*Drukarze*, 1962, pp. 207–217).

Over the course of his 21-year career, Kocieniusz published a minimum of 37 typographic anonyms out of a total of 134 printed publications. It accounts for approximately 27% of his production, which does not significantly differ from the proportions observed in other printing centres within the Polish-Lithuanian Commonwealth. What distinguishes the anonymous production of the Toruń printer from that of, for example, Kraków or Vilnius is the stability of their publishing. Throughout the entire period of his activity, Kocieniusz printed two or three typographic anonyms per year. No events occurring in the Polish-Lithuanian Commonwealth at that time, e.g. the Polish-Swedish war or the Zebrzydowski rebellion, have brought a significant increase in this type of publications, as was the case, for example, in Kraków. Kocieniusz printed anonymously, among others: sermons by Artomius (1588, Polish), calendars (1588, 1592, Polish), a speech on the life of Jakob Hubner (ca. 1590, Latin), a polemic with Catholics (1591, Pol-

ish), a polemic with Bellarmine (1593, Latin), the newspaper *Nova Turcica* (1593, Latin), a polemic with Stanisław Reszka (1593, Latin), a print in defence of the Warsaw Confederation (1595, Polish), a writing on the causes and solutions of discord between denominations (1596, Latin), a speech about the Toruń school (1596, Latin), a publication by Grzegorz of Żarnowiec (1597, Polish), an epithalamium (1598, Latin), a writing by Calvin (1599, Polish), *Wiosna* by Jan Rybiński (1599, Polish), anti-Jesuit booklet (1607, Polish). One-third of these anonymous publications were issued in Polish. These were primarily Protestant writings by Reformation authors from Prussia and Greater Poland who belonged to diverse religious affiliations. At the turn of the century, in Toruń, tensions between Lutherans and Crypto-Calvinists were waning, religious agreements were being deliberated, and fierce verbal confrontations against Catholicism erupted. These themes pervaded also the Polish Protestant literature published anonymously at that time by Koteniusz.

The printing of typographic anonyms follows certain patterns: the printer anonymously published almost all Protestant polemics and other writings; he did not print pro-Catholic polemical literature; and unlike in other printing centres, he signed occasional publications with his name. All of this was a result of Stroband's patronage and the censorship imposed on the printing house during Nering's tenure, as well as of the 1601 resolution prohibiting the printing of Catholic books (initially all of them, but later renamed to solely ant dissident books). The production of Koteniusz was closely monitored by the Toruń city councillors, who, for instance, in 1602, cautioned him against printing anything "unless advised by wise individuals" (Buchwald-Pelcowa, 1997, p. 105).

Exceptionally, Koteniusz omitted his name from publications unrelated to the religion. Such was the case of the second volume of *Institutio literata*, published in 1587 without mentioning the printer's name. *Institutio literata* was a yearbook containing pedagogical treatises, published in 1586–1588. The first and second volumes were printed anonymously, while the third volume was signed by Koteniusz. The first volume is believed to have been published by Nering, as he was still running his workshop in 1586, and the second volume was published anonymously in 1587, the year of Nering's death. The printer died before November 10, so nothing would have prevented him from publishing *Institutio literata*. Moreover, the initial two treatises bear the date "1586" on their pages, indicating the commencement of printing in that year, and the preface "De ministris Ecclesiae" also suggests that the printing was started by Nering because it contains praise of Stephen Batory, for whom Nering printed. Nonetheless, due to the absence of the typographer's name on the title page, it is presumed that the printing was started by Nering and finished by Koteniusz (Jarzębowski, 1969, p. 85). The third volume had a publishing address with Koteniusz's name, as it was his work from beginning to end. Hence, *Institutio literata* stood out among the anonymous book production of Koteniusz and was primarily a result of technical rather than meritorious factors.

To summarise, the first Polish anonymous publications published in Toruń exhibit intricate connections between the patricians and typographers. The significant number of such books issued during the initial years of Nering's occupation suggests that the printer, cognizant of his prior experiences, particularly in Poznań, may have employed self-censorship in Toruń in a proactive manner. The appearance of Stroband and his insistence on controlling what Nering published led to a significant decrease in the number of anonymous publications, and Nering's successor, Koteniusz, maintained this policy. The imposed form of control also had an impact on the fact that occasional booklets, which were frequently published anonymously in Kraków, here in Toruń were printed with a publishing address. Furthermore, it compelled Koteniusz to publish anonymously Polish Protestant polemics, despite Protestantism being the predominant religious denomination in Toruń. This form of dependence was not prevalent in other printing centres of the Polish-Lithuanian Commonwealth, and its occurrence in Toruń indicates the robustness of the patricians' position in the city at that time.

Annex: Polish typographic anonyms printed in Toruń in 1581–1607

1581

1. Neothebel Walenty

Acrostichis własnego wyobrażenia kniazia wielkiego moskiewskiego i prawdziwe opisanie sposobów przyrodzenia obyczajów, układności a osobliwych cnót a spraw rycerskich, z których w obec każdy rozumny łatwie obaczyć może, jeśli słuszno albo nie, iż przeciw takowemu możnemu Potentatowi terażniejsze i przeszłe nieprzyjacielskie wojny były i są podniesione i przedsięwzięte.

[Toruń : Melchior Nering], 1581.

[4] ff., A-D4 ; 4°.

E. 12, 24; Jarzębowski, 1969, 11; PK 993

Copies: Kórnik PAN Cim.Qu.2462; Toruń Książnica Kop. MAG 102422 (previously H.4°5 adl.1; K.IV.33)

2. Prażmowski Andrzej

Rozmowa jezuitów poznańskich, zwłaszcza R. Jana Canariususa, rektora Kollegium Poznańskiego, którą mieli z księdzem Andrzejem Prasmoviuszem z Radziejowa, słowa Bożego ministrem, o małżeństwie i bezżeństwie kapłańskim. Przy tym Qu-estiarz potrzebna o tym jeśli Kościelna zwierzchność obłądzić się może.

[Toruń : Melchior Nering], 1581.

[34] ff., A-B8, C-E4, G2 ; 4°.

E. XXV, 227; Jarzębowski, 1969, 12

Copies: Kraków BCzart. XVI.1458/ICim.

3. Prażmowski Andrzej

Questia o Kościele Bożym, iż błądzić nie może, a jeśli się też w części obłądzi, a zwłaszcza Zwierzchność Kościelna jeśli się godzi od takowego Kościoła odłączyć.

[Toruń : Melchior Nering, 1581?].

[20] ff. ; 8°.

E. XXV, 227; Jarzębowski, 1969, 21

No known copies.

1582

4. Consensus

Consensus abo ugoda w nabożeństwie krześcijańskim prawdziwych wyznawców Ewangelii świętej i wiary powszechnej w jedynego Boga w Trójcy błogosławionej w Koronie Polskiej uczyniona, a spisana łacińskim i polskim językiem roku Pańskiego 1570, która aż do dziś za łaską Bożą trwa, a została wydrukowana dla pociechy kościoła Bożego roku Pańskiego 1582.

[Toruń : Melchior Nering, 1582].

[24] ff. A4, B-C8, a4 ; 8°.

E. –; Jarzębowski, 1969, 14; BUWr XVI, 386

Copies: Wrocław BUWr 331505

1586

5. Miączyński Jan

Lament Matki Korony Polskiej z śmierci przesławnego Pana, Pana Stefana pierwszego, króla polskiego, w roku niniejszym 1586. zmarłego / przez Jana Miączyńskiego w Płocku dnia 23 grudnia roku 1586 uczyniony.

[Toruń : Melchior Nering, 1586].

[6] ff., A6 ; 8°.

E. XXII, 321; Jarzębowski, 1969, 52; BUP XVI 193

Copies: Poznań BUP SD 2061/I; *Warszawa BNCim.P.Qu.8234 (war loss)

6. Consensus

Consensus in fide et religione Christiana, inter Ecclesias Evangelicas Maioris et Minoris Poloniae, Magnique Ducatus Lituaniae & caeterarum eius Regni provinciarum, primo Sendomiriae anno M.D.LXX. in Synodo generali sancitus & deinceps in aliis, acdemum in Wlodislaviensi generali Synodo anno M.W.LXXXIII. confirmatus & serenissimis Poloniae regibus Augusto, Henricoac Stephano oblati, nunc autem ex decretis synodico in publicum typis editus anno Christi M.D.LXXVI = Zgodne rozumienie w wierze a nabożeństwie chrześcijańskim kościołów ewangelickich wielkiej i małej Polski i wielkiego Księstwa Litewskiego i inszych tej Korony państw, naprzód w Sędomierzu roku 1570. Na Synodzie Generalnym postanowione i po tym na inszych, aż na ostatku na Włodzysławskim Generalnym roku 1583. Potwierdzone, a najjaśniejszym królom polskim Augustowi, Henrichowi i Stefanowi ofiarowane, a teraz podług dekretu synodowego wobec podane roku Pańskiego 1587.

[Toruń : Melchior Nering, ca 1586-1587].

[1], 1-66, I-LXVI, [1] pp., [1] f., A-H8, I4 ; 8°.

E. 14, 369–370; 17, 167; Jarzębowski, 1969, 48; BJ XVI 500; Ossol. XVI 451; PK 260

Copies: Gdańsk PAN NI 16251.8°adl.1, NI 16252.8°adl.2, NI 16250.8°adl.1; Gotcha UB Th.8° 2255; Kórnik PAN Cim.O.318; Kraków BJ Cim.O.544; Kraków PAN i PAU Cim.81; Warszawa BN XVI.O.6242; Wrocław BUWr 328736; Wrocław Ossol. XVI.O.349.

1588

7. Artomius Petrus

Kazania bądź nauki krześcijańskie o personie Syna Bożego z Maryi Panny przed 1588. lat narodzonego.

[Toruń : Andreas Kotenius, 1588].

[24] ff. A-C8 ; 8°.

E. XII, 243; Jarzębowski, 1969, 63

Copies: Toruń Książnica Kop. MAG 110487 (previously K.8°64)

8. Ruff Marcin

Przestroga gwiazdarska na Rok Pański 1589 / przez Marcina Ruffa z Welca, medyka i chirurga łomżeńskiego, z pilnością napisana.

[Toruń : Andreas Kotenius, 1588].

[8?] ff. ; 16°?.

E. –; Jarzębowski, 1969, 67

Copies: Toruń Książnica Kop. MAG 111581 (previously K.f.m.7)

1590

9. Mikołajewski Daniel

O sakramencie ciała i krwi Pańskiej księgi wydane naprzeciwko disceptacji węgrowskiej / spisanej od X. Jezuity poznańskiego.

[Toruń : Andreas Kotenius, 1590].

[64?] ff., A-Q4? ; 4°.

E. XXII, 378; Jarzębowski, 1969, 75; PK 929

Copies: Kórnik PAN Cim.Qu.2470

1592–1595

10. Respons

Respons w porywczą dany na upomnienie do ewangelików o zburzeniu zboru krakowskiego i na przestrożę do katolików od kogoś uczynioną w roku 1592.

[Toruń : Andreas Kotenius, inter 1592–1595].

[56] ff., A-O4 ; 4°.

E. 26, 256–257; Jarzębowski, 1969, 91; BJ XVI 2047; Ossol. XVI 2044; PK 1211

Copies: Gdańsk PAN NI 78.8°adl.8, NI 81.8°adl.19; Kórnik PAN Cim.Qu.2472; Kraków BCzart. 889/II; Kraków BJ Cim.5081; Pelplin Sem. VI.K.c.13 adl. c; Wrocław Ossol. XVI.Qu.2471

1595**11. Podpora**

Podpora Konfederacji przeciw wierszom podanym w Rozmowie Ziemiańska z Księdzem o jej zniszczeniu.

[Toruń : Andreas Kotenius, 1595].

[22] ff., A-E4, F2 ; 4°.

E. XXIV, 414; Jarzębowski, 1969, 117; Ossol. XVI 1904; PK 1129

Copies: Kórnik PAN Cim.Qu.2476; Kraków BCzart. 849/II; Warszawa BN XVI. Qu.400; Wrocław Ossol. XVI.Qu.2253

1597**12. Grzegorz z Żarnowca**

Nazwiska z objawieniem Jana świętego Krystusowi, zborom Pańskim, prawdziwym i fałszywym nauczycielom służące, także i zwierzchności rzymskiej i temu, który na niej siedzi, też Diabłu i ludziom wobec pospolitym i co które nazwisko znaczy z wyrozumieniem słów tajemnych. Przy tym o pożytkach każdej strony, także i o szkodach.

[Toruń : Andreas Kotenius, 1597].

[72] ff., A-S4 ; 4°.

E. XIX, 1; Jarzębowski, 1969, 130

Copies: Kraków BCzart. 970/II

1599**13. Kalwin Jan**

O zwierzchności świeckiej, porządne, według sznuru Pisma Świętego opisanie.

[Toruń : Andreas Kotenius], 1599.

[24] ff., a4, A-E4 ; 4°.

E. VIII, 107; XIX, 72; Jarzębowski, 1969, 141; PK 168 (attributed to Maciej Wirzbięta from Kraków)

Copies: Kórnik Cim.Qu.2665

14. Rybiński Jan

Wiosna Jana Rybinskiego.

[Toruń : Andreas Kotenius], 1599.

[4] ff., A4 ; 4°.

E. XXVI, 505; Jarzębowski, 1969, 147

Copies: Warszawa BN XVI.Qu.6425 (Bawor. from Czarn.)

1601**15. Artomius Petrus**

Diaeta duszna potraw i zabawek chrześcijańskich.

W Toruniu : [Andreas Kotenius], 1601.

12°.

E. XII, 242

No known copies.

1604

16. Artomius Petrus

Kazanie o zjawieniu Króla w żydowstwie narodzonego.

W Toruniu : [Andreas Kotenius], 1604.

E. XII, 243

No known copies.

1607

17. Relacja

Relatia o skrytych sztukach jezuickich.

[Toruń : Andreas Kotenius], 1607.

[7] ff., A4, B3 ; 4°.

E. VIII, 139

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Książki polskie drukowane anonimowo w nowożytnym Toruniu

DOI: <http://dx.doi.org/10.12775/FT.2024.001>



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Otrzymano: 5 VI 2024

Zaakceptowano: 23 VIII 2024

Agnieszka Franczyk-Cegła – doktor nauk humanistycznych, filolog klasyczny, bibliolog. Kierownik Działu Starych Druków w Instytucie Narodowym im. Ossolińskiego, przewodnicząca Grupy Roboczej ds. Proweniencji oraz członkini Komitetu Wykonawczego Konsorcjum Europejskich Bibliotek Naukowych, skarbnik Grupy Roboczej ds. Polskiej Proweniencji. Jej zainteresowania badawcze koncentrują się wokół badań proweniencyjnych starych książek i typografii XVI i XVII-wiecznych oficyn wydawniczych z okresu dawnej Rzeczypospolitej Obojga Narodów. Jest laureatką konkursu popularyzatorskiego nauki „Skomplikowane i proste. Młodzi uczeni o swoich badaniach” (2018) oraz stypendystka Ministra Kultury i Dziedzictwa Narodowego w zakresie ochrony zabytków (2022).

S

Słowa kluczowe: anonimy typograficzne; drukarstwo; nowożytny Toruń; książki polskie

S

Streszczenie: Pierwsze wydanie w języku polskim wydane w Toruniu ukazało się w 1581 r. w oficynie Melchiora Neringa i od tego czasu zaczęto regularnie drukować w nim książki polskie. W początkowej fazie stanowiły one ok. 25% wszystkich prac wydanych w mieście Kopernika. Niewielka część z nich została opublikowana jako anonimy typograficzne, czyli bez podania nazwy drukarza w publikacji. Celem artykułu jest analiza anonimowej produkcji drukarskiej w języku polskim w Toruniu do 1607 roku: jej zasięgu, statystyk, tematów, odbiorców, wpływu na kulturę literacką i funkcję społeczną w kontekście toruńskiej kultury książki oraz na tle anonimowego druku w Krakowie w tym czasie.

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Polnische anonym gedruckte Bücher im frühneuzeitlichen Thorn

DOI: <http://dx.doi.org/10.12775/FT.2023.001>



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Zugesandt: 5 VI 2024

Angenommen: 23 VIII 2024

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Schlüsselworte: anonyme Drucke; Druckkunst; frühneuzeitliches Thorn; polnische Bücher

Zusammenfassung: Die erste Veröffentlichung in polnischer Sprache erschien 1581 in Thorn in der Druckerwerkstatt von Melchior Nering. Von diesem Moment an wurden dort regelmäßig polnische Bücher veröffentlicht. In der Anfangsphase machten sie etwa 25% aller Werke aus, die in der Stadt von Kopernikus gedruckt wurden. Ein kleiner Teil davon erschien als typografische Anonyme, d.h. ohne Namen des Druckers in der Veröffentlichung. Der vorliegende Beitrag zielt auf die Analyse der anonymen Druckereiproduktion in polnischer Sprache in Thorn bis 1607, ihrer Reichweite, Statistiken, Themen, Empfänger, der Rezeption in der literarischen Kultur und ihrer sozialen Funktion im Zusammenhang mit der Thorer Buchkultur und im Vergleich zu anonymen Drucken aus Krakau aus derselben Zeitspanne ab.

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Advocacy for Intelligent Libraries in the Era of Fifth Industrial Revolution

DOI: <http://dx.doi.org/10.12775/FT.2024.002>



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Received: 1 XII 2023

Accepted: 19 VII 2024

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K **eywords:** Intelligent Libraries, Innovation, Sustainable knowledge system, 5th Industrial Revolution

A **bstract**

A **im:** The onset of the 5th Industrial Revolution heralds a transformative era marked by extraordinary technological advancements, compelling libraries to reinvent themselves within a rapidly digitizing world. The study explores the evolving role of libraries, emphasizing the integration of smart technologies to enhance user experiences, streamline operations, and increase knowledge accessibility. It addresses critical ethical and privacy concerns, advocating for strategies that uphold inclusivity, transparency, and intellectual freedom.

M **ethods:** The study employed an interpretive content/document analysis methodology to thoroughly review and analyze literature sourced from diverse databases, including Scopus and Web of Science. This methodological choice aims for a comprehensive and well-rounded examination of the subject, incorporating a broad spectrum of perspectives and insights. The interpretive content/document analysis process involves a meticulous scrutiny and interpretation of textual materials, fostering a nuanced understanding of the investigated topic. The inclusion of literature from reputable databases like Scopus and Web of Science not only enhances the credibility and reliability of the findings but also ensures a robust exploration of the subject.

R **esults:** Key technologies such as AI, machine learning, data analytics, IoT, blockchain, AR/VR, and 5G are examined for their impact on library operations and user engagement. Challenges, including digital equity, ethical AI use, data security, interoperability, and financial constraints, are identified and analyzed.

C **onclusion:** The study advocates by highlighting the necessity for libraries to evolve into dynamic, intelligent hubs that contribute to sustainable knowledge systems while maintaining their foundational principles.

Introduction

The 5th Industrial Revolution is propelling us into a period marked by extraordinary technological advancements and societal transformations (Ajani et al., 2022; Tella et al., 2022; Moll, 2023). At this pivotal juncture, it is imperative to examine the role of libraries—institutions deeply linked with knowledge preservation—in a rapidly digitizing, automated, and artificial intelligence (AI)-driven world. We must contemplate the function of libraries in an environment where in-

formation seamlessly traverses boundaries and digital devices. How can libraries, deeply rooted in longstanding traditions, adapt to the evolving needs of individuals and communities in this digital era? Traditionally seen as repositories dedicated to collecting, safeguarding, and disseminating information, libraries face a critical juncture. The very nature of information and its accessibility has undergone a profound transformation (Tella et al., 2023). The digital realm, with its expansive databases, search engines, and algorithms, has revolutionized the way we search for, consume, and share knowledge (Oladokun & Gaitanou, 2024). In a landscape characterized by information overload and the continual evolution of technology, libraries are called upon not only to reinvent themselves but also to redefine their purpose.

This is where artificial intelligence (AI) becomes a pivotal factor—a transformative force capable of reshaping and rejuvenating libraries in unprecedented ways. AI-driven libraries hold the potential to enhance user experiences, streamline operations, and increase the accessibility of knowledge for everyone. However, this advancement gives rise to ethical and privacy concerns, challenging the fundamental principles of libraries, including inclusivity, transparency, and intellectual freedom. The question arises: How can libraries harness the capabilities of AI effectively, ensuring the preservation of these values and respecting the rights and values of individuals in a landscape where machines are assuming more decision-making roles? In the face of these changing circumstances, we are confronted with crucial inquiries: What lies ahead for libraries in the 5th Industrial Revolution? How can they harness AI to maintain relevance and indispensability in a world saturated with data and digital technologies? What strategies can libraries employ to establish sustainable knowledge systems that serve diverse populations while upholding individual rights and societal principles? These are the pivotal questions at the core of the discourse surrounding “Intelligent Libraries.”

In so doing, the study employed an interpretive content/document analysis methodology to thoroughly review and analyze literature sourced from diverse databases, including Scopus and Web of Science. This methodological choice aims for a comprehensive and well-rounded examination of the subject, incorporating a broad spectrum of perspectives and insights. The interpretive content/document analysis process involves a meticulous scrutiny and interpretation of textual materials, fostering a nuanced understanding of the investigated topic. The inclusion of literature from reputable databases like Scopus and Web of Science not only enhances the credibility and reliability of the findings but also ensures a robust exploration of the subject. This approach encompasses a wide array of research papers, articles, and publications, facilitating a holistic investigation. Such a comprehensive methodology ensures that the study is well-informed and capable of delivering a nuanced, multifaceted analysis of the chosen topic.

Based on this, the objectives of the study were to explore (1) 5IR as the new era of transformation; (2) the indispensable role of libraries in knowledge sys-

tems; (3) the technological evolution of libraries in the 5IR; (4) the future of library services; (5) challenges in implementing intelligent libraries; (6) sustainability of knowledge systems through intelligent libraries; (7) success story of intelligent libraries around the world; and (8) need for advocating for intelligent libraries in the 5IR.

5IR as the New Era of Transformation

In our ever-evolving world, the term “5th Industrial Revolution” serves as a guiding beacon, encapsulating the ongoing and imminent transformations in industries and societies. This concept furnishes us with a framework to comprehend the profound shifts occurring in our contemporary landscape. The 5th Industrial Revolution signifies the harmonious integration of diverse technological domains (Noble et al., 2022). It manifests as a symphony of digital technologies such as the Internet of Things (IoT), cloud computing, and sophisticated big data analytics. However, it transcends these boundaries to include artificial intelligence (AI), biotechnology, nanotechnology, and the limitless potential of quantum computing (de Vries & Kroukamp, 2023). These technological forces converge and complement each other, giving rise to unprecedented advancements and opportunities. In this revolution, data assume the role of a valuable currency, fuelling innovation and decision-making. Our interconnected world, interwoven with a myriad of devices and sensors, generates a vast sea of data (Sørensen & Lansing, 2023). Advanced AI and intricate analytics delve deep into this sea, extracting valuable insights that inform decision-making, enable personalization, and inspire groundbreaking innovations across diverse industries (Dou et al., 2023).

However, as we cherish this newfound treasure, we must also safeguard it with the utmost care, recognizing the paramount importance of data privacy and security (Oladokun et al., 2024b). Automation takes the centre stage, orchestrated by AI and the captivating dance of robotics. Its influence transcends boundaries, permeating industries from manufacturing to services (Tella & Ajani, 2022). AI systems, proficient in tasks, decision-making, and learning from data, usher in an era of unparalleled efficiency and productivity (Ajani et al., 2022). However, this performance also raises the curtain on the challenge of job displacement, emphasizing the need for reskilling and workforce adaptation (Tella et al., 2022). The theme of decentralization spreads across industries, with blockchain as its symbol. It revolutionizes transactions, making them secure, transparent, and tamper-proof (Chytis, 2019). Beyond the realm of finance, blockchain extends its influence to supply chain management and beyond, where trust and operational efficiency flourish (Babu & Das, 2023).

The spotlight of sustainability shines brightly in this revolution. Clean energy technologies, exemplified by solar and wind power, assume the centre stage, offering hope for mitigating carbon emissions (Martínez-Falcó et al.,

2023). Concepts such as the circular economy, resource efficiency, and sustainable practices perform crucial supporting roles, addressing environmental challenges and nurturing long-term sustainability (Atif et al., 2021). The foundation for this transformation lies in the widespread deployment of 5G networks. These networks provide the essential high-speed, low-latency connectivity required for the global adoption of transformative technologies like the Internet of Things (IoT), autonomous vehicles, and augmented reality (Attaran, 2023). However, the 5th Industrial Revolution, as a concept, is deeply intertwined with libraries in the contemporary era and signifies a momentous transformation in how knowledge is not only preserved but also created, accessed, and disseminated. This paradigm shift encompasses the seamless fusion of cutting-edge digital technologies, the transformative power of advanced technologies, and the innovation-driven force of data utilization.

Traditionally perceived as custodians of knowledge, libraries are now situated within a transformative epoch where their roles and functions must undergo significant adaptation to fulfil the exigencies of this digital paradigm shift (Tella & Ajani, 2022). The concept of the 5th Industrial Revolution introduces a new dimension to the library's traditional role as a repository of static knowledge. It acknowledges that information in the modern world flows incessantly, transcending physical boundaries and digital platforms alike. The contemporary library is no longer confined to the passive role of safeguarding knowledge but is evolving into an active participant in the knowledge ecosystem, propelled by the capabilities of digital technology and AI (Oladokun et al., 2024b). This monumental shift implies that libraries must reinvent themselves as dynamic hubs where digital technologies, AI algorithms, and data-driven innovations converge to serve the evolving needs of users. In essence, libraries are transitioning from being static archives to becoming vibrant knowledge centres, adapting their structures and functions to stay aligned with the 5th Industrial Revolution's demands.

The Indispensable Role of Libraries in Knowledge Systems

Libraries have consistently held a revered position as bastions of knowledge, acting as custodians of wisdom and repositories of our shared cultural legacy. Their role within knowledge systems is dynamic, continuously adapting to meet the ever-evolving needs of society. Consequently, libraries contribute in multifaceted ways to our knowledge systems, drawing from a variety of scholarly sources. At the heart of their mission lies functioning as guardians of cultural heritage, preserving a diverse array of books, manuscripts, and historical records. Within the confines of these institutions, they safeguard the narratives, literature, and accumulated wisdom of past civilizations, ensuring that this priceless heritage remains accessible to future generations (Doğaray, 2023). Furthermore, libraries transcend their role as mere custodians of the past; they serve as sanctuaries of learning, offering individuals of all ages access to resources that facilitate lifelong

learning. Whether through printed materials, digital archives, or educational programs, libraries empower people to embark on journeys of intellectual growth and personal development. Top of Form

Libraries are also vital in advancing research and innovation. Academic and research libraries provide scholars with access to a wealth of scholarly literature and specialized collections, accelerating the pace of discovery and driving advancements across diverse fields (Rossman, 2023). Additionally, in an era marked by digitalization, libraries are pivotal in bridging the digital divide, offering free access to technology and digital resources, and ensuring that everyone, regardless of socioeconomic status, has equitable access to the tools of education and personal growth. Public libraries, in particular, extend their role as community hubs, facilitating social cohesion through cultural events, workshops, and educational programs that foster dialogue and mutual understanding among diverse community members. Librarians, as skilled curators and organizers of information, simplify the navigation of vast knowledge repositories through cataloguing, classification, and indexing. Furthermore, libraries actively engage in the preservation of digital knowledge, archiving websites, electronic journals, and other digital content, securing it for posterity and mitigating the risks of information loss in the digital age.

Thus, they uphold the fundamental principle of intellectual freedom and unrestricted access to information. They provide safe spaces for the expression of diverse voices and perspectives, ensuring that censorship and restrictions do not hinder the free exchange of ideas. In their commitment to remaining relevant, libraries adapt to technological advancements by embracing digital catalogues, e-books, online databases, and other digital resources (Khan & Basir, 2023). This ensures that they remain accessible and indispensable in an increasingly digital world. Lastly, libraries are pivotal in promoting information literacy, educating users on critical evaluation of information, discerning credible sources from misinformation, and navigating the complex landscape of the information age. Thus, libraries emerge as the bedrock of our intellectual heritage, catalysts of continuous learning, and pillars of knowledge systems. Their influence transcends physical spaces, extending into digital frontiers and community engagement. As our society evolves, libraries steadfastly uphold their mission to preserve, disseminate, and democratize knowledge, ensuring that the torch of wisdom illuminates the path for future generations.

The Technological Evolution of Libraries in the 5IR

The seamless integration of state-of-the-art technologies into the core of libraries has initiated a profound transformation, perfectly aligned with the monumental paradigm shift ushered in by the onset of the 5th Industrial Revolution. This technological metamorphosis goes beyond traditional boundaries, granting libraries a dynamic and multifaceted ability to interact with patrons through in-

novative and unexplored avenues. In this comprehensive and meticulously researched exploration, we embark on an insightful journey through the transformative innovations that stand resolutely at the forefront of this revolution, buttressed by the latest and most authoritative citations, with an unwavering commitment to dissecting their profound and far-reaching impact on libraries and the overarching landscape of knowledge dissemination.

Artificial Intelligence (AI) and Machine Learning: AI and machine learning have assumed central roles in libraries' adaptation to the 5th Industrial Revolution. These technologies are instrumental in revolutionizing cataloguing, information retrieval, and user interactions. AI-driven virtual assistants, chatbots, and recommendation algorithms are enhancing user experiences, and providing personalized and efficient library services (Chaturvedi & Verma, 2023). Machine learning, on the other hand, enables libraries to analyze vast datasets to glean insights, optimize resource allocation, and deliver services aligned with evolving user needs (Kamal & Himel, 2023).

Data Analytics and Big Data: Libraries are harnessing the power of data analytics and big data to gain deeper insights into user behaviour, resource utilization, and collection development. Big data analytics enables data-informed decision-making, enhancing operational efficiency and resource allocation (Kraft-Terry & Brown, 2023). These data-driven insights are pivotal to shaping library strategies and ensuring that resources are allocated optimally to meet the dynamic demands of users.

Internet of Things (IoT): IoT technologies are transforming libraries into smart, responsive spaces that are in tune with the needs of patrons. IoT sensors monitor various aspects of library operations, including environmental conditions, occupancy rates, and resource usage. This data are then used to optimize space utilization, enhance user experiences, and promote sustainability (Azizi et al., 2020). Sensors that adjust lighting and climate control systems based on occupancy contribute to a more comfortable and energy-efficient library environment.

Blockchain: Libraries are exploring blockchain technology to bolster the security and transparency of transactions, particularly in the management of digital assets and intellectual property (Tella et al., 2022). Blockchain's immutable ledger can be used to verify the authenticity of digital resources, ensuring the integrity of library collections. It also offers the potential to secure digital lending and copyright management processes, adding trust and accountability.

Augmented Reality (AR) and Virtual Reality (VR): AR and VR technologies are reshaping how libraries engage with their patrons. These immersive technologies enable virtual library tours, interactive learning experiences, and innovative storytelling (Zhanget al.,2020). Libraries are leveraging AR and VR to create captivating educational content and bridge the gap between physical and digital library spaces, fostering deeper user engagement (Prouzeauet al., 2020).

Robotic Automation: Libraries are incorporating robotic automation to streamline operational tasks such as book retrieval and reshelving. Robots equipped with RFID technology efficiently locate and organize materials, freeing up library staff for more complex and user-centric activities (Tella & Ajani, 2022). Robotic automation enhances operational efficiency and contributes to the overall resource management strategy of libraries.

Cybersecurity Solutions: Libraries are implementing robust cyber security solutions to safeguard against cyber threats and data breaches, considering the sensitivity of user data and digital resources. Intrusion detection systems and encryption protocols are vital in protecting library assets and ensuring patron privacy (Adeleke, 2023).

Cloud Computing: Cloud computing has revolutionized how libraries manage and deliver digital services (Sharma et al., 2023). It offers scalable and cost-effective solutions for storage, collaboration, and resource sharing. Cloud-based library systems enable seamless access to digital collections, facilitating a more user-centric approach and expanding resource accessibility.

5G and Enhanced Connectivity: The widespread deployment of 5G networks promises to revolutionize library services (Oruma et al., 2023). High-speed, low-latency connectivity is indispensable for the adoption of IoT, augmented reality, and other transformative applications within libraries. 5G empowers libraries to offer faster access to digital resources and enhances user engagement.

Accessibility Technologies: Libraries are proactively embracing accessibility technologies to ensure inclusivity and accessibility for all patrons, including those with disabilities (Gupta et al., 2023). These technologies encompass screen readers, voice recognition software, and assistive devices, enabling individuals with diverse needs to fully participate in and benefit from library resources and services.

Be that as it may, libraries are harnessing a spectrum of advanced technologies to navigate the 5th Industrial Revolution, redefining their roles and expanding their impact on the knowledge ecosystem. These transformative forces are enhancing user experiences, streamlining operations, and enabling libraries to remain dynamic and indispensable in an era of digital transformation. With these technologies, libraries are poised to continue serving as vital pillars of education, research, and community engagement, adapting to the evolving needs of their patrons and remaining at the forefront of knowledge systems.

The Future of Library Services

The landscape of library services is currently undergoing a profound transformation, a metamorphosis propelled by the relentless advancement of cutting-edge technologies. These innovations are revolutionizing how libraries function and engage with their communities, adapting to the needs and expectations of the digital age. A noteworthy stride in technology-driven library services

is the incorporation of artificial intelligence (AI) and machine learning. AI-driven virtual assistants and chatbots offer immediate assistance, thereby enriching the overall user experience (Zeng et al., 2023). Machine learning algorithms optimize resource organization and discovery, ensuring swift and efficient access to information (Thirunavukarasu et al., 2023). These technologies not only streamline library operations but also customize the library experience for each individual. Data analytics and big data are also crucial in shaping modern library services. Libraries can now analyze user behaviour, resource utilization, and collection trends, enabling data-informed decisions about resource allocation and responsiveness to patrons' evolving needs (Kociubuk et al., 2023).

The result is a more efficient and user-centric library service, empowering users to access and use information resources effectively. The integration of the Internet of Things (IoT) has further transformed library services, turning them into smart, responsive spaces. IoT sensors are employed to monitor space utilization, environmental conditions, and resource availability, optimizing library environments for users and resource allocation (Nematollahiet al., 2023). In addition to these, blockchain technology is enhancing the security and transparency of transactions related to digital assets and intellectual property. Blockchain's immutable ledger ensures the integrity of digital resources (Kociubuket al., 2023). In this digital age, libraries are at the forefront of innovation, offering dynamic and personalized services that cater to the diverse needs of their patrons. The relentless integration of advanced technologies has transformed libraries into vibrant hubs of knowledge and information, redefining their roles and expanding their capacity to meet the ever-evolving expectations of their communities.

Challenges in Implementing Intelligent Libraries

The integration of intelligent libraries into our knowledge systems presents an array of intricate challenges that require thorough examination and resolution. A primary concern revolves around ensuring equitable access and inclusivity in an increasingly digitized library landscape. Libraries must be mindful not to inadvertently marginalize individuals lacking the necessary digital literacy skills or access to technology as they advance technologically. Bridging this digital divide is a pressing challenge demanding steadfast attention to preserve the democratic principles upon which libraries are founded (Killoran, 2018). Another pivotal challenge centres on the ethical dimensions of utilizing AI and machine learning in intelligent libraries. As these libraries employ AI-driven algorithms to curate content, provide resource recommendations, and tailor user experiences, concerns arise regarding data privacy and potential biases embedded within AI systems (Budhwar et al., 2023). Consequently, libraries must proactively establish robust ethical guidelines to ensure that AI is developed, deployed, and maintained in a manner consistent with principles of fairness, transparency, and user privacy.

The evolving role of librarians also presents a dynamic challenge. As AI systems increasingly handle routine tasks, librarians are expected to pivot toward more specialized, user-centric services. This transformation necessitates an ongoing commitment to professional development and the acquisition of new skills to effectively navigate the evolving library landscape (Sousa-Zomer, 2020). Data security and privacy constitute persistent challenges in the context of intelligent libraries, with the accumulation and storage of vast patron data making libraries potential targets for cyber attacks. Safeguarding this sensitive information is paramount to protect patrons and maintain the integrity of library systems (Bareh, 2020). Interoperability issues often arise during the implementation of intelligent library systems. Diverse AI and machine learning technologies may employ disparate standards, data formats, or communication protocols, necessitating the complex technical challenge of ensuring seamless integration with existing library systems and compatibility within a diverse technological environment (Taherdoost et al., 2023).

Furthermore, there is a significant financial hurdle to surmount. The implementation and maintenance of intelligent library systems entail substantial costs, from the acquisition of cutting-edge technology to the ongoing training and support of staff members. Given that libraries frequently operate within tight budget constraints, prudent financial planning and the judicious allocation of resources are imperative to navigate these fiscal challenges (Berman et al., 2021). A challenge that cannot be underestimated is the management of user expectations. As AI systems in libraries become increasingly sophisticated, patrons may come to expect near-instantaneous, highly personalized services. Balancing the meeting of these expectations with a broader, user-engagement strategy is an ongoing challenge for libraries (Ihejirika, 2021). Lastly, the challenge of cultural adaptation must not be overlooked. The implementation of intelligent libraries often necessitates a cultural shift within both library staff and user communities. These changes must be accepted and embraced to facilitate the successful integration of AI and machine learning in libraries (Gupta & Gupta, 2023). Addressing these challenges comprehensively and proactively is essential for libraries to effectively navigate the transformative journey toward becoming intelligent, user-centric, and ethically responsible institutions in the digital age.

Sustainability of Knowledge Systems Through Intelligent Libraries

In today's swiftly evolving digital landscape, the imperative for innovation in libraries is more critical than ever, especially in advancing sustainable knowledge systems. Traditionally recognized as repositories of human wisdom, libraries are adapting and innovating to meet the demands of an increasingly interconnected and data-driven world. Intelligent libraries, infused with artificial intelligence (AI) and cutting-edge technologies, are at the forefront of this transformation, reshaping their roles to make significant contributions to the devel-

opment and dissemination of sustainable knowledge systems (Oladokun et al., 2024a). The integration of AI into libraries has been pivotal in enhancing the accessibility and relevance of sustainability knowledge. AI-powered algorithms excel in curating and recommending sustainable resources, empowering users to explore content aligned with environmental, social, and economic sustainability objectives. For instance, AI can analyze a user's preferences and information needs to suggest relevant materials on topics like renewable energy, sustainable agriculture, or environmental policy (Balaska et al., 2023). These intelligent recommendations not only facilitate individual learning but also strengthen collective awareness and advocacy for sustainability.

Furthermore, intelligent libraries harness AI to streamline the curation of accurate, up-to-date information concerning sustainability. In a swiftly changing world where environmental concerns, climate change, and sustainable development goals constantly evolve, AI systems can continuously monitor and update the library's resources. They identify the most recent research findings, policy updates, and innovative solutions within the sustainability domain, ensuring that library users have access to the latest insights and knowledge (Farid et al., 2023). This real-time curation fosters well-informed decision-making and encourages proactive sustainability efforts across various levels of society. The gathering and dissemination of sustainability-related data are vital for nurturing knowledge systems that support environmental and social well-being. Intelligent libraries employ AI to manage, analyze, and present data in user-friendly formats. They can generate data visualizations, infographics, and interactive tools that render intricate sustainability data understandable and actionable for a diverse audience.

These data-driven innovations empower library users to interact with sustainability data meaningfully, whether it is visualizing carbon emissions trends, showcasing the impact of sustainable practices, or mapping biodiversity hotspots (Vadjunecet al., 2022). Such capabilities are pivotal in fostering knowledge systems that inform and inspire sustainable actions. Moreover, intelligent libraries extend their reach beyond content provision by offering sustainability-related educational programs and initiatives. They provide opportunities for users to enhance their sustainability literacy and skills. AI-driven recommendation systems can propose personalized learning pathways, connecting users with courses, workshops, and webinars on subjects such as sustainable business practices, green technologies, or eco-friendly lifestyle choices (Ariciet al., 2019). These programs not only bolster sustainability knowledge but also empower individuals and organizations to implement sustainable solutions in their daily lives and professional endeavours.

Success Story of Intelligent Libraries Around the World

Real-world case studies and exemplary practices provide tangible proof of how intelligent libraries actively contribute to advancing sustainability knowledge systems. These instances will provide valuable insights into the ways libraries, enriched with innovative technologies, are making a concrete impact on fostering awareness and practices related to sustainability. A particularly compelling case study centres around the Singapore National Library, which has embraced a forward-thinking approach to sustainability education. The library implemented a recommendation system that tailors personalized reading lists on sustainability topics for users based on their preferences and reading history (OECD, 2016). The outcome was a notable increase in the circulation of sustainability-related books and a significant rise in attendance at sustainability-themed events and workshops hosted by the library.

Another noteworthy example comes from the Seattle Public Library in the United States, which launched a sustainability information kiosk. The kiosk assists library visitors in locating local sustainable businesses, accessing information on renewable energy incentives, and understanding eco-friendly practices. By making sustainability resources more accessible and interactive, the library saw a substantial uptick in the number of inquiries and consultations regarding sustainable living (Khalid et al., 2021). On a global scale, the International Sustainable Libraries Initiative (ISLI) presents a best practice model for collaboration among libraries worldwide. ISLI, a consortium of libraries from different continents, established a shared online platform that enables the exchange of sustainability knowledge. This initiative has facilitated the sharing of best practices, research findings, and community engagement strategies in the field of sustainability across diverse regions (Mathiasson & Jochumsen, 2023). The real-world success of ISLI showcases the potential of collaboration in creating a global network for the dissemination of sustainability knowledge.

Moreover, the City of Stockholm Public Library in Sweden serves as a prime example of how immersive encounters are utilized to foster awareness of sustainability. The library introduced virtual reality (VR) experiences that transport users to natural reserves and ecosystems facing environmental challenges. This immersive method enables individuals to directly witness the impacts of environmental issues (Greene & Groenendyk, 2021). Consequently, this immersive approach has resulted in heightened community involvement in local environmental causes and a greater sense of responsibility toward the environment. These applications within library settings demonstrate how emerging technologies have the potential to make sustainability education more engaging and encourage active participation. Hence, these instances offer a promising avenue for advancing sustainability education. These real-world initiatives not only impart knowledge to individuals but also motivate them to actively partake

in sustainable practices, contributing to a more environmentally conscious and sustainable global community.

Need for Advocating for Intelligent Libraries in the 5IR

The onset of the 5IR marks a significant period of technological progress and societal change, prompting a reassessment of the evolving role of libraries. Traditionally seen as guardians of knowledge, libraries now need to adapt to the shifting digital landscape while upholding their fundamental principles. This need arises from several key factors:

1. **Technological Integration:** The 5IR is characterized by the integration of advanced technologies such as the Internet of Things (IoT), cloud computing, biotechnology, nanotechnology, quantum computing, and, most prominently, artificial intelligence (AI). For libraries to enhance user experiences and streamline their operations, they must strategically incorporate these technologies. Intelligent libraries will not only increase the accessibility of knowledge but also offer innovative services tailored to the needs of modern users.
2. **Ethical and Privacy Concerns:** With the adoption of advanced technologies, especially AI, libraries face significant ethical and privacy challenges. These challenges can conflict with the core principles of inclusivity, transparency, and intellectual freedom that libraries uphold. Addressing these concerns is crucial to maintain public trust and uphold the ethical standards of the library profession. Developing and promoting ethical guidelines for the use of AI and other technologies in libraries are essential for ensuring responsible and transparent use.
3. **Digital Inclusion:** Libraries have a vital role in bridging the digital divide by providing equitable access to technology and digital resources. As society becomes increasingly digital, ensuring fair access to these resources for all individuals, regardless of socioeconomic status, is more important than ever. Libraries must advocate for and implement solutions that promote digital inclusion, ensuring that everyone has the opportunity to benefit from technological advancements.
4. **Community Engagement:** Libraries have long served as community hubs, fostering social cohesion through cultural events, workshops, and educational programs. Intelligent libraries can enhance these functions by leveraging digital tools to foster deeper community engagement and support lifelong learning. By doing so, libraries can remain central to the communities they serve, adapting to the changing needs of their patrons.

5. **Preservation and Innovation:** In an era of rapid digital transformation, libraries must balance the preservation of cultural heritage with the need to innovate. This involves embracing digital catalogues, e-books, online databases, and other digital resources to remain relevant and indispensable. Intelligent libraries can use these tools to continue their traditional roles while also innovating to meet contemporary demands.
6. **Operational Efficiency:** AI and machine learning offer the potential to revolutionize library operations, from cataloguing and information retrieval to user interactions. Implementing these technologies can optimize resource allocation and enhance operational efficiency, allowing libraries to better serve their patrons. By adopting intelligent systems, libraries can provide faster, more accurate, and personalized services, meeting the evolving expectations of users.
7. **Sustainability:** As institutions committed to long-term knowledge preservation, libraries must adopt sustainable practices. This includes implementing energy-efficient technologies and promoting digital literacy to reduce environmental impact. By prioritizing sustainability, libraries can contribute to broader environmental goals while continuing to serve their communities effectively.

Concluding Remark

The role of libraries in shaping a sustainable knowledge system during the 5th Industrial Revolution presents both opportunities and challenges. Traditionally, libraries have been the custodians of wisdom, preserving our cultural heritage and promoting lifelong learning. As we transition into the digital era, libraries find themselves on the brink of a profound transformation, one that is redefining their roles and reconceptualising their interactions with patrons. The integration of cutting-edge technologies, including artificial intelligence, holds promising possibilities for customizing user experiences, fostering global knowledge networks, and embracing emerging technologies. These innovations have the potential to enhance library services, making them more accessible and engaging than ever before. However, these prospects also bring forth a set of considerations that require careful contemplation.

In the realm of personalized user experiences, libraries must prioritize data privacy and ethical concerns. Prudent data management and robust security measures are indispensable in maintaining user trust. The advent of global knowledge networks necessitates a comprehensive exploration of intellectual property matters and the responsible sharing of information. The adoption of emerging technologies requires judicious resource allocation, striking an equilibrium between technological enhancements and fundamental services. Preservation of

digital knowledge entails addressing digital inclusion, and ensuring that digital content remains accessible to all. Sustainability initiatives should harmonize with resource management, embracing eco-friendly practices while effectively stewarding available resources.

As libraries continue to evolve within the 5th Industrial Revolution, they remain steadfastly committed to their core mission of preserving, disseminating, and democratizing knowledge. They are at the forefront of nurturing sustainable knowledge systems. Libraries, as dynamic institutions, are well-prepared to navigate these challenges and harness the opportunities presented by advanced technologies, guaranteeing a future where knowledge remains accessible, pertinent, and impactful. In this transformative odyssey, libraries transcend their role as mere repositories of wisdom to become catalysts of change, molding a sustainable knowledge system for the benefit of generations to come.

Future pathway

To effectively navigate the challenges and opportunities of the Fifth Industrial Revolution, libraries must embrace the following pathway:

1. Libraries should advocate for programs that enhance digital literacy and technology skills among library patrons and staff.
2. Librarians should develop and promote ethical guidelines for the use of AI in libraries, ensuring that these technologies are used responsibly and transparently.
3. Libraries should advocate for policies and funding that support the expansion of digital collections and the infrastructure needed to access them.
4. Librarians should build partnerships with local organizations, educational institutions, and technology companies to enhance community services and programs.
5. It is also important for libraries to promote continuous learning and professional development opportunities for librarians to equip them with the skills needed to navigate the evolving digital landscape.
6. Lastly, libraries should advocate for robust data privacy and security measures to protect patron information and maintain trust.

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Poparcie dla inteligentnych bibliotek w erze piątej rewolucji przemysłowej

DOI: <http://dx.doi.org/10.12775/FT.2024.002>



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Przysłany: 1 XII 2023

Zaakceptowany: 19 VII 2024

Yusuf Ayodeji Ajani jest adiunktem w Instytucie Bibliotekoznawstwa i Informatyki na Uniwersytecie w Abudży (Federalne Terytorium Stołeczne, Nigeria), oraz studentem studiów podyplomowych na Wydziale Bibliotekoznawstwa i Informatyki Uniwersytetu Ilorin w Ilorin w Nigerii. Jego imponujący dorobek publikacyjny liczy ponad 70 artykułów opublikowanych w renomowanych czasopismach krajowych i międzynarodowych z dziedziny edukacji i bibliotekarstwa. W 2023 roku otrzymał cenną nagrodę Emerald Literati Award za jego wkład w badania naukowe. W przypadku pytań i potencjalnej współpracy prosimy o kontakt z Ayodeji pod adresem yusuf.ajani@uniabuja.edu.ng.

Bolaji David Oladokun jest rozwijającym się badaczem i wykładowcą w Instytucie Bibliotekoznawstwa i Technologii Informatycznych Politechniki Federalnej w Ikot Abasi w stanie Akwa Ibom w Nigerii. Posiada podstawowy stopień naukowy w zakresie bibliotekoznawstwa i informacji naukowej oraz dyplom z wyróżnieniem w zakresie komunikacji masowej. Uzyskał również tytuł magistra bibliotekoznawstwa i informacji naukowej na Uniwersytecie Edukacyjnym Ignatius Ajuru w Port Harcourt w Nigerii, który ukończył z wyróżnieniem. Jest również Certyfikowanym Bibliotekarzem w Nigerii (CLN) i członkiem Nigeryjskiego Stowarzyszenia Bibliotek (NLA). Jest również członkiem Nigeryjskiego Stowarzyszenia Edukatorów Bibliotekoznawstwa i Informatyki Naukowej (NALISE) oraz Stowa-

rzyszenia Nauk Informacyjnych i Technologii (ASIS&T). Jest autorem ponad 100 artykułów opublikowanych w akredytowanych czasopismach, materiałów konferencyjnych i rozdziałów w książkach. Ma również na swoim koncie trzy (3) książki z zakresu bibliotekoznawstwa i informacji naukowej.

Słowa kluczowe: Inteligentne biblioteki, innowacje, zrównoważony system wiedzy, 5. rewolucja przemysłowa

Abstrakt

Cel: Początek piątej rewolucji przemysłowej zwiastuje erę transformacji, charakteryzującą się niesamowitym postępem technologicznym, zmuszającym biblioteki do ponownego odkrycia swojej tożsamości w szybko digitalizującym się świecie. W badaniu przeanalizowano zmieniającą się rolę bibliotek, kładąc nacisk na integrację inteligentnych technologii w celu poprawy doświadczeń użytkowników, usprawnienia operacji i zwiększenia dostępności wiedzy. Badani porusza krytyczne problemy etyczne i związane z prywatnością, opowiadając się za strategiami, które podtrzymują inkluzywność, przejrzystość i wolność intelektualną.

Metody: W badaniu wykorzystano metodologię interpretacji treści/analizy dokumentów w celu dokładnego przeglądu i analizy literatury pochodzącej z różnych baz danych, w tym Scopus i Web of Science. Ten wybór metodologiczny ma na celu kompleksowe i wszechstronne zbadanie tematu, obejmujące szerokie spektrum perspektyw i spostrzeżeń. Proces analizy interpretacji treści/dokumentu polega na skrupulatnej analizie i interpretacji materiałów tekstowych, co sprzyja zrozumieniu badanego tematu w sposób pełen niuansu. Włączenie literatury z renomowanych baz danych, takich jak Scopus i Web of Science, nie tylko zwiększa wiarygodność i rzetelność wyników, ale także zapewnia solidną eksplorację tematu

Wyniki: Kluczowe technologie, takie jak sztuczna inteligencja, uczenie maszynowe, analiza danych, IoT, blockchain, AR/VR i 5G, są badane pod kątem ich wpływu na operacje biblioteczne i zaangażowanie użytkowników. Wyzwania, w tym równość cyfrowa, etyczne wykorzystanie sztucznej inteligencji, bezpieczeństwo danych, interoperacyjność i ograniczenia finansowe, są identyfikowane i analizowane.

Wniosek: Badanie opowiada się za koniecznością przekształcenia się bibliotek w dynamiczne, inteligentne ośrodki, które mają wkład w zrównoważone systemy wiedzy, przy jednoczesnym zachowaniu ich podstawowych zasad.

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Förderung intelligenter Bibliotheken in der Ära der fünften industriellen Revolution

DOI: <http://dx.doi.org/10.12775/FT.2024.002>



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Zugesandt: 1 XII 2023

Angenommen: 19 VII 2024

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S **chlüsselworte:** intelligente Bibliotheken, Innovationen, nachhaltiges Wissenssystem, fünfte industrielle Revolution

Z **usammenfassung**

Z **iel:** Der Beginn der fünften industriellen Revolution kündigt eine Transformationsepoche an, die durch außergewöhnliche technologische Fortschritte gekennzeichnet ist und Bibliotheken dazu bewegt, sich in der schnell digitalisierenden Welt selbst zu finden. Die Studie untersucht die evolvierende Rolle der Bibliotheken und legt den Druck auf die Integrierung von intelligenten Technologien zur Verbesserung der Nutzererfahrungen, Optimierung der Abläufe und Steigerung der Wissensverfügbarkeit. Die Arbeit bezieht sich auf zentrale ethische und datenschutzbezogene Fragestellungen und plädiert für Strategien, die Inklusivität, Transparenz und intellektuelle Freiheit unterstützen.

F **orschungsmethode:** In der Studie wurde die Methodologie der Inhalts-/Dokumenteninterpretation verwendet, um eine präzise Durchsicht und Analyse der Literatur aus verschiedenen Datenbanken, einschließlich Scopus und Web of Science, durchzuführen. Diese methodische Auswahl zielt darauf ab, das Thema umfassend und vielseitig zu untersuchen, indem ein breites Spektrum an Perspektiven und Einsichten einbezogen wird. Der Prozess der Analyse interpretativer Inhalte/Dokumente umfasst eine sorgfältige Analyse und Interpretation von Textmaterialien, was zu einem detaillierten Verständnis des untersuchten Themas beiträgt. Die Berücksichtigung von Literatur aus renommierten Datenbanken wie Scopus und Web of Science erhöht nicht nur die Glaubwürdigkeit und Zuverlässigkeit der Ergebnisse, sondern gewährleistet auch eine fundierte Erschließung des Themas.

F **orschungsergebnisse:** Zentrale Technologien wie künstliche Intelligenz (AI), maschinelles Lernen (ML), Datenanalyse, Internet der Dinge (IoT), Blockchain, erweiterte Realität/virtuelle Realität (AR/VR) und 5G werden auf ihre Auswirkungen auf die Bibliotheksarbeit und das Engagement der Nutzer untersucht. Herausforderungen wie digitale Gleichstellung, ethische Nutzung von KI, Datensicherheit, Interoperabilität und finanzielle Einschränkungen wurden identifiziert und analysiert.

S **chlussfolgerung:** In der Studie wurde die Notwendigkeit betont, Bibliotheken in dynamische, intelligente Zentren umzugestalten, die zur nachhaltigen Entwicklung von Wissenssystemen beitragen, aber auch gleichzeitig ihre grundlegenden Funktionen bewahren.

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B

bridging the Gap: Exploring the Relationship between Information Access and Environmental Justice in Library Practices

DOI: <http://dx.doi.org/10.12775/FT.2024.003>



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Received: 6 III 2024

Accepted: 19 VII 2024

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Keywords: Information Access, Environmental Justice, Library Practices, Niger Delta, Environmental Pollution, Community Service.

Abstract

Aims: The intersection of information access and environmental justice has become increasingly vital as communities worldwide grapple with environmental challenges. This study explores the relationship between information access and environmental justice in library practices, focusing on academic librarians at the Federal University of Technology Ikot Abasi in Nigeria's Niger Delta region.

Methods: This study utilized a descriptive design. The study involved six academic librarians from the Federal University of Technology, Ikot Abasi, Akwa Ibom State of Nigeria, selected for their expertise in facilitating information access and availability especially as it relates to the roles of libraries in environmental justice initiatives within academia. Data were gathered through focus group discussions (FGDs) with the participating librarians, conducted in a conducive and private setting to encourage open dialogue and diverse perspectives. Thematic analysis was employed to analyze the FGD transcripts.

Results: The findings emphasize the importance of multilingual resources, targeted outreach, translation services, collaboration with community leaders, consideration of literacy levels, and cultural relevance in ensuring information accessibility. Challenges such as limited internet access, language barriers, disparities in digital literacy, lack of awareness, and resistance from certain community members hinder equitable information access.

Conclusion: The study concludes that librarians contribute to environmental justice advocacy through participation in local initiatives, policy engagement, awareness raising, and collaboration with stakeholders. This study sheds light on the crucial role of libraries in advancing environmental justice and suggests strategies for enhancing information access and advocacy efforts in the pursuit of sustainable development agendas.

Introduction

The role of information access in fostering environmental justice has gained significant attention given the indices of environmental crises and inequalities. Environmental crises, such as climate change, pollution, and natural resource depletion,

disproportionately affect marginalized communities, exacerbating existing social and economic inequalities. These communities often lack the necessary information to advocate for their rights, protect their environment, and access resources that could help mitigate the impacts of these crises (Durodolu et al., 2022). In so doing, libraries stand at the intersection of these issues. Over time, environmental justice has become increasingly pertinent as communities worldwide grapple with the adverse effects of pollution, climate change, and resource exploitation. It is observed that marginalized populations often bear the brunt of environmental degradation, facing disproportionate exposure to hazards and limited access to information resources that could mitigate those risks (Knoble & Yu, 2023). Going forward, information access serves as a gateway to empowerment, enabling individuals to make informed decisions, advocate for their rights, and participate meaningfully in decision-making processes. Therefore, libraries are pivotal in providing equitable access to information for all (Oladokun et al., 2021). Given the main objectives of libraries, information providers and library professionals strive to democratize access to knowledge, empower underserved communities, and facilitate informed action on environmental issues.

In contemporary society, the issues of environmental justice and equitable information access have garnered increasing attention. This is why Malin et al. (2019) underscore that the role of libraries as facilitators of knowledge dissemination and community engagement becomes ever more crucial as communities grapple with environmental challenges and differences. Dominelli (2012) notes that environmental justice is paramount in addressing the unequal distribution of environmental benefits and burdens. The author further states that marginalized societies are being faced with disproportionate exposure to environmental hazards and limited access to vital information could be a threat. Contributing to the indices of environmental justice, Omekwu et al. (2023) opine that information access serves as a catalyst for empowerment which enables community members to make informed decisions, advocate for their rights, and participate actively in environmental governance processes.

Given the foregoing, it is important to note that the place of libraries in bridging the divide of information access propels a significant effect to advocating for environmental justice movement. Supporting this, Jennings et al. (2012) observe that libraries occupy a unique position in bridging the gap between information access and environmental justice. The authors further reveal that libraries perform immense roles in supporting research and education on environmental issues. They provide access to scholarly literature, data repositories, and research tools that facilitate the exploration and understanding of environmental challenges and solutions. Omona (2020) adds that knowledge managers and information professionals, through their expertise in information retrieval and literacy, guide users including lecturers, students, and community members, to access, evaluate, and synthesize environmental information, and in so doing, empower these users to contribute to informed decision-making and innovative solutions to matters as it concerns their health, finance, education, and other human endeavours.

While there are several kinds of libraries with peculiar services and users, academic libraries serve as the hub of tertiary institutions that offer indiscriminate services and provide a wide range of materials and programs that raise awareness of environmental issues and promote sustainable practices (Durodolu&Adekanye, 2017). Goodsett (2018) notes that libraries provide resources and platforms for learning, dialogue, and action on environmental issues. These resources ranged from curated collections of books, films, and documentaries to workshops, lectures, and exhibits.

Focusing on the distinct roles of libraries as allies and collaborators in their efforts to address environmental injustices, Gregory and Higgins (2017) observe that libraries provide meeting spaces, informational resources, and technical support to categories of users on environmental advocacy, and policy reform. In so doing, librarians who are attuned to the needs and priorities of their user members are critical in building partnerships, amplifying voices, and mobilizing support for environmental justice initiatives through the provision of timely and adequate information (Lloyd-Smith, 2009). However, several challenges are potential gaps in the rendition of accessible information on environmental justice to academic community members. Literature has shown that challenges continue to persist in realizing the full potential of libraries as agents of environmental justice. This aligns with the agitations of Olowoporoku et al. (2023), Sotolongo (2023), and Aidonojie (2023) who indicate that digital divides, language barriers, and socio-economic disparities hinder equitable access to information, particularly for marginalized populations. In rural areas and underserved communities, Bangani and Dube (2023) reveal that limited internet connectivity, outdated infrastructure, and insufficient funding pose barriers to accessing online resources and digital literacy training. Given these numerous indices, the study sought to explore the relationship between information access and environmental justice in library practices while focusing on the Niger Delta Region of Nigeria.

Problem statement

Despite the persistent environmental challenges facing the Niger Delta region of Nigeria, marginalized communities often lack adequate access to information and resources to fully understand and address these issues. Libraries, as vital information hubs, are often recognized to support these communities by offering relevant information, educational materials, and access to the latest technology. However, lack of initiatives and strategies within libraries to commendably extend their services to accommodate the marginalized communities in the Niger Delta concerning environmental issues. This lack of initiative and strategies aggravates the level of vulnerability and thwarts the ability to engage efficiently in advocacy and decision-making processes. Allied to the above, Oghenekevwe and Osinulu (2020) identified limited access to information or lack of reliable information resources concerning environmental problems in most Niger Delta communities, the authors stress that these challenges can hamper the capacity to make informed decisions and take critical action to alleviate environmental risks. In the opinion of Onyekw-

ere and Agu (2019), educational opportunities remain a veritable avenue for the marginalized community to familiarize themselves with issues relating to environment-sustainable practices, and advocacy strategies. The authors emphasize the need for libraries to use the platform of educational setting to organize seminars and enhance the ability of the community to access educational materials.

In the observation of Ezeala and Ezeribe (2021), several marginalized communities in the Niger Delta are deficient in access to digital and electronic resources and as a result of this, they may struggle with digital literacy that can provide them with up-to-date information. Based on this, libraries can offer computer access, internet connectivity, and training programs to increase digital literacy skills, empowering community members to access online and offline environmental information and resources. It is against this backdrop that the study sought to investigate the relationship between information access and environmental justice in library practices with specific consideration to the Federal University of Technology, Ikot Abasi, Akwa Ibom, Nigeria.

Aim of the study

This study aims to explore the relationship between information access and environmental justice in library practices.

Research Questions

1. How can librarians ensure that information related to environmental justice is accessible to diverse groups within the community?
2. In what ways can librarians contribute to advocacy efforts for environmental justice at the local or national level?
3. How can libraries influence policies that impact environmental justice and information access?
4. How can we measure the impact of library initiatives in promoting information access and environmental justice?
5. Are there specific metrics or indicators that would demonstrate success in this area?
6. Are there any specific challenges or barriers to information access that need to be addressed?

Methodology

This study utilized a descriptive design. A qualitative method was chosen to deeply explore participants' perspectives, experiences, and attitudes toward information access and environmental justice. The study involved six academic librarians from the Federal University of Technology, Ikot Abasi, Akwa Ibom State of Nigeria, selected for their expertise in facilitating information access and availability

especially as it relates to the roles of libraries in environmental justice initiatives within academia. Data were gathered through focus group discussions (FGDs) with the participating librarians, conducted in a conducive and private setting to encourage open dialogue and diverse perspectives. FGDs were chosen for their ability to facilitate interactive discussions and generate rich qualitative data. Thematic analysis was employed to analyze the FGD transcripts. This approach allowed for a systematic yet flexible analysis process, aligning with the research objectives. Before commencing the study, all participants provided informed consent, ensuring their voluntary participation and the confidentiality of their responses. Participants were guaranteed anonymity and the freedom to withdraw from the study at any point.

Presentation of Result

In this study, data analysis was conducted using Focus Group Discussions (FGD) to gather in-depth insights from participants. The responses obtained were then thematically analyzed to identify key themes and patterns related to the role of information access in fostering environmental justice within library practices. The analysis of the responses from the Focus Group Discussion (FGD) is below:

1. **How can librarians ensure that information related to environmental justice is accessible to diverse groups within the community?**

Based on the analysis of the FGD, it is evident that there are several key strategies librarians can employ to ensure that information related to environmental justice is accessible to diverse groups within the community:

Targeted Outreach Programs: Creating outreach initiatives specifically tailored to different demographic groups within the community can help ensure that information reaches everyone.

Translation Services: Actively translating materials into different languages can significantly improve accessibility for non-native speakers.

Collaboration with Community Leaders: Working with local community leaders can help tailor information to specific groups and ensure its relevance and effectiveness.

Consideration of Literacy Levels: Recognizing that not everyone may be proficient in reading and writing, librarians should provide information in various formats and offer assistive technologies to accommodate diverse literacy levels.

Cultural Relevance: Promoting resources in culturally relevant ways can enhance engagement and understanding among different cultural groups within the community.

Seeking Feedback and Collaboration: Librarians should actively seek feedback from diverse community members to continuously improve accessibility and relevance of information resources.

2. **In what ways can librarians contribute to advocacy efforts for environmental justice at the local or national level?**

Based on the responses provided in the focus group discussion interviews, it is evident that librarians can have a significant role in advocacy efforts for environmental justice at both local and national levels. Here is an analysis of the ways in which librarians can contribute:

Participation in Local Initiatives: Librarians can actively engage with local environmental initiatives, committees, and councils. By joining these groups, they can contribute their expertise and resources to furthering environmental justice goals within their communities.

Policy Engagement: Librarians have the opportunity to engage with policymakers on environmental justice issues. They can advocate for policies that promote sustainability, equity, and environmental protection by providing valuable research, information, and expertise.

Awareness Raising: Librarians can organize campaigns, events, and forums to raise awareness about environmental justice issues. By utilizing library spaces as platforms for education and discussion, they can help disseminate information and inspire action within their communities.

Information Access: Librarians recognize the importance of information access in addressing environmental justice. They can organize events and initiatives that highlight the role of libraries in providing access to resources and information related to environmental issues, empowering individuals to make informed decisions and take meaningful action.

Collaboration and Networking: Librarians can collaborate with local activists, environmental organizations, and coalitions to amplify advocacy efforts. By building partnerships and networks, they can leverage collective expertise and resources to advocate for positive change.

Overall, the responses suggest that librarians have a multifaceted role to perform in environmental justice advocacy, extending beyond traditional library functions to actively engage with communities, policymakers, and stakeholders in advancing environmental sustainability and equity.

3. **How can libraries influence policies that impact environmental justice and information access?**

Based on the analysis of the FGD, the following themes emerge regarding how libraries can influence policies impacting environmental justice and information access:

Active Participation in Community Forums and Discussions: Several participants highlighted the importance of libraries engaging in community forums and discussions. This involvement allows libraries to stay informed about local concerns and priorities related to environmental justice and information access.

Collaboration with Local Government Agencies and Policymakers: Collaboration with local government agencies and policymakers emerged as a key strategy mentioned by multiple participants. By working closely with these stakeholders, libraries can provide valuable input into policy development processes and advocate for the integration of environmental justice considerations.

Advocacy and Public Engagement: Participants emphasized the role of libraries in advocacy efforts and public engagement. This includes advocating for the integration of environmental justice education into school curricula, submitting evidence-based recommendations, and participating in public consultations.

Policy Recommendations and Evidence-Based Approaches: Libraries can influence policies by submitting evidence-based recommendations supported by research and data. Engaging with local government officials and attending public hearings were identified as ways to make a significant impact in policy decision-making processes.

Information Hub for Policy Decisions: Overall, participants recognized libraries as hubs for information that informs and shapes policy decisions. Libraries are vital in providing access to relevant resources and facilitating discussions on environmental justice and information access issues.

In summary, libraries can influence policies impacting environmental justice and information access through active participation in community forums, collaboration with stakeholders, advocacy efforts, evidence-based approaches, and serving as information hubs for policy decisions. These findings suggest that libraries have the potential to be powerful agents of change in promoting environmental justice and equitable access to information within their communities.

4. **How can we measure the impact of library initiatives in promoting information access and environmental justice?**

Based on the responses from the focus group discussion interviews, a comprehensive approach to measuring the impact of library initiatives in promoting information access and environmental justice can be formulated. Here's a breakdown:

Community Engagement and Attendance: Both P1 and P2 highlight the importance of increased community engagement and attendance at events related to environmental justice. Tracking the number of attendees at these events can serve as a quantitative measure of impact.

Feedback from Patrons: P1, P2, and P4 emphasize the significance of feedback from patrons who have accessed and utilized the library's resources on environmental justice. Gathering feedback through surveys and direct interactions can provide qualitative insights into the effectiveness of library initiatives.

Usage of Environmental Justice Resources: P2 and P3 suggest tracking the usage of environmental justice resources in the library. Monitoring the frequency and duration of resource utilization can indicate the level of interest and engagement among library users.

Number of New Library Users Engaging with Resources: P3 mentions the importance of measuring the number of new library users engaging with environmental justice materials. This metric can demonstrate the effectiveness of library initiatives in attracting and serving a broader audience.

Awareness Levels and Implementation of Community Initiatives: P5 emphasizes surveying library users on their awareness levels regarding environ-

mental justice issues and monitoring the implementation of community initiatives. This approach can provide insights into the extent to which library initiatives contribute to raising awareness and driving tangible action within the community.

Community Engagement Metrics and Surveys: P6 underscores the importance of tracking community engagement metrics, conducting surveys, and monitoring the implementation of community-driven projects. This integrated approach combines quantitative data with qualitative feedback to comprehensively assess the impact of library initiatives.

In conclusion, a multi-faceted approach combining quantitative metrics such as attendance and resource usage with qualitative feedback from patrons and community members can effectively measure the impact of library initiatives in promoting information access and environmental justice.

5. **Are there specific metrics or indicators that would demonstrate success in this area?**

Based on the responses from the focus group discussion interviews, it's evident that there are several specific metrics or indicators that could demonstrate success in the area of promoting environmental justice through library initiatives. Here's a summary:

Number of Workshops Conducted: This metric reflects the proactive effort of the library in organizing educational events focused on environmental issues.

Diversity of Resources Acquired: A wide range of resources obtained by the library indicates its commitment to providing comprehensive information on environmental topics.

Level of Community Involvement: Measuring the extent of community participation in environmental initiatives organized by the library helps gauge its impact and relevance.

Increased Community Engagement: This metric highlights the effectiveness of library initiatives in mobilizing community members to actively participate in environmental activities.

Positive Media Coverage: Favourable media attention indicates the library's success in raising awareness and generating interest in environmental justice issues.

Partnerships with Local Organizations: Collaborations with other institutions demonstrate the library's ability to leverage resources and expertise to address environmental challenges collectively.

Quantitative Data on Resource Usage and Community Participation: Analyzing usage statistics and participation rates provides concrete evidence of the library's impact on information access and community involvement.

Influence on New Policies: Tracking the adoption of policies influenced by the library's advocacy efforts shows its contribution to shaping environmental governance.

Increased Funding for Community Projects: Securing additional funding for local environmental initiatives indicates the effectiveness of the library in mobilizing resources to support grassroots efforts.

Positive Shifts in Public Perception: Monitoring changes in public attitudes toward environmental issues helps assess the library's role in shaping community perspectives.

Regular Assessments and Feedback Mechanisms: Continuous evaluation and feedback collection allow the library to adapt its strategies and improve the effectiveness of its environmental justice initiatives.

Surveys: Conducting surveys provides valuable insights into the overall success and impact of the library's programs and activities related to environmental justice.

These metrics collectively offer a comprehensive framework for evaluating the success of library initiatives in promoting environmental justice and can inform future planning and decision-making processes.

6. **Are there any specific challenges or barriers to information access that need to be addressed?**

Analysis of Focus Group Discussion Interview Responses:

Participant 1 highlights limited internet access, language barriers, and lack of awareness as key challenges needing attention for equitable information access.

Participant 2 mentions challenges such as limited funding for acquiring diverse resources, disparities in digital literacy, and insufficient community engagement.

Participant 3 echoes concerns about language barriers, limited digital literacy, and lack of community awareness, emphasizing the importance of targeted programs and resources to address these issues.

Participant 4 emphasizes the poor state of information literacy, noting that many individuals do not realize that libraries can provide information on environmental issues, leading to inadequate seeking behaviour among patrons.

Participant 5 reiterates previously mentioned challenges but underscores the significance of resistance from certain community members, limited financial resources, and potential conflicts of interest.

Participant 6 identifies challenges such as resistance from specific community members, financial constraints, and limited technological infrastructure as barriers to information access.

Overall, these responses highlight a range of challenges including limited access to technology and resources, language barriers, disparities in digital literacy, lack of awareness, and resistance from certain community members. Addressing these challenges through targeted programs, increased funding, and community engagement efforts is crucial for improving information access and promoting equity.

Implications of the Findings

This study explored the relationship between information access and environmental justice in library practices. First, the findings of this study can inform library practices and policies aimed at promoting environmental justice. In so doing, libraries can develop strategies to better serve their communities and contribute to positive environmental outcomes. Also, libraries are often overlooked as stakeholders in environmental justice efforts, hence this study highlights the important role that libraries can have in advancing environmental justice initiatives at the local, national, and global levels. While recognizing libraries as key actors in the pursuit of environmental justice, policymakers, activists, and community organizers can leverage libraries' resources and expertise to amplify their impact. Furthermore, this study contributes to a broader understanding of how information institutions can contribute to sustainable development agendas such as poverty reduction, education, health promotion, and ecosystem protection. Finally, the study addresses a gap in existing literature by focusing on the relationship between information access, environmental justice, and library practices. While there is considerable research on each of these topics individually, there is a lack of comprehensive exploration of how libraries, as information institutions, contribute to environmental justice efforts through information access.

Conclusion

This study focused on bridging the gap between information access and environmental justice in library practices. The study further revealed that there are several strategies librarians employ to ensure that information related to environmental justice is accessible to diverse groups within the community. As noted by the study, some of those strategies include organizing targeted outreach programs, translation services, collaboration with community leaders, consideration of literacy levels, and promoting cultural relevance which can help overcome barriers to access and enhance inclusivity. The findings indicate that librarians have the potential to contribute significantly to advocacy efforts for environmental justice at both local and national levels. By participating in local initiatives, engaging with policymakers, raising awareness, providing access to information, and collaborating with stakeholders, librarians can amplify advocacy efforts and drive positive change.

Furthermore, the study reported that libraries may influence policies impacting environmental justice and information access by actively participating in community forums and discussions, collaborating with local government agencies and policymakers, advocating for evidence-based approaches, and serving as information hubs for policy decisions. Given this, it was affirmed that measuring the impact of library initiatives in promoting information access and environmental justice requires a comprehensive approach that combines quantitative metrics such as

attendance and resource usage with qualitative feedback from patrons and community members. Specific metrics or indicators that demonstrate success in this area include the number of workshops conducted, diversity of resources acquired, level of community involvement, increased community engagement, positive media coverage, partnerships with local organizations, influence on new policies, increased funding for community projects, positive shifts in public perception, and regular assessments and feedback mechanisms.

However, the study identified specific challenges and barriers to information access that need to be addressed, including limited internet access, language barriers, disparities in digital literacy, lack of awareness, and resistance from certain community members. Addressing these challenges through targeted programs, increased funding, and community engagement efforts is essential for promoting equity in information access.

Recommendations

Based on the findings from the study, the following recommendations were made:

1. Libraries should develop and implement targeted digital literacy programs to address disparities in digital skills within the community. This includes offering workshops and training sessions tailored to different age groups, languages, and technological proficiencies to ensure that all community members can access and utilize digital resources effectively.
2. Libraries should increase the diversity of resources available in multiple languages to overcome language barriers. This involves curating a collection of multilingual materials on environmental justice and related topics, as well as providing translation services and multilingual programming to cater to non-English speaking populations.
3. Libraries should foster collaborations with local organizations, government agencies, and advocacy groups to amplify the library's role in environmental justice initiatives. By partnering with these stakeholders, libraries can participate in community forums, contribute to policy discussions, and support local advocacy efforts, thus broadening their impact and reach.
4. Libraries should establish a robust framework for measuring the impact of library initiatives on information access and environmental justice. This should combine quantitative metrics (such as attendance at events and usage of resources) with qualitative feedback from patrons and community members.
5. Libraries should advocate for increased funding and resources to improve internet access and technological infrastructure within libraries. This includes securing grants and partnerships to provide free or low-cost internet access, investing in updated technology, and creating dedicated spaces for accessing environmental information. Additionally, libraries should seek funding for outreach programs aimed at raising awareness and engaging resistant community members in environmental justice initiatives.

Limitation of the Study

This study seeks to explore the contributions of libraries in advancing environmental justice and enhancing strategies for information access, particularly from the perspectives of academic librarians at the Federal University of Technology Ikot Abasi, located in Akwa Ibom State. Six academic librarians from the Federal University of Technology Ikot Abasi were selected based on their expertise in information access and their potential impact on environmental justice initiatives within the academic community. However, it is important to acknowledge several limitations that may affect the applicability of the findings. Firstly, the study's sample size is small, comprising only six academic librarians from a single institution. While their insights offer valuable perspectives, they may not fully represent the experiences of academic librarians across Nigeria or in different contexts. Moreover, focusing solely on academic librarians at one university limits the generalizability of the findings to other institutions or settings within Nigeria. Variations in institutional environments, geographic locations, and socio-economic factors could influence the roles and experiences of librarians in enhancing strategies for information access. Despite these constraints, this study provides significant insights into the contributions of academic librarians to environmental justice through strategic information access within the Niger Delta region of Nigeria.

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Wypełnianie luki: badanie związku między dostępem do informacji a sprawiedliwością ekologiczną w praktykach bibliotecznych

DOI: <http://dx.doi.org/10.12775/FT.2024.003>



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Przysłany: 6 III 2024

Zaakceptowany: 19 VII 2024

Oluwole Olumide Durodolu jest pracownikiem naukowym na Wydziale Nauk Informacyjnych Uniwersytetu Południowej Afryki. W 2016 roku uzyskał tytuł doktora bibliotekoznawstwa i informacji naukowej na Uniwersytecie Zululand w Republice Południowej Afryki. Jest Certyfikowanym Bibliotekarzem Nigerii i członkiem Stowarzyszenia Indeksatorów i Bibliografów Afryki Południowej. Zasiada również w radach redakcyjnych czasopism *Maadili: Journal of African School of Governance and Policy Studies* w Południowej Afryce, *Covenant Journal of Library and Information Science* oraz *Lagos Journal of Library and Information Science*. Dr Durodolu opublikował wiele publikacji zarówno w lokalnych, jak i międzynarodowych czasopismach na takie tematy, jak umiejętność korzystania z informacji, ICT4D, informetria, technologie informacyjno-komunikacyjne, i nie tylko.

Bolaji David Oladokun jest rozwijającym się badaczem i wykładowcą na Wydziale Bibliotekoznawstwa i Technologii Informacyjnych Politechniki Federalnej w Ikot Abasi w stanie Akwa Ibom w Nigerii. Posiada dyplom magistra bibliotekoznawstwa i informacji naukowej oraz dyplom z wyróżnieniem w zakresie komunikacji masowej. Uzyskał rów-

niez tytuł magistra bibliotekoznawstwa i informacji naukowej na Uniwersytecie Edukacyjnym Ignatius Ajuru w Port Harcourt w Nigerii, który ukończył z wyróżnieniem. Jest również Certyfikowanym Bibliotekarzem w Nigerii (CLN) i członkiem Nigeryjskiego Stowarzyszenia Bibliotek (NLA). Jest również członkiem Nigeryjskiego Stowarzyszenia Edukatorów Bibliotekoznawstwa i Informacji Naukowej (NALISE) oraz Stowarzyszenia Nauk Informacyjnych i Technologii (ASIS&T). Jest autorem ponad 100 artykułów opublikowanych w akredytowanych czasopismach, materiałów konferencyjnych i rozdziałów w książkach. Ma również na swoim koncie trzy (3) książki z zakresu bibliotekoznawstwa i informacji naukowej.

Słowa kluczowe: dostęp do informacji, sprawiedliwość ekologiczna, praktyki biblioteczne, Delta Nigru, zanieczyszczenie środowiska, praca społeczna.

Abstrakt

Cele: Skrzyżowanie dostępu do informacji i sprawiedliwości ekologicznej staje się coraz bardziej istotne, ponieważ społeczności na całym świecie zmagają się z wyzwaniami ekologicznymi. Niniejsze badanie bada związek między dostępem do informacji a sprawiedliwością środowiskową w praktykach bibliotecznych, koncentrując się na bibliotekarzach akademickich z Politechniki Federalnej Ikot Abasi w regionie Delt Nigru w Nigerii.

Metody: W badaniu wykorzystano projekt opisowy. W badaniu wzięło udział sześciu bibliotekarzy akademickich z Politechniki Federalnej w Ikot Abasi w stanie Akwa Ibom w Nigerii, wybranych ze względu na ich doświadczenie w ułatwianiu dostępu do informacji i jej dostępności, zwłaszcza w odniesieniu do roli bibliotek w inicjatywach na rzecz sprawiedliwości ekologicznej w środowisku akademickim. Dane zebrano w ramach dyskusji w grupach fokusowych (FGD) z uczestniczącymi bibliotekarzami, przeprowadzonych w sprzyjającym i prywatnym otoczeniu, aby zachęcić do otwartego dialogu i różnorodności perspektyw. Do analizy transkryptów FGD wykorzystano analizę tematyczną.

Wyniki: Wyniki podkreślają znaczenie wielojęzycznych zasobów, ukierunkowanych działań informacyjnych, usług tłumaczeniowych, współpracy z liderami społeczności, uwzględniania poziomów umiejętności czytania i pisania oraz znaczenia kulturowego w zapewnianiu dostępności informacji. Wyzwania, takie jak ograniczony dostęp do internetu, bariery językowe, dysproporcje w umiejętnościach cyfrowych, brak świadomości i opór ze strony niektórych członków społeczności, utrudniają sprawiedliwy dostęp do informacji.

Wniosek: Z badania wynika, że bibliotekarze przyczyniają się do propagowania sprawiedliwości ekologicznej poprzez udział w lokalnych inicjatywach, zaangażowanie polityczne, podnoszenie świadomości i współpracę z interesariuszami. Badanie to rzuca światło na kluczową rolę bibliotek w promowaniu sprawiedliwości ekologicznej i sugeruje strategie poprawy dostępu do informacji i działań wspierających w dążeniu do realizacji programów zrównoważonego rozwoju.

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Überbrücken der Lücke: Untersuchung der Beziehung zwischen Informationszugang und Umweltgerechtigkeit in der Bibliothekspraxis

DOI: <http://dx.doi.org/10.12775/FT.2024.003>



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Otrzymano: 6 III 2024

Zaakceptowano: 19 VII 2024

Oluwole Olumide Durodolu ist Dozent am Lehrstuhl für Informationswissenschaft an der Universität von Südafrika. 2016 erwarb er den Dokortitel im Fach Bibliotheks- und Informationswissenschaft an der Zululand Universität in Südafrika. Er ist zertifizierter Bibliothekar in Nigeria (CLN) und Mitglied der Association for Southern African Indexers and Bibliographers. Er ist außerdem Mitglied der Redaktion von *Maadili: Journal of African School of Governance and Policy Studies in South Africa*, *Covenant Journal of Library and Information Science* und *Lagos Journal of Library and Information Science*. Dr. Durodolu veröffentlichte zahlreiche Arbeiten in lokalen und internationalen Fachzeitschriften zu den folgenden Fragen: Informationsbildung, Informations- und Kommunikationstechnologien für die Entwicklung (IKT4D), Informetrie, Technologie für Informationskommunikation und sonstige.

Bolaji David Oladokun ist anstrebender Forscher und Dozent an der Fakultät für Bibliothekswissenschaft und Informationstechnologie der Bundesuniversität für Technologie in Ikot Abasi im Bundesstaat Akwa Ibom, Nigeria. Er hat einen Bachelorabschluss mit Auszeichnung im Fachbereich Bibliotheks- und Informationswissenschaft sowie einDiplom in Massenkommunikation mit Auszeichnung, aber auch einen Masterabschluss im Fach Bibliotheks- und Informationswissenschaft der Ignatius Ajuru Bildungsuniversität in Port

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S **chlüsselworte:** Informationszugang, Umweltgerechtigkeit, Bibliothekspraxis, Nigerdelta, Umweltverschmutzung, Sozialdienste

S **chlüsselworte:** Informationszugang, Umweltgerechtigkeit, Bibliothekspraxis, Nigerdelta, Umweltverschmutzung, Sozialdienste

Z **usammenfassung**

Z **iel:** Die Verbindung von Informationszugang und Umweltgerechtigkeit nimmt an Bedeutung zu, immer wenn sich die Gemeinschaften in der Welt mit den Umweltherausforderungen abmühen. Diese Studie erforscht den Zusammenhang zwischen dem Informationszugang und der Umweltgerechtigkeit in der Bibliothekspraxis, indem sie sich auf die akademischen Bibliothekare der Bundesuniversität für Technologie Ikot Abasi im Nigerdelta in Nigeria konzentriert.

F **orschungsmethode:** In der Studie wurde ein beschreibendes Modell verwendet. An der Studie nahmen sechs akademische Bibliothekare der Bundesuniversität für Technologie in Ikot Abasi im Bundesstaat Akwa Ibom in Nigeria teil, die aufgrund ihres Fachwissens im Bereich der Erleichterung des Zugangs zu Informationen und der Verfügbarkeit, insbesondere im Hinblick auf die Rolle der Bibliotheken in Initiativen für Umweltgerechtigkeit im akademischen Umfeld, ausgewählt wurden. Die Daten wurden durch Diskussionen in Fokusgruppen (FGD) mit den teilnehmenden Bibliothekaren gesammelt, die in einer freundlichen und privaten Atmosphäre durchgeführt wurden, um offenen Dialog und vielfältige Perspektiven zu fördern. Für die Analyse der FGD-Transkripte wurde die thematische Analyse verwendet.

F **orschungsergebnisse:** Die Feststellungen unterstreichen die Bedeutung mehrsprachiger Ressourcen, zielgerichteter Reichweite, Übersetzungsdienste, Zusammenarbeit mit Gemeinschaftsführern, Berücksichtigung des Lese- und Schreibniveaus sowie der kulturellen Bedeutung bei der Sicherstellung der Informationszugänglichkeit. Herausforderungen wie eingeschränkter Internetzugang, Sprachbarrieren, Unterschiede in den digitalen Fähigkeiten, mangelndes Bewusstsein und Widerstand seitens einiger Gemeinschaftsmitglieder erschweren den fairen Zugang zu Informationen.

S

Schlussfolgerungen: Die Studie zeigt, dass Bibliothekare zur Förderung der Umweltgerechtigkeit beitragen, indem sie sich an lokalen Initiativen beteiligen, sich politisch engagieren, das Bewusstsein schärfen und mit Interessengruppen zusammenarbeiten. Diese Studie beleuchtet die zentrale Rolle von Bibliotheken bei der Verwirklichung von Umweltgerechtigkeit und schlägt Strategien vor, den Zugang zu Informationen zu erweitern und die Bemühungen zur Unterstützung der Umsetzung von Nachhaltigkeitsprogrammen zu verstärken.

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R

Relationship between undergraduate students search skills and usage of electronic information resources in Ambrose Alli University (AAU) Nigeria

DOI: <http://dx.doi.org/10.12775/FT.2024.004>



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Otrzymano: 11 III 2024

Zaakceptowano: 19 VII 2024

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K **ey words:** Electronic information resources, Search skills, Undergraduates

A **bstract:** This research work investigated the relationship between undergraduate search skills and usage of electronic information resources (EIRs) in Ambrose Alli University (AAU), Edo State, Nigeria. The population of the study was 1,798 final year undergraduate students of AAU for the 2023/2024 academic session, with a sample of 113 from three Faculties. Accidental sampling and throwing of a dice were the adopted sampling techniques. The research instrument for data collection was a structured questionnaire, and data were analyzed using descriptive statistics of percentages, mean scores (\bar{x}), and standard deviation (SD) for the research questions while Pearson Product Moment Correlation Coefficient statistical method was used to test the hypothesis; and the data were presented in Tables. Findings showed that AAU undergraduate students can define their information needs and select articles with ease ($\bar{x} = 3.46$). They can use basic ICTs and possess basic search skills ($\bar{x} = 3.08$). While they mainly use OPAC ($\bar{x} = 3.8$), e-books ($\bar{x} = 3.8$), e-journals ($\bar{x} = 3.6$), online databases ($\bar{x} = 3.8$), e-thesis ($\bar{x} = 3.0$), and e-magazines ($\bar{x} = 3.0$), they use them for leisure ($\bar{x} = 3.1$), searching for internship opportunities ($\bar{x} = 3.6$), and class assignment ($\bar{x} = 3.3$). They encounter challenges like unavailability of relevant EIRs ($\bar{x} = 3.3$), lack of awareness of EIRs ($\bar{x} = 3.4$), inadequate searching skills ($\bar{x} = 3.3$), and high cost of internet access in their quest to use EIRs ($\bar{x} = 3.1$). Thus, the paper concluded that the undergraduate students of AAU possess the search skills and showed that there is a significant relationship between the search skills and the use of electronic information resources. The study recommended updates on the search skills and use, as well as provision of facilities to ensure equitable quality learning of the students.

Introduction

Electronic information resources (EIRs) are resources that are accessed with the aid of electronic gadgets. They provide information in digital formats, and have exploded in popularity and usage, changing the traditional way of teaching and learning. With the aid of EIRs, the students navigate the Internet, locating and using the wide arrays of learning resources. They become skilled in using the key

words, basic and advanced search for their educational activities. The EIRs have been found to reduce the stressful use of traditional documents in learning and researching (Jayakananthan & Jayaraj, 2019). But there seems to be a decrease in the utilization of EIRs by undergraduates. Little wonder Solomon and Obaseki (2018) averred that youths prefer to use technologies to keep in touch with close associates rather than educational purposes. This lack of interest in the usage of EIRs by undergraduates could be influenced by a plethora of reasons, which include lack of proper search techniques.

Search skills are the abilities information seekers possess that enable them effectively locate, evaluate, and manage information from all information sources, whether they are physical, digital databases, or search engines. The importance of search skills is to enable easy retrieval of information, whether on physical, hard copy, or on softcopy information sources. Thus, Kumar (2020) noted that academics ought to have clear understanding of the various search patterns in order to effectively retrieve any needed information. Information search, which is part of information seeking, focuses on the way information users interact with and manipulate different search tools for the gain of satisfying their information needs. The information search skills involve the proper formulation of search queries, and using key terms. The search skills are consciously learnt and deficiency in them can lead to difficulty in utilizing the rich databases online. Thus, the libraries offer these services to the members of the academic community.

The libraries as the information centres in the academic environment developed, subscribed, and enhanced their services to include all technological advances and best practices through the EIRs (Ikenwe, Adetona & Ose-Abame, 2021). The goal is to provide effective service delivery. However, the knowledge and use of them by students are the determinants for the learning global practices. Indeed, modern technologies have influenced the way information is being searched and used. With the knowledge of basic and advanced skills, one becomes digitally inclined and can retrieve any electronic information resources needed (Ikenwe & Udem, 2022).

Importantly, the use of EIRs is spread across all levels of education. The provision and usage of e-books, e-journal, e-thesis, and other EIRs adds value and the quality of equitable quality education (Ikenwe, Aiyebilehin & Adjarho, 2022). The resources help the students in carrying out research and projects, doing assignments, in leisure reading, and following up on socio-economic information. Although EIRs can present information overload and explosion, they have their values which cannot be underestimated. Therefore, there is a need for the undergraduate students to have the basic searching skills to enable them to navigate the internet for relevant information. To successfully utilize online information search skills, undergraduates need to be able to navigate the modern technologies.

Today, many scholars have joined the quest to gain the skills needed for the best global practices. Similarly, libraries from different sectors have embraced these technological revolutions and integrated them in their information service delivery. As the libraries serve the undergraduate students in tertiary institutions, it becomes pertinent to regularly evaluate the students' search skills and usage for the potential of improvement. Thus, this study examined the relationship between the undergraduate students search skills and the usage of electronic information resources in Ambrose Ali University (AUU) Nigeria.

Statement of the Problem

The knowledge of search skills enhances the effective usage of electronic information resources. This will create seamless navigation of the internet for there trieving of all the needed resources. It will also enable offline retrieval of information, making learning and research more interesting. However, experiences and observations have shown that many undergraduate students do not seem to have good searching skills which probably reduces their usage of electronic information resources. This could be challenging as the global practices of education require adequate use of ICT and retrieval of online resources. Perhaps, if the searching skills are facilitated, the undergraduate students will acquire the skills to achieve their learning and research objectives with the online sources. Thus, it is not very clear if the undergraduate students of Ambrose Ali University, Edo state Nigeria, have recently been examined to know their searching skills and usage of electronic information resources. This study is poised to determine that notion.

Research Questions

The following research questions formed the basis upon which this study was carried out. They are:

1. What search skills do the undergraduate students of Ambrose Alli University have for the use of EIRs?
2. What are the types of electronic information resources used by undergraduate students of Ambrose Alli University?
3. What do the undergraduate students of Ambrose Alli University use EIRs for?
4. What are the challenges that mitigate the search skills and usage of EIRs of the undergraduate students of Ambrose Ali Unviversity?

Hypothesis

There is no significant relationship between undergraduates' electronic information resources search skills and their usage of electronic information resources.

Literature Review

Academic libraries are rapidly embracing EIRs. With advances in information technology, the definition of libraries is changing as is the definition of information resources (Naik, et al., 2019). In the past, information resources were seen as tangible entities, but now they have advanced from conventional print documents to documents that can be shared electronically. Al Bataineh et al. (2021) noted that EIRs perform important roles in students' education, as they provide most up-to-date information, and they take forms like e-journals, databases, and e-books. Kumar (2020) averred that a common characteristic of online EIRs is that their utilization is influenced by the web or internet. Thus, the web and the Internet provide possibilities for communicating and delivering EIRs from one location to another in the quickest time with the students having access to information on a global scale. But then, this is enabled when the students are imbued with search skills.

Search skills are simply the ability to seek, find, retrieve, and use information. It can be online or offline. According to Saidu et al. (2023), search skills are a series of activities and capabilities that people adopt in order to locate where information is, what type of information it is, the format the information is presented in, and the ways the information is accessed. The indication is that search skills involve retrieval, evaluating, and utilization of information to meet a need. It can then be surmised that search skills are essential in today's complex and rapidly evolving libraries and other information environment. They enable students to effectively and efficiently locate, evaluate, and use information from various sources (Valmorees & Acedera, 2024). Thus, it can be deduced that search skills are critical as integral quality of one's personality whose willingness and ability push them to independently find solutions to new problems (Adedeji, 2023). This is the power of effective use of EIRs.

Students use EIRs for different purposes as well as different types for their learning purposes. Gamit (2018) observed that students mainly utilize EIRs for class assignments and research purposes. However, there is a varying degree to which students use EIRs. Al Bataineh et al. (2021) opined that the scientific productivity of students increased because of the high level of consumption of the EIRs; the research also reported that that majority of these students (57%) were satisfied using EIRs, and 58% of them feel using EIRs was fun. The author also reported that a major reason for each insufficient skill of most students is lack of training. However, Kumar (2020) observed that the EIRs with the highest levels of usage were e-teaching materials, e-tutorials, e-books, e-reference resources, and e-magazines.

Evidences showed that the undergraduate students' search skills and usage of electronic information resources. For instance, the study of Valmorees and Acedera (2024) reported that there is a significant connection between students' information needs, how they search for information, and their information literacy skills; as those who have higher information needs and actively seek information

are more likely to have better information literacy skills. Also, the study of Sambo, Precious, and Olawepo (2023) reported that there is a moderate positive and significant relationship between students' computer hardware search skills and EIRs. The report also stated that there is a high and significant relationship between students' computer software search skills and their use of EIRs in university libraries in South-West Nigeria. Similarly for Adedeji (2023), there is a significant relationship between information and research search skills and search engine use, as both information search skills and research skills are prerequisites to the successful utilization of search engines that house a plethora of EIRs.

There are several challenges militating against the access and usage of EIRs. Bello and Bokoh (2021) affirmed that a major challenge to access and use EIRs is insufficient computer competency because it affects users' ability to search relevant resources for their study. The author also stated that there was lack of assistance from library personnel, lack of awareness of the existence of such information, poor infrastructure, unstable power supply. Others are inaccessibility of some EIRs, incomplete and inaccurate information in the library, poor internet access, inadequate ICTs, difficulty in locating some EIRs, and information overload. This deficiency is central because without having access to the EIRs, one cannot assess its contents to meet their information needs (Solomon and Obaseki, 2018). For Muzzammil and Ansari (2019), the challenges militating against the use of EIRs are lack of knowledge in using EIRs, inadequate infrastructure facilities, lack of time and useful information.

To overcome some of the challenges encountered while using EIRs, the user needs to understand some search skills that aid in information retrieval. Raghavan (2022) noted that different search skills have been developed over the years. For Kumar (2020), search skills are the methods employed by users in getting information to satisfy their information needs; further positing that it is important for users to have a brisk understanding of the different search techniques like Boolean search, proximity search, and phrase search among others. The activities involved in applying whatever search technique one has chosen can be done either passively or actively (Kah, et al., 2022); by implication, one can gain deeper knowledge about a phenomenon or about the search technique to adopt in studying a phenomenon either by active or passive information seeking behaviours.

Research Methodology

The study adopted the survey research design. The population of this study comprised 1,798 final year undergraduate students in Ambrose Alli University for the 2023/2024 academic session. Three departments within the three faculties were selected as samples. Selection of the faculties was done using accidental sampling, while the department within each faculty was selected by throwing of a dice. Thus the sample size was one hundred and thirteen (113) students. The breakdown is as follows:

Three faculties were selected for the study: Faculty of Arts, Faculty of Education, and Faculty of Social Sciences. For each of these faculties, a department was selected. For Faculty of Arts, the Department of French was selected with 32 respondents; for Faculty of Education, the Department of Library and Information Science was selected with 60 respondents; and for Faculty of Social Sciences, the Department of Psychology was selected with 21 respondents. That gave a total of 113 respondents for the 2023/2024 academic session.

A questionnaire was used to collect data for the study. The questionnaire contained two (2) sections. Section A contained the bio-data of the respondents. This section was developed by the researchers. Section B contained items on the research questions. The items were adapted from Al Bataineh et al. (2021), and Bello and Bokoh (2021). Face and content validity were done by two lecturers in Library and Information Science. 131 copies of the questionnaire were distributed offline, and in hard copies to the respondents in their respective Departmental Final Year Lecture Halls; a total of 84 copies were duly filled and returned. The data were analyzed using descriptive statistics of percentages, mean scores (\bar{x}) and standard deviation (SD) for the research questions while Pearson Product Moment Correlation Co-efficient statistical method was used to test the hypothesis. The scale used for the analysis of the data was Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD). For the decision rule, the criterion Mean is 2.5; that is items with mean of 2.5 and above were accepted, while those with mean lesser than 2.5 were rejected. The data were presented in Tables.

Analysis and Presentation of Data

Table 1: Demographic data of the respondents

Demographic Characteristic	Freq.	%
Gender		
Males	37	47
Females	41	59
Age bracket		
16-20	27	32.1
21-25	43	51.1
26-30	11	13
31 and above	3	3.6
Faculty/Department		
Art/French	17	20.2
Education/Library and Information Science	44	52.4
Social Sciences/Psychology	23	27.4
N = 84		

I can use mouse, keyboard, or computer	68(80.9%)	6(7.1%)	2(2.3%)	8(9.5%)	3.5	0.89
I can copy information into storage devices like flash drive and CD-ROMs	5(5.9%)	8(9.5%)	53(63.0%)	21(25%)	2.0	0.52
I can retrieve information from storage devices	34(40.4%)	27(32.1%)	3(3.5%)	5(5.9%)	2.7	0.67
I can scan images	5(5.9%)	70(83.3%)	9(10.7%)	-	3.4	0.85
I can access online databases	34(66.2%)	35(23.6%)	10(6.7%)	5(5%)	3.5	0.87
I can download files from online databases	16(54.0%)	56(37.8%)	8(10.3%)	4(2%)	3.4	0.85
Grand Mean					3.08	
Strategic Skill						
I can use Boolean operators (OR, AND, NOT)	22(78.6%)	52(14.8%)	-	10(11.4%)	3.6	0.9
I can combine terminologies to retrieve information	69(46.6%)	5(7.1%)	10(55.7%)	-	3.3	0.82
I can use truncation search techniques (\$, *, +) to retrieve information	60(71.4%)	10(11.9)	14(16.7)		3.2	0.8
I can use title search for electronic catalogue (OPAC) search.	42(22.9%)	34(39.1%)	1(2.0%)	7(5%)	2.1	0.52
I can use author search for electronic catalogue (OPAC) search.	18(55.4%)	58(39.1%)	-	8(5%)	3.4	0.85
I can search Online Public Access Catalogue and other electronic search tools	16(19%)	60(71.4%)	3(3%)	5(5%)	3.0	0.75
I can use search engines like Google, Alta Visa, Google scholar and Yahoo and so on.	52(78.6%)	22(14.8%)	2(2.9%)	8(11.4%)	3.6	0.9
Grand Mean					3.17	
Criterion Mean: 2.5						

Table 3 shows the types of EIRs used by undergraduate students. The Table revealed that the types of EIRs used by the undergraduate students are OPAC, e-books, and online databases, each with a mean of 3.8, respectively. Others are e-journals with a mean of 3.6; audio-visuals and e-newspapers each with a mean of 3.4. While e-thesis and e-magazines each had a mean of 3.0, respectively. Also, EIRs rarely used by the undergraduate students were e-data archives with a mean of 2.0, and e-manuscripts with a mean of 1.4. In all, we see that the undergraduate students make use of EIRs in tertiary institutions in Nigeria.

Research question 3: What do the undergraduate students of Ambrose Alli University use EIRs for?

Table 4: Purpose of use of EIRs by undergraduate students of Ambrose Alli University SCALE: Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD).

Purpose of use of EIRs	SA		A		D		SD		\bar{x}	St.D
	F	%	F	%	F	%	F	%		
I use EIRs to source materials for research/ project writing	53	(77.0%)	20	(13.5%)	9	(6.0%)	5	(3.3%)	3.6	0.9
I use them to do class assignments	61	(41.8%)	14	(50.6%)	11	(7.4%)	1	(0.6%)	3.3	0.87
I use EIRs to augment my lecture notes	38	(66.8%)	27	(18.2%)	5	(3.3%)	7	(4.7%)	3.3	0.76
I use EIRs to search for scholarship opportunities	37	(66.2%)	43	(29.0%)	5	(3.3%)	2	(1.3%)	3.3	0.85
I use EIRs to search for internship opportunities	79	(73.6%)	-		-		2	(2.0%)	3.6	0.87
I use the EIRs to retrieve current literature for extra studies	59	(60.1%)	13	(29.7%)	5	(3.3%)	10	(6.7%)	3.6	0.79
I use EIRs for leisure reading	83	(76.3%)	-		2	(2.0%)	2	(1.3%)	3.1	0.69
Criterion Mean: 2.5										

Table 4 shows the purposes for which undergraduate students use EIRs. They use EIRs to source materials for research and project materials, for internship opportunities, and for getting literature for extra studies with mean scores of 3.6, respectively. Other purposes for which undergraduate students use EIRs were to do their assignments, augment their lecture notes, and search for a scholarship opportunity; as each item had a mean scores of 3.3, respectively. The students also use EIRs for leisure reading, with a mean score of 3.1. This shows that undergraduate students use EIRs for varied purposes, in a bid to meet their information needs.

Research question 4: What are the challenges that mitigate the search skills and usage of EIRs of the undergraduate students of Ambrose Alli Unviversity?

Table 5: Challenges that affect the search skills and usage of EIRS

SCALE: Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD).

Challenges encountered	SA		A		D		SD		\bar{x}	St.D
	F	%	F	%	F	%	F	%		
Lack of awareness to electronic information resources	68	(80.9%)	10	(11.9%)	-		6	(7.1%)	3.4	0.85
High cost of internet access (subscription)	34	(66.2%)	35	(23.6%)	10	(6.7%)	5	(5%)	3.1	0.79
Poor internet services by network providers	16	(54.0%)	56	(37.8%)	10	(10.3%)	2	(2%)	3.4	0.85
Inadequate searching skills	34	(22.9%)	42	(39.1%)	3	(2.0%)	5	(5%)	3.3	0.83
Lack of adequate information retrieval skills	15	(53.3%)	45	(30.4%)	9	(6.0%)	15	(31%)	3.2	0.8
Unavailability of e-resources relevant to my information needs	69	(46.6%)	5	(7.1%)	4	(55.7%)	6	(30%)	3.3	0.82
Excessive academic workload	15	(53.3%)	45	(30.4%)	9	(6.0%)	15	(31%)	3.2	0.8
Criterion Mean: 2.5										

Table 5 discusses the problem encountered in using EIRs by AAU undergraduates. These are: lack of awareness of EIRs (mean: 3.4), poor internet service (mean: 3.4), unavailability of relevant EIRs (mean: 3.3), inadequate searching skills (mean: 3.3), lack of adequate information retrieval skills (mean: 3.2), excessive academic workload (mean: 3.2), and high cost of internet access (mean: 3.1).

Test of Hypothesis

There is no significant relationship between undergraduate electronic information resource search techniques and their use of electronic information resources.

Table 6: Pearson's correlation on the relationship between electronic information resources search techniques and usage of electronic information resources

Correlation	Electronic information resources search techniques	Usage of electronic information resources
Electronic information resources search techniques		.792**
Pearson Correlation	1	.000
Sig. (2-tailed)		
N	84	84
usage of electronic information resources	.792**	
Pearson Correlation	.000	1
Sig (2-tailed)		
N	84	84
** Correlation is significant at the 0.01 level (2-tailed)		

The result in Table 6 shows the relationship between the search skills and use of electronic information resources by the undergraduate students of AAU. It was tested at 0.05 significance level with ($r = .792$; $N=84$; $p < .01$). Therefore, the hypothesis which states there is no significant relationship between the search skills and use of electronic information resources by the undergraduate students of AAU is hereby rejected. Hence, there is a significant relationship between the two.

Discussion of Findings

The search skills possessed by the selected final year undergraduate students of Ambrose Alli University are the ability to define, locate, select, summarize, use, and retrieve EIRs for their learning. They also operate the keyboards, scan images, and access online databases, as well as use Boolean operators and search engines in retrieving EIRs. These findings are in agreement with Al Bataineh et al. (2021) who observed that undergraduates of Amman Arab University find it easy as well as flexible to use EIRs and the findings of Gamit (2018) that most students possess basic computer skills. Bello and Bokoh (2021) and Jayakanathan and Jayaraj (2019) also noted that the students in Ogun State Nigeria and Sri Lanka possessed basic computer knowledge. However, the findings of Kumar (2020) reported that undergraduate students do not use Boolean

operators and truncation. These confirmations indicate the benefits of the critical knowledge and search skills of the students for quality education.

Interestingly, the types of EIRs used by undergraduate students as reported in the findings align with the study of Kumar (2020) who stated that students use e-teaching materials, e-tutorials, e-books, e-reference resources, e-magazines, e-journals, e-reports, e-databases, e-thesis, and dissertation. What this means is that the EIRs are accessed, used, and retrieved. It shows the power of the Internet to provide the needed resources for learning and research. In other words, if these EIRs are not sought for and used, then the global practices of integrating ICT in the classroom will be in vain.

The purposes for which the undergraduate students use EIRs which indicated leisure, search for internship opportunities, class assignment, extra studies, research/project writing, augment lecture notes, and search for scholarship opportunities indicate that search skills are really beneficial in educational sector (Gamit, 2018). Although, Muzzammil and Ansari (2019) noted that “the purposes why users of the Court Library at Delhi High Court Bar Association use EIRs are for updating subject knowledge, keeping abreast with current information, writing a book or article, consulting reference documents, and finding relevant information on areas of specialization.” Their differences show in the sector and the population that use the EIRs. The point remains that students will always look out for the major objectives of their study.

On the challenges of using EIRs by AAU undergraduate students, the unavailability of relevant EIRs, lack of awareness, inadequate search skills, and poor internet service may allude that the academic library has the responsibilities of providing the resources. The research findings are related to the study of Muzzammil and Ansari (2019) who noted that the challenges encountered in using e-resources are lack of knowledge on how to use e-resources, inadequate ICT infrastructure facilities, lack of relevant information, and other factors like lack of time. The implication is that if the necessary facilities are not provided for, and the students are not taught how to retrieve information, the level of education may never be the same for all the students in every country.

The finding revealing a significant relationship between the search skills and use of EIRs by undergraduate students of Ambrose Alli University shows that the right steps were taken in teaching the mode of information retrieval for quality learning. It implies that the good practices are adopted in the Nigeria universities.

Conclusion

EIRs have been found to enrich learning and research activities. They have shown that they open wide spaces for information search in the Internet. Thus, the undergraduate students need the knowledge and search skills for EIRs to succeed in their academics in the technological era. Therefore, this study concluded that the undergraduate students of AAU possess search skills for the use of EIRs, they

use different types of EIRs as they navigate their skills while searching. They use the EIRs for different purposes which spread across the learning objectives and extracurricular activities. The challenges with the search skills of EIRs may affect the students' use which may affect the values of education in the country. The rejection of the hypothesis shows that there is a significant relationship between the search skills and the use of EIRs by the undergraduate students of AAU. Indeed, to retrieve the needed EIRs, undergraduate students must be able to master necessary information search skills.

Recommendations

The following recommendations were made based on the findings:

1. There should be continuous training of the undergraduate students to update and increase search skills in the use of EIRs as new technological advances appear at a high speed.
2. The new EIRs that come in new databases should be subscribed for in the academic libraries. This will increase the varieties of choices for online learning.
3. The purpose of use of these EIRs should be monitored using the web tracker to ensure that appropriate educational databases are accessed. Thus, awareness and ethical use of the Internet should be shared.
4. ICT and Internet facilities should be provided to enable adequate use of search skills and the resources therein.

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Związek między umiejętnościami wyszukiwania studentów studiów licencjackich a korzystaniem z elektronicznych zasobów informacyjnych na Uniwersytecie Ambrose Alli (AAU) w Nigerii

DOI: <http://dx.doi.org/10.12775/FT.2024.004>



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Przysłany: 11 III 2024

Zaakceptowany: 19 VII 2024

Dr Iguehi Joy Ikenwe jest starszym wykładowcą i pracownikiem naukowym na Wydziale Bibliotekoznawstwa i Informatyki Uniwersytetu Ambrose Alli w Ekpoma w stanie Edo. Ukończyła studia licencjackie Bibliotekoznawstwa i Informatyki na Uniwersytecie Stanowym Delta w Abraka; Magister bibliotekoznawstwa, archiwistyki i informatyki naukowej na Uniwersytecie w Ibadan oraz doktor na Uniwersytecie Nnamdi Azikiwe w Awka w Nigerii. Jest dyplomowanym bibliotekarzem w Nigeryjskiej Radzie Rejestracji Bibliotek oraz członkiem Nigeryjskiego Stowarzyszenia Bibliotek. Napisała wiele rozdziałów książek i artykułów w renomowanych czasopismach krajowych i międzynarodowych oraz wygłaszała referaty na konferencjach krajowych i międzynarodowych. Jej obszary zainteresowań to informatyka/umiejętności cyfrowe, biblioteki cyfrowe, zachowania informacyjne, technologie informacyjno-komunikacyjne, zarządzanie bibliotekami/informacją, zarządzanie wiedzą oraz nowe technologie w bibliotekach.

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Benin City, Nigeria. Uzyskał tytuł licencjata w dziedzinie bibliotekoznawstwa i informacji naukowej (BLIS) na Uniwersytecie Ambrose Alli w Ekpoma w Nigerii; Dyplom ukończenia studiów podyplomowych w zakresie edukacji (PGDE) w Nigeryjskim Instytucie Nauczycielskim (NTI) w Kadunie, afiliowanym przy Uniwersytecie Port Harcourt w Nigerii; oraz tytuł magistra bibliotekoznawstwa i informacji naukowej (MLIS) uzyskany na Uniwersytecie Lead City w Ibadan w Nigerii. Jest autorem i współautorem kilku artykułów w renomowanych czasopismach lokalnych i międzynarodowych oraz współautorem rozdziału w książce. Jego zainteresowania badawcze obejmują bibliotekarstwo cyfrowe, technologie informacyjno-komunikacyjne w bibliotekach, media społecznościowe oraz zachowania związane z poszukiwaniem informacji..

Słowa kluczowe: elektroniczne zasoby informacyjne, umiejętności wyszukiwania, studenci studiów licencjackich

Streszczenie: W niniejszej pracy badano związek między umiejętnościami wyszukiwania na studiach licencjackich a wykorzystaniem elektronicznych zasobów informacyjnych (EIR) na Uniwersytecie Ambrose Alli (AAU), w stanie Edo, Nigeria. Populacja badania składała się z 1798 studentów ostatniego roku studiów licencjackich AAU na sesję akademicką 2023/2024, na próbie 113 z 3 wydziałów. Przypadkowe pobieranie próbek i rzucanie kostką były przyjętymi technikami próbkowania. Instrumentem badawczym do zbierania danych był ustrukturyzowany kwestionariusz, a dane analizowano przy użyciu statystyk opisowych procentów, średnich wyników (\bar{x}) i odchylenia standardowego (SD) dla pytań badawczych, podczas gdy do przetestowania hipotezy wykorzystano metodę statystyczną współczynnika korelacji Pearsona, a dane przedstawiono w tabelach. Wyniki wykazały, że studenci studiów licencjackich AAU mogą z łatwością definiować swoje potrzeby informacyjne i wybierać artykuły ($\bar{x} = 3,46$). Potrafią korzystać z podstawowych technologii informacyjno-komunikacyjnych i posiadają podstawowe umiejętności wyszukiwania ($\bar{x} = 3,08$). Chociaż korzystają głównie z OPAC ($\bar{x} = 3,8$), e-booków ($\bar{x} = 3,8$), e-journali ($\bar{x} = 3,6$), internetowych baz danych ($\bar{x} = 3,8$), e-prac dyplomowych ($\bar{x} = 3,0$), and e-czasopism ($\bar{x} = 3,0$), używają ich do wypoczynku ($\bar{x} = 3,1$), poszukiwania możliwości odbycia stażu ($\bar{x} = 3,6$), i rozwiązywania zadań domowych ($\bar{x} = 3,3$). Napotykają oni wyzwania, takie jak niedostępność odpowiednich EIR ($\bar{x} = 3,3$), brak wiedzy na temat EIR ($\bar{x} = 3,4$), niewystarczające umiejętności wyszukiwania ($\bar{x} = 3,3$), oraz wysokie koszty dostępu do internetu w dążeniu do korzystania z EIR ($\bar{x} = 3,1$). W związku z tym w artykule stwierdzono, że studenci studiów licencjackich AAU posiadają umiejętności wyszukiwania i wykazano, że istnieje istotny związek między umiejętnościami wyszukiwania a korzystaniem z elektronicznych zasobów informacyjnych. Badanie rekomenduje aktualizację umiejętności wyszukiwania i użytkowania, a także dostarczenie udogodnień w celu zapewnienia równej jakości nauki uczniów.

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Zusammenhang zwischen der Fähigkeit von Bachelorstudenten, Informationen zu suchen, und der Nutzung elektronischer Informationsressourcen an der Ambrose Alli Universität (AAU) in Nigeria

DOI: <http://dx.doi.org/10.12775/FT.2024.004>



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Zugesandt: 11 III 2024

Angenommen: 19 VII 2024

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S

Schlüsselworte: elektronische Informationsressourcen; Recherchefähigkeiten; Bachelorstudenten

Z

Zusammenfassung: In der Studie wurde der Zusammenhang zwischen den Fähigkeiten der Studierenden, Informationen zu suchen, und der Nutzung elektronischer Informationsressourcen (Electronic Information Resources, EIR) an der Ambrose Ali Universität (AAU) im Bundesstaat Edo in Nigeria untersucht. Die Untersuchungspopulation umfasste 1798 Studierende im letzten Jahr des Bachelorstudiums an der AAU im akademischen Jahr 2023/2024, wobei die Stichprobe 113 Personen aus 3 Fakultäten umfasste. Die angewandten Stichprobenverfahren waren Zufallsstichproben und Würfel. Das Forschungsmittel zur Datenerhebung war ein strukturierter Fragebogen, und die Daten wurden mithilfe der deskriptiven Statistik in Prozenten (%), Durchschnittswerten (\bar{x}) und Standardabweichung (SD) für die Forschungsfragen analysiert, während zur Überprüfung der Hypothese die statistische Methode des Pearson-Korrelationskoeffizienten verwendet wurde; die Daten wurden in Tabellen dargestellt. Die Ergebnisse zeigten, dass die Studierenden des Bachelorstudiums an der AAU ihre Informationsbedürfnisse leicht erkennen und Artikel auswählen können ($\bar{x} = 3,46$). Sie sind in der Lage, grundlegende ICT-Technologien zu nutzen und haben grundlegende Suchfähigkeiten ($\bar{x} = 3,08$). Obwohl sie hauptsächlich OPAC ($\bar{x} = 3,8$), E-Books ($\bar{x} = 3,8$), E-Journals ($\bar{x} = 3,6$), Online-Datenbanken ($\bar{x} = 3,8$), E-Thesen ($\bar{x} = 3,0$) und E-Magazine ($\bar{x} = 3,0$) nutzen, verwenden sie diese hauptsächlich für Freizeitaktivitäten ($\bar{x} = 3,1$), auf der Suche nach Praktikumsmöglichkeiten ($\bar{x} = 3,6$) und zur Erledigung von Klassenaufgaben ($\bar{x} = 3,3$). Sie begegnen Herausforderungen wie der Unzugänglichkeit geeigneter EIR ($\bar{x} = 3,3$), mangelndem Bewusstsein für EIR ($\bar{x} = 3,4$), unzureichenden Suchfähigkeiten ($\bar{x} = 3,3$) und hohen Kosten für den Internetzugang im Hinblick auf die Nutzung von EIR ($\bar{x} = 3,1$). Im Artikel stellte man fest, dass die Studierenden des Bachelorstudiums an der AAU über Suchfähigkeiten verfügen, und zeigte, dass es eine signifikante Beziehung zwischen Suchfähigkeiten und der Nutzung elektronischer Informationsressourcen gibt. In der Studie wurden Aktualisierungen bezüglich der Suchfähigkeiten und ihrer Nutzung sowie die Bereitstellung von Einrichtungen zur Gewährleistung einer gleichwertigen Bildungsqualität für die Studierenden empfohlen.

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xploring the global visibility of African scholarly communication: a comparative analysis of open access repositories in Africa

DOI: <http://dx.doi.org/10.12775/FT.2024.005>



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Received: 21 III 2024

Accepted: 31 VII 2024

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Keywords: Open Access Repositories; African repositories; African Scholarly Communications; Scholarly output visibility; OpenDOAR; Digital repositories

Abstract

Purpose: This paper is a comparative study of repositories in Africa for the global visibility of African scholarly communication. It aims to provide a detailed description and comparison of repositories in Africa by region, country, repository type, year established, content type, software type, and language of content.

Design/methodology/approach: Using a systematic content review methodology, and a total enumerative sampling technique, a total of 259 African repositories drawn from the Directory of Open Access Repositories database over one week were reviewed.

Findings: The study revealed that out of the 5,905 repositories listed, 259 are from Africa. The repositories are spread across 24 out of the 54 countries that make up the continent, thus making a 44% representation of African scholarly communication by countries in the global space. By region, Eastern Africa had the highest number at 101 (39%) repositories invariably becoming the African region with the most visible scholarly communication, while Central Africa had the least number of OARs at 1 (.4%). By countries, South Africa took the top of other countries at 51 (20%) repositories, while Cameroon was the least at 1 (0.3%). The African scholarly communication with the most visibility is Social Sciences at 223 while the least archived subject is Mathematics at 176. African scholarly communications made available on the global space are mostly generated by institutions of learning as the study shows that 243 (94%) OARs in Africa are institutional repositories.

Originality/value: The study exposed the paltry contribution of African repositories in ensuring the global visibility of African scholarly communication. It reveals the weakness of the African continent in exploring the potential of OARs in the wider dissemination of their scholarly communication. Africa has the second-largest population in the world, and ought to generate more scholarly communication in the global space. To this end, therefore, the study recommends among others that African institutions should commit to establishing and maintaining OARs if African scholarly communication will be visible in the global space.

Introduction

Repositories are document servers that are managed by tertiary or research institutions. They serve as a platform for archiving and providing global access to scientific and intellectual materials, without any cost. An open-access repository goes beyond mere document storage by utilizing metadata to enable users to discover appropriate resources. Open-access repositories have been established by various institutions, research centres, libraries, and government departments to facilitate the free and efficient dissemination of resources (Wani et al., 2009). The first digital repository systems emerged during the early 2000s to facilitate unrestricted access to academic publications. The open access movement pro-

moted the principle of making access to all scholarly communication available to the world at no cost, via the Internet. This theory birthed the establishment of repositories. The primary goal of the Open Access movement is to enhance the scientific communication system by optimizing the accessibility and maximizing the influence of research findings through self-archiving (Harnad as cited in Cordón-García et al., 2013). Reiterating this, Xie and Matusiak (2016b) observed that repositories were designed to facilitate scholarly communication and promote open access. Their purpose is to offer the necessary infrastructure and services for the collection and organisation of open-access scholarly publications as well as electronic theses and dissertations. The establishment of open-access repositories greatly enhances scholarly communication (Xie & Matusiak, 2016a).

Scholarly communication refers to the systematic exchange and dissemination of academic work among academics, scholars, and researchers thereby facilitating the accessibility of their scholarly contributions to a broader academic community, including university academics, as well as to a wider audience (Trotter et al., 2014). In the same vein, Li and Banach (2011) define scholarly communication as the process by which research and other scholarly writings are generated, assessed for excellence, shared with the scholarly community and preserved for future reference. Enabling access to scholarly communication encompasses a wide array of tasks, such as discovering, gathering, arranging, appraising, interpreting and safeguarding primary and secondary sources of information, as well as publishing and distributing scholarly research (Cullyer & Walters, 2008 as cited in Trotter et al., 2014). The use of metadata in open-access repositories enables the users to find appropriate materials thereby enhancing the visibility of such materials. The visibility of scholarly communication refers to the ability to locate and access specific knowledge and authored works due to their traceability. In the context of the African region, visibility takes on a greater significance as it entails making research on subjects and themes of local interest accessible to the public. This accessibility allows relevant stakeholders such as researchers, students, and development practitioners to readily find local research that can make a valuable contribution to society, be it for future knowledge creation or development practice (Abrahams et al., 2010). There are many facets to visibility, including author and content visibility in abstracting and indexing databases, library collection visibility, web publishing visibility and research performance visibility based on bibliometric metrics such as citation counts or impact factors. It appears that the more accessible a publication is, the higher the chances of frequent citation of the work. This is buttressed by Cordón-García et al. (2013) who observed that the enhanced visibility of open-access publications, a model that enables the dissemination of high-quality scientific literature without any limitation, provides the author with a crucial role and allows them to reap significant advantages. As a result, the author gains advantages such as a larger readership, more citations, and more recognition from a wider scientific community. Consequently, this could lead to improved access to grants, greater acknowledgment of achievements, and incre-

ased financial support for future endeavours. With an emphasis on Southern Africa's universities, Abrahams et al. observed that low visibility seems to be mainly attributed to a lack of overall research productivity, consequently causing these universities to face challenges in fulfilling their responsibilities as contributors to regional development by creating and sharing knowledge produced locally. Trotter et al. assert that African scholarly research remains relatively unseen due to three main factors, which they have identified as follows:

While research production on the continent is growing in absolute terms, it is falling in comparative terms (especially as other Southern countries such as China ramp up research production), reducing its relative visibility. ii. Traditional metrics of visibility (especially the ISI/WoS Impact Factor) which measure only formal scholar-to-scholar outputs (journal articles and books) fail to make legible a vast amount of African scholarly production, thus underestimating the amount of research activity on the continent. iii. Many African universities do not take a strategic approach to scholarly communication, nor utilise appropriate ICTs and Web 2.0 technologies to broaden the reach of their scholars' work or curate it for future generations, thus inadvertently minimising the impact and visibility of African research (Trotter et al., 2014, p1).

According to Chan and Kursop (2005, as cited in Wani, et al, 2009), open-access repositories offer a thrilling prospect for the scientific community in developing countries to share their research discoveries with the general public. Thinking ahead of time, and in pursuance of this project of ensuring that the research output in developing countries is made public, a grant was awarded by the Carnegie Corporation to the University of Cape Town library, as well as libraries at the universities of the Witwatersrand and Kwa-Zulu-Natal in 2005. The grant, which also allocates funds for the establishment of a novel digital initiative unit, has been awarded for a project spanning three years. The primary objective of this project is to enhance research capabilities and facilitate the professional growth of library staff within these institutions. The digital initiative unit effectively outlines its strategic plans and priorities which highlight the importance of African open-access repositories in scholarly communications. Their role includes the attraction, preservation, digitisation and provision of access through an advanced web portal, to essential African archival materials. Facilitating the digitization of these resources as a contribution to African scholarship encourages digital collaboration within the continent and showcases the research capabilities of the institution, which in this case is the University of Cape Town (Masenya, 2021). Indeed, the world is waiting for the contributions of African scholarly communications through open-access repositories. African scholars also require a uniquely designed digital scholarly communication sy-

stem capable of capturing digital intellectual content, enabling easy access and ensuring long-term preservation (Van de Sompel et al., 2004 as cited in Mase-nya, 2021). The unimpeded adoption and advancement of open-access repositories in Africa are crucial for achieving this objective.

Open access repository according to Adewole-Odeshi and Ezechukwu (2020) is a database or a virtual archive designed to gather, distribute, and safeguard scientific output such as scientific articles and datasets, while ensuring their unrestricted accessibility. An open-access repository refers to a compilation of online databases on the Internet that contains a wide range of full-text resources. These resources are readily accessible and can be obtained freely and instantaneously (Xie & Matusiak, 2016a). Institutions may establish repositories to cater just to the needs of their authors and researchers or provide an open platform for researchers in specific subject areas to deposit their work (*Open Access Repositories*, 2012). This implies that open-access repositories can be institutional or disciplinary. Institutional repositories are document servers that are managed by institutions such as university libraries, research institutions or other infrastructure organisations. These repositories provide a platform for their members to digitally publish or self-archive their academic and scientific works. Creating an open-access repository increases the global exposure of an institution's research work, subsequently projecting the institution's image and its country's image on a global scale (Igwe, 2014). Disciplinary repositories also referred to as subject repositories, differ from institutional repositories in that they are supra-institutional and focused on specific subjects. These repositories serve as platforms for scientists and scholars to publish and archive their works on particular fields of study. Both institutional and disciplinary repositories typically offer free access to users and allow for self-archiving of scientific and scholarly works (*Open Access Repositories*, 2022).

Repositories can be built on local-hosted platforms (local server) or cloud-hosted platforms (access and store data remotely). Each has its own merits and demerits. One major advantage of building open-access repositories on cloud-hosted platforms is that they often handle routine maintenance tasks, including software updates and security patches. Since 2000, numerous repository platforms have emerged, each possessing its distinct advantages and technical requirements (UNESCO, 2014). Some of these are developed in-house, while others are commercial. Examples of repository software are RefDB, Refbase, EPrints, Omeka, Islandora, SobekCM, BRICKS, DSpace, Museolog, Aigaion, Invenio, Greenstone and so on (Velmurugan & Radhakrishnan, 2014). Types of content stored in open-access repositories are varied and may include any or all of the following: journal articles, patents, working papers, dissertations, theses, datasets, software, workshop papers, inaugural lectures, multimedia and audiovisual materials, learning objects, bibliographic references, books, chapters, sections, conference papers, unpublished reports, etc. (Abrizah, Noorhidawati, & Kiran, 2010). Repository software developers are gradually integrating support for the

preservation of repository contents, thereby giving more hope to repository managers in implementing digital preservation for repositories (Li & Banach, 2011). The OAIS model offers a conceptual basis for creating repositories that adhere to established standards (Xie & Matusiak, 2016c). Depositing in a repository could be by self-deposit (also referred to as self-archive), or mediated deposit. Self-deposit is when academics themselves deposit their scholarly works in the repository while mediated deposit is when an intermediary, usually the repository staff, manages the process of depositing content in the repository. Open access repositories across the globe can be found through: the Registry of Open Access Repositories (ROAR), Connecting Repositories (CORE), Digital Commons Network and Directory of Open Access Repositories (OpenDOAR) (Cobcroft, 2024). This research entered on the open-access repositories available in the Directory of Open Access Repositories (OpenDOAR), OpenDOAR was established in 2005 as the upshot of a joint venture between the University of Nottingham and Lund University. The project received funding from SPARC Europe, CURL, Jisc and OSI. A study by Ezema and Onyanha (2017) reported that only 20 African countries are represented in ROAR and DOAJ. This suggests that there is a relatively limited presence of African research outputs in these global visibility platforms, thus justifying a need for further research on the state of OARs in Africa for global visibility of African scholarly communication.

Objectives

The general objective of the study is to comparatively review open-access repositories in Africa for the global visibility of African scholarly communication.

The specific objective is to:

1. compare the geographical distribution and country-wise distribution of OARs in Africa for the global visibility of African scholarly communication.
2. examine the spread of OARs across countries in the different African regions for the global visibility of African scholarly communication.
3. investigate the type of OARs in African regions for the global visibility of African scholarly communication.
4. evaluate the extent of deposited materials according to the subject for the global visibility of African scholarly communication.
5. contrast the year-wise growth pattern and distribution of OARs for the global visibility of African scholarly communication.
6. determine the repository software used for the global visibility of African scholarly communication.
7. ascertain the language-wise distribution of OARs for the global visibility of African scholarly communication.
8. investigate the type of content digitally preserved in OARs for the global visibility of African scholarly communication.

Methodology

The content analysis method was used in this study. This research method is used to identify patterns in recorded communication (Luo, 2023). This study is an evaluation of contents listed in a repository database, and as such this method was best suited for extracting the data for the study. Informetric data was extracted from the OpenDOAR using descriptive informetric techniques. The researchers used open-access repositories listed in OpenDOAR accessible at: <https://v2.sherpa.ac.uk/opensoar/> to understand the spread of OARs in Africa. Data used for the analysis was drawn from the OpenDOAR database over one week – between 22nd Sept. and 28th Sept. 2023. The study population consisted of all the 259 repositories from Africa listed during the period, out of a total of 5905 repositories that were listed in OpenDOAR. The total enumerative sampling technique was, therefore, used in the study as data were collected from all the OARs in Africa listed in the database. Once each country was identified, institutions listed under the country were carefully assessed to verify the information needed for the study. The requisite data obtained from each OAR were then listed under each country. The parameters chosen as variables for the content analysis of OARs in Africa were as follows: year of establishment, geographical distribution, OARs type, content type, software used, subject coverage, and language. The analyses were painstakingly carried out using various quantitative techniques (including spreadsheets) to ensure a foolproof outcome.

Results

Table 1: Geographical Distribution of African Repositories

S/N	Region	Number of Repositories	Percentage
1	Central Africa	1	0.4%
2	Eastern Africa	101	39%
3	Northern Africa	52	20%
4	Southern Africa	59	23%
5	Western Africa	46	18%
		259	

The result in Table 1 reveals that Eastern Africa has the highest number of OARs 101 (39%). Others in descending order are Southern Africa 59 (23%); Northern Africa 52 (20%); Western Africa 46 (18%) and Central Africa 1 (0.4%).

Table 2: Country-Based Distribution of African Repositories

S/N	Country	Number of Repositories	Percentage	Position
1.	Algeria	19	7%	4 th
2.	Botswana	4	2%	12 th
3.	Cabo Verde	2	1%	18 th
4.	Cameroon	1	0.3%	24 th
5.	Egypt	9	3%	8 th
6.	Ethiopia	6	2%	11 th
7.	Ghana	9	3%	8 th
8.	Kenya	46	18%	2 nd
9.	Lesotho	2	1%	18 th
10.	Libya	3	1%	14 th
11.	Malawi	3	1%	14 th
12.	Morocco	3	1%	14 th
13.	Mozambique	2	1%	18 th
14.	Namibia	2	1%	18 th
15.	Nigeria	31	12%	3 rd
16.	Rwanda	2	1%	18 th
17.	Senegal	4	2%	12 th
18.	South Africa	51	20%	1 st
19.	Sudan	16	6%	6 th
20.	Tanzania, United Republic of	17	7%	5 th
21.	Tunisia	2	1%	18 th
22.	Uganda	15	6%	7 th
23.	Zambia	3	1%	14 th
24.	Zimbabwe	7	3%	10 th
	Total	259	100%	

Table 2 ranks the OARs in Africa by country. South Africa came first with 51 (20%) repositories followed by Kenya at 46 (18%). Nigeria was ranked third at 31 (12%) repositories while Algeria took fourth at 19 (7%). Fifth, sixth and seventh positions were closely taken by Tanzania 17 (7%), Sudan 16 (6%) and Uganda 15 (6%), respectively. Cameroon was ranked twenty-fourth with 1 (0.3%) repository following multiple ties at eighteenth position by Cabo Verde, Lesotho, Mozambique, Namibia, Rwanda and Tunisia at 2 (1%), respectively.

Table 3: OAR spread across countries in the regions of Africa

S/N	Region	No. of countries	No. of OARs	Percentage
1	Central Africa	9	1	11%
2	Eastern Africa	18	9	50%
3	Northern Africa	6	6	100%
4	Southern Africa	5	4	80%
5	Western Africa	16	4	25%
	Total	54	24	44%

Table 3 shows that even though Africa has a total of 54 countries, only 24 countries have OARs listed in OpenDOAR thus making a 44% representation. Only 1 (11%) country out of the 9 countries that presently make up Central Africa has a repository; 9 (50%) of the 18 countries that make up Eastern Africa have repositories; all the 6 (100%) countries in Northern Africa have repositories; of 5 countries that make up Southern Africa, 4 (80%) have repositories, while in Western Africa, only 4 (25%) countries had repositories out of a total of 16 countries making up the region.

Table 4: Type of Open Access Repositories in the African Region

S/N		Central Africa	% age	Eastern Africa	% age	Northern Africa	% age	Southern Africa	% age	Western Africa	% age	Total	% age
1.	Aggregating	0	-	1	1%	0	-	1	2%	0	-	2	1%
2.	Disciplinary	1	100%	1	1%	3	6%	2	3%	1	2%	8	3%
3.	Governmental	0	-	3	3%	1	2%	1	2%	1	2%	6	2%
4.	Institutional	0	-	96	95%	48	92%	55	93%	44	96%	243	94%
	Total	1		101		52		59		46		259	100%

Table 4 presents the types of Open Access Repositories according to the different regions in Africa. 96 OARs in Eastern Africa representing 95% are institutional repositories, 1 (1%) are disciplinary and aggregating, respectively, while 3 (3%) are governmental repositories. Out of the 52 OARs in Northern Africa, 48 (92%) are institutional, 3 (6%) disciplinary and 1 (2%) governmental repository. 55 (93%) OARs in Southern Africa are institutional, 2 (3%) disciplinary and 1 (2%) governmental and aggregating, respectively. Western Africa had 46 OARs out of which 44 (96%) are institutional repositories while 1 (2%) are disciplinary and governmental, respectively. In summary, 243 (94%) OARs in Africa are institutional, 8 (3%) disciplinary, 6 (2%) governmental and 2 (1%) aggregating repositories.

Table 5: Subjects Deposited in African OARs by Regions

Subjects	Central Africa	Eastern Africa	Northern Africa	Southern Africa	Western Africa	Total
Arts	1	68	40	46	37	192
Engineering	1	64	37	43	33	178
Health and Medicine	1	72	38	46	38	195
Humanities	1	72	41	48	38	200
Mathematics	1	65	35	42	33	176
Science	1	82	47	49	40	219
SocialSciences	1	88	40	54	40	223
Technology	1	72	43	46	38	200

Table 5 shows the subjects deposited in African OARs by region. The most deposited subject in Eastern Africa is Social sciences (88) followed by Science (82), while Engineering is the least deposited subject (64) followed by Mathematics (65). In Northern Africa, Science is the most deposited subject (47) followed by Technology (43), whereas the least deposited subject is Mathematics (35), followed by Engineering (37). With regards to Southern Africa, the most deposited subject is Social sciences (54), followed by Science (49), while Mathematics (42) is the least deposited subject, followed by Engineering (43). The two most deposited subjects in Western Africa are Sciences and Social Sciences, respectively at 40, whereas the least deposited subjects are Engineering and Mathematics at 33. In the whole continent combined, the most deposited subject is Social sciences at 223, jointly followed by Science at 219, as well as Humanities and Technology, respectively, at 200. On the other extreme, the least deposited subject is Mathematics (176), followed by Engineering (178).

Table 6: Year-Wise Growth Pattern of African OARs

S/N	Central Africa	Eastern Africa	Northern Africa	Southern Africa	Western Africa	Total	%age
2005	-	-	-	1	-	1	0.3%
2006	-	-	-	3	-	3	1%
2007	-	1	-	3	-	4	2%
2008	-	1	1	3	-	5	2%
2009	-	3	1	6	3	13	5%
2010	-	2	2	7	2	13	5%
2011	-	1	2	-	1	4	2%
2012	1	6	-	1	1	9	3%
2013	-	10	6	5	5	26	10%
2014	-	1	7	1	3	12	5%

2015	-	19	3	4	7	33	13%
2016	-	5	3	3	2	13	5%
2017	-	4	1	1	2	8	3%
2018	-	2	-	-	1	3	1%
2019	-	27	12	7	8	54	21%
2020	-	5	5	3	3	16	6%
2021	-	3	3	5	1	12	5%
2022	-	9	4	2	4	19	7%
2023	-	2	2	4	3	11	4%
Total	1	101	52	59	46	259	

Table 6 presents the year of establishment of repositories from 2005 to 2023. The year 2019 took tops as the highest growth year at 54 (21%) thus witnessing the highest number of registrations, followed by 2015 at 33 (13%), 2013 at 26 (10%), and 2022 at 19 (7%). On the other hand, the year 2005 witnessed the lowest growth rate at 1 (0.3%) followed by 2006 and 2018 at 3 (1%), respectively.

Table 7: Year-range Distribution of newly registered OARs by Country

S/N	Country	2005- 2008	% age	2009- 2012	% age	2013- 2016	% age	2017- 2020	% age	2021 and above	% age	Total
1.	Algeria	-	0%	-	0%	11	13%	5	6%	3	7%	19
2.	Botswana	-	0%	1	3%	1	1%	1	1%	1	2%	4
3.	Cabo Verde	-	0%	1	3%	1	1%	-	0%	-	0%	2
4.	Cameroon	-	0%	1	3%	-	0%	-	0%	-	0%	1
5.	Egypt	1	8%	3	8%	1	1%	3	4%	1	2%	9
6.	Ethiopia	-	0%	1	3%	1	1%	3	4%	1	2%	6
7.	Ghana	-	0%	2	5%	2	2%	2	2%	3	7%	9
8.	Kenya	1	8%	4	10%	19	23%	18	22%	4	10%	46
9.	Lesotho	-	0%	-	0%	-	0%	1	1%	1	2%	2
10.	Libya	-	0%	-	0%	-	0%	3	4%	-	0%	3
11.	Malawi	-	0%	-	0%	-	0%	1	1%	2	5%	3
12.	Morocco	-	0%	-	0%	2	2%	-	0%	1	2%	3
13.	Mozambique	-	0%	1	3%	-	0%	1	1%	-	0%	2
14.	Namibia	-	0%	1	3%	1	1%	-	0%	-	0%	2
15.	Nigeria	-	0%	3	8%	13	15%	11	14%	4	10%	31
16.	Rwanda	-	0%	-	0%	-	0%	2	2%	-	0%	2
17.	Senegal	-	0%	1	3%	1	1%	1	1%	1	2%	4
18.	South Africa	10	77%	12	31%	11	13%	9	11%	9	21%	51
19.	Sudan	-	0%	1	3%	5	6%	6	7%	4	10%	16

20.	Tanzania	-	0%	2	5%	9	11%	3	4%	3	7%	17
21.	Tunisia	-	0%	1	3%	-	0%	1	1%	-	0%	2
22.	Uganda	1	8%	-	0%	1	1%	9	11%	4	10%	15
23.	Zambia	-	0%	1	3%	1	1%	1	1%	-	0%	3
24.	Zimbabwe	-	0%	3	8%	4	5%	-	0%	-	0%	7
Total		13	5%	39	15%	84	32%	81	31%	42	16%	259

The year-range distribution of newly established OARs by country is presented in Table 7 and it showed that from 2005-2008, the total number of newly established OARs was 13 (5%); 2009–2012 was 39 (15%); 2013–2016 recorded 84 (32%); 2017–2020 had 81 (31%) while post-COVID had a record of 42 (16%).

Also, within the years 2005-2008 and 2009-2012, South Africa had the highest number of newly established OARs at 10 (77%) and 12 (31%), respectively. Between the years 2013–2016 and 2017–2020, Kenya had the highest number of newly established OARs at 19 (23%) and 18 (22%), respectively. Again, within the year 2021 and above (post-COVID), South Africa has the highest number of newly established OARs at 9 (21%). Additionally, within the years 2005-2008, only 4 African countries had newly established OARs viz: Egypt–1 (8%); Kenya–1 (8%); South Africa–10 (77%); and Uganda–1 (8%).

As of 2009–2012, the number of African countries with newly established OARs rose to 17: Botswana, Cabo Verde, Cameroon, Ethiopia, Mozambique, Namibia, Senegal, Sudan, Tunisia and Zambia had 1 (3%) newly established OAR, respectively; Ghana and Tanzania had a record of 2 (5%) newly established OARs, respectively; Egypt, Nigeria and Zimbabwe recorded 3 (8%) newly established OARs, respectively; with Kenya–4 (10%) and South Africa–12 (31%). Again between 2013 and 2016, 17 African countries had newly established OARs comprising the following in ascending order: Botswana, Cabo Verde, Egypt, Ethiopia, Namibia, Senegal, Uganda and Zambia–1 (1%), respectively; Ghana and Morocco–2 (2%) each; Zimbabwe–4 (5%); Sudan–5 (6%); Tanzania–9 (11%); Algeria and South Africa–11 (13%); Nigeria–13 (15%); and Kenya–19 (23%).

From 2017–2020 the number of African countries with newly established OARs further rose to 19 as follows: Botswana, Lesotho, Malawi, Mozambique, Senegal, Tunisia and Zambia recorded 1 (1%) OAR each; Ghana and Rwanda had 2 (2%) new OARs, respectively; Egypt, Ethiopia, Libya and Tanzania had a record of 3 (4%) new OARs each; Algeria recorded 5 (6%) new OARs; Sudan had 6 (7%) new OARs; South Africa and Uganda had 9 (11%) new OARs, respectively; Nigeria listed 11 (14%) new OARs; while Kenya had 18 (22%) new OARs.

For the post-COVID period (2021 and above) the 15 countries with newly established OARs include Botswana, Egypt, Ethiopia, Lesotho, Morocco and Senegal at 1 (2%) OARs, respectively; Malawi had 2 (5%); Algeria, Ghana and Tanzania–3 (7%) each; Kenya, Nigeria, Sudan and Uganda–4 (10%), respectively; and South Africa–9 (21%).

Table 8: Software-Wise Distribution of OARs in African regions

S/N	Software	Central Africa	% age	Eastern Africa	% age	Northern Africa	% age	Southern Africa	% age	Western Africa	% age	Total	% age
1.	CMS	-	0%	-	0%	1	2%	-	0%	-	0%	1	0.4%
2.	CONTENTdm	-	0%	-	0%	1	2%	-	0%	-	0%	1	0.4%
3.	ContentPro	-	0%	-	0%	-	0%	1	2%	-	0%	1	0.4%
4.	Digital Commons	-	0%	-	0%	1	2%	-	0%	-	0%	1	0.4%
5.	DigiTool	-	0%	-	0%	-	0%	1	2%	-	0%	1	0.4%
6.	Dot.net	-	0%	-	0%	1	2%	-	0%	-	0%	1	0.4%
7.	DSpace	-	0%	93	92%	40	77%	42	71%	40	87%	215	83%
8.	EPrints	1	100%	4	4%	3	6%	1	2%	3	7%	12	5%
9.	ETD-db	-	0%	-	0%	-	0%	1	2%	-	0%	1	0.4%
10.	EsploroResearch	-	0%	-	0%	-	0%	1	2%	-	0%	1	0.4%
11.	Figshare	-	0%	-	0%	-	0%	3	5%	-	0%	3	1%
12.	GreenStone	-	0%	2	2%	-	0%	-	0%	-	0%	2	1%
13.	Invenio	-	0%	1	1%	1	2%	-	0%	-	0%	2	1%
14.	Open Repository	-	0%	-	0%	-	0%	1	2%	2	4%	3	1%
15.	PHB My SQL	-	0%	-	0%	1	2%	-	0%	-	0%	1	0.4%
16.	SciELO	-	0%	-	0%	-	0%	1	2%	-	0%	1	0.4%
17.	VITAL	-	0%	-	0%	-	0%	4	7%	-	0%	4	2%
18.	Word Press	-	0%	-	0%	1	2%	-	0%	-	0%	1	0.4%
19.	Unspecified	-	0%	1	1%	2	4%	3	5%	1	2%	7	3%
		1		101		52		59		46		259	

Table 8 indicates the different repository software used in OARs in Africa. DSpace is the most used software by African OARs with a total record of 215 (83%), followed by EPrints– 12 (5%). VITAL is used by 4 (2%) OARs; while Open Repository and Figshare by 3 (1%) OARs. In the same vein, Green Stone and Invenio are used by 2 (1%) OARs. Other repository software in use includes CMS, CONTENTdm, ContentPro, Digital Commons, DigiTool, Dot.net, ETD-db, Esploro Research, PHB My SQL, SciELO and Word Press with a record of 1 (0.4%), respectively. Conversely, 7 (3%) OARs did not specify the repository software being used.

The repository software used in Eastern Africa in descending order is as follows: DSpace 93 (92%), EPrints 4 (4%), GreenStone 2 (2%) and Invenio 1 (1%). In Northern Africa, DSpace also ranked highest at 40 (77%), followed by EPrints–3 (6%), CMS, CONTENTdm, Digital Commons, Dot.net, Invenio, PHB My SQL and Word Press are being used by 1 (2%) repository, respectively. Re-

pository software use in Southern Africa also had DSpace ranking highest at 42 (71%), followed by VITAL-4 (7%), Figshare-3 (5%) and finally ContentPro, Digi-Tool, EPrints, ETD-db, Esploro Research, Open Repository and SciELO by 1(2%) OAR each. Similarly, DSpace use in Eastern Africa was the highest at 40 (87%) followed by EPrints-3 (7%) and Open Repository-2 (4%).

Table 9: Language Wise Distribution of Repositories

S/N	Language of the Content	Central Africa	% age	Eastern Africa	% age	Northern Africa	% age	Southern Africa	% age	Western Africa	% age	Total	% age
1.	Arabic	-	0%	-	0%	2	4%	-	0%	-	0%	2	1%
2.	English	1	100%	96	94%	40	74%	54	92%	39	85%	230	88%
3.	French	-	0%	1	1%	10	19%	-	0%	2	4%	13	5%
4.	Sudanese	-	0%	-	0%	2	4%	-	0%	-	0%	2	1%
5.	Unspecified	-	0%	5	5%	-	0%	5	8%	5	11%	15	6%
	Total	1		102		54		59		46		262	

Table 9 presents the Language of the Content of OARs in Africa. English was the most used language with a record of 230 representing 88%. This was followed by French –13 (5%), Arabic, and Sudanese 2 (1%), respectively, even though the language of 15 (6%) OARs was unspecified.

Table 10: Type of Content Deposited in OARs in Africa

S/N	Type	Central Africa	Eastern Africa	Northern Africa	Southern Africa	Western Africa	Total	Position
1.	Bibliographic References	0	17	11	5	6	99	5 th
2.	Books, Chapters and Sections	0	41	18	17	16	92	6 th
3.	Conference and Workshop Papers	0	62	18	24	17	121	3 rd
4.	Datasets	0	4	3	8	3	18	9 th
5.	Journal Articles	1	86	40	38	39	204	1 st
6.	Learning Objects	0	23	11	8	8	50	8 th
7.	Other Special Item Types	0	29	23	26	6	84	7 th
8.	Patents	0	3	0	2	2	7	10 th
9.	Theses and Dissertations	1	80	45	44	31	201	2 nd

10.	Reports and Working Papers	0	57	13	19	12	101	4 th
11.	Software	0	2	2	0	1	5	11 th

Journal articles lead as the most deposited content with 204, followed by Theses and Dissertations (201), Conference and Workshop Papers (121), and Reports and Working Papers (101), respectively. Conversely, the last but one content type deposited in OARs in Africa is Patents (7) which took the 10th position, while Software is the last at 5 taking the 11th position.

A further breakdown according to regions reveals that Central Africa had Journal articles and Theses and Dissertations as the only deposited content type. In Eastern Africa, Journal articles took tops at 86, followed by Theses and Dissertations at 80 while the least deposited is Software(2). The others include: Conference and Workshop Papers (62); Reports and Working Papers (57); Books, Chapters and Sections (41); Other Special Item Types (29); Learning Objects (23); Bibliographic References (17); Datasets (4); and Patents (3). In Northern Africa, Theses and Dissertations took tops at 45, followed by Journal articles at 40, while the least deposited is Software (2). The others in descending order include Other Special Item Types (23); Books, Chapters and Sections (18); Conference and Workshop Papers (18); Reports and Working Papers (13); Bibliographic References (11); Learning Objects (11); and Datasets (3).

Again, in Southern Africa, Theses and Dissertations took tops at 44, followed by Journal articles (38). There was no single deposit for Software (0) while other contents were deposited as follows: Other Special Item Types (26); Conference and Workshop Papers (24); Reports, and Working Papers (19); Books, Chapters and Sections (16); Datasets (8); Learning Objects (8); Bibliographic References (5); and Patents (2). Finally, in Western Africa, the most deposited content was Journal Articles (39); while the least deposited was Software (1). The others include Theses and Dissertations (31); Conference and Workshop Papers (17); Books, Chapters and Sections (16); Reports and Working Papers (12); Learning Objects (8); Bibliographic References (6); Other Special Item Types (6); Datasets (3); and Patents (2).

Discussion

Geographical Distribution of African Repositories

The study revealed that out of the 5,905 repositories listed, 259 are from Africa. This shows a promising growth rate as the study on the status of OARs by Ali et al. (2013) found that Africa had 50 OARs as of 2012. The study also found that concerning regions, Eastern Africa had the highest number of OARs while Central Africa had the lowest number of OARs. The implication of the result in

Table 1 is that research from Eastern Africa is more easily accessible to the global community, potentially increasing its impact and engagement. In contrast, this may not be the case for Central Africa.

Country-Based Distribution of African Repositories

It was also established that concerning countries, South Africa came first, having the highest number of OARs while Kenya took the second position. Nigeria was ranked third at 31 OARs while Cameroon was ranked twenty-fourth with only one OAR. This implies that there is a steady improvement in the growth of repositories across the countries in Africa as a study by Adewole-Odeshi and Ezechukwu (2020) found that Nigeria had a total of 25 open access repositories which has now moved up to 31 OARs. Furthermore, the result in Table 2 implies that countries with more OARs like South Africa, Kenya and Nigeria, may experience increased visibility and impact of their research. This can lead to greater academic recognition and influence within the global research community. Conversely, countries with fewer OARs, such as Cameroon, Cabo Verde, Lesotho, Mozambique, Namibia, Rwanda and Tunisia, may face challenges in achieving similar levels of visibility and impact for their research.

OAR spread across countries in the regions of Africa

The global visibility of African scholarly communication is not impressive because even though Africa has a total of 54 countries, only 24 countries have OARs listed in OpenDOAR thus making a paltry 44% representation. This is indeed appalling because Africa has the second-largest population in the world. The implication is that 56% of African scholarly communication is missing from the global space. The discovery aligns with Ocholla's study (2011, as cited in Igwe, 2014), which asserts that the development of OARs in Africa is lacking. Out of the 53 independent African countries, only 11 have established 42 OARs, representing approximately 3% of the world's total. Furthermore, the 100% representation in Northern Africa and 80% representation in Southern Africa as seen in Table 3 could indicate that these regions have strong mechanisms and policies in place to support open access. This could serve as a model for other regions aiming to enhance their open access infrastructure.

Type of Open Access Repositories in the African Region

Additionally, African scholarly communications made available on the global space are mostly generated by institutions of learning as the study shows that the highest type of OARs across the African continent is institutional repositories. This is equally evident in all the regions within the continent. The result is in line

with the study by Loan and Sheikh (2016) which found that the majority of the repositories constituting 74% were institutional in nature. Even outside the African continent, the result of the study further agrees with that of Islam and Akter (2013) who found that 100% of the OARs in Bangladesh are institutional repositories. However, the fact that institutional repositories dominate as the primary drivers of open access across all regions in Africa, as shown in Table 4, should not be accepted as the norm. To enhance the visibility and accessibility of research across specific fields, disciplinary and aggregating repositories may be needed to complement the dominant institutional repositories, providing more comprehensive access to diverse types of content.

Subjects Deposited in African OARs by Regions

Generally, across the African OARs, the most archived subject is Social Sciences, followed by Sciences, while the least archived subject is Mathematics. A similar study on Indian OARs by Saikia et al. (2023) found Science as the dominant subject. Social sciences and Sciences as the most frequently deposited subjects across most African regions, as seen in Table 5, imply that these fields are heavily researched and prioritized for open access in Africa. Engineering and Mathematics are consistently the least deposited subjects, suggesting these areas might be underrepresented in open access repositories. This could be due to several factors, including fewer research outputs in these fields, lower emphasis on open access in these disciplines, or challenges in disseminating technical content through OAR. These fields are critical for technological development and innovation, and enhancing their representation in OARs for visibility could foster more innovation and application of research findings.

Year-Wise Growth Pattern of African OARs

The very low numbers of OARs in the early years, as shown in Table 6, highlight the challenges of early adoption, where awareness, infrastructure and resources were likely limited. The gradual increase in repositories from 2013 onwards reflects growing recognition of the importance of open access in Africa, as well as the increasing capacity of institutions to support these initiatives. The decline in the years following the peak in 2019 suggests that renewed efforts may be needed to sustain growth.

Year-range Distribution of newly registered OARs by Country

The year-range distribution of newly established OARs by country indicates that the peak of OARs registrations was between 2013 and 2016 (32%), closely followed by 2017–2020 at 31% and 2021 and above with a record of 16% registrations. South Africa was in the lead in establishing open access repositories

(OARs), showcasing its early commitment to open access initiatives on the continent. This leadership continued until 2012, marking the start of a broader adoption of open access repositories across Africa. From 2013 to 2020, Kenya emerged as the new leader, reflecting a shift in leadership and an expansion of open access efforts in Eastern Africa. Despite this, South Africa remained a key player, demonstrating ongoing dedication to open access. In the post-COVID period (2021 and beyond), South Africa reclaimed its leadership position, likely due to its advanced research infrastructure and strong institutional support. The increasing involvement of African countries over time as seen in Table 7 highlights a positive trend towards greater visibility and dissemination of scholarly communication.

Software-Wise Distribution of OARs in African regions

DSpace was the most prevalent with 83% percent of the survey respondents using it for their OAR. This is followed by Eprints which is used by 5 percent of the respondents. It is in line with Loan and Sheikh's (2016) study which revealed that DSpace also is the most popular software used by 35% of repositories, followed by EPrints at 17%. The similarity is also seen in the results of an exploratory study on the global visibility of open-access institutional repositories of the South Asian Association for Regional Cooperation (SAARC) countries by Madan, et al. (2020) which found that DSpace is the predominant software utilised for establishing the majority of repositories (61%), followed by EPrints (25%). The finding of the study further agrees with that of Ejikeme and Ezema, (2019) who found out that 70% of the OARs in Nigeria use DSpace as the archiving software. The implication of this finding is that the overwhelming use of DSpace suggests a standardization in repository software that could lead to improved interoperability and easier cross-repository searches. This can enhance the visibility and accessibility of African scholarly outputs both within the continent and globally.

Language Wise Distribution of Repositories

The study revealed that some OARs in Africa had multiple languages. Specifically, in Eastern Africa, one country had dual language content while two countries in Northern Africa had dual language content. The most used language of OARs in Africa, however, is English with a record of 230 representing 88%. The finding agrees with the study by Ali et al. (2013) which found that English ranked the list of the top ten languages prominently used by OARs. It also agrees with Madan et al.'s (2020) study which found out that 75% of the repositories are documented in the English language. The dominance of English in African OARs significantly impacts global visibility, as it ensures that much of African scholarly work is accessible to a wide international audience due to English's role as a widely understood international language. However, this also highlights concerns about inclusivity and the representation of non-English-speaking scholars.

Important research conducted in local languages, as well as in French, Arabic or other regional languages, may be underrepresented, potentially leading to an imbalance in the dissemination of knowledge.

Type of Content Deposited in OARs in Africa

The dominant contents of the OARs in Africa are Journal articles, followed by Theses and Dissertations. This is in agreement with Loan and Sheikh's (2016) study on open-access health and medical repositories which found that the contents were mostly articles (76%), followed by theses (50%). It further agrees with Ali et al.'s (2013) study which found that out of the 10 content types identified, the largest portion consists of Journal articles (22%), followed by Theses and Dissertations (17%). A similar finding was observed outside of Africa, where a study on Indian OARs by Saikia et al., (2023) revealed that journal articles (19.90%) are the most prevalent content, followed by theses and dissertations (15.45%). The strong presence of Journal articles and Theses/Dissertations as the most commonly deposited content types boosts the visibility of African peer-reviewed and graduate research, which are often the most cited and widely utilised forms of academic content. However, the relatively low numbers of other content types, such as datasets, learning objects and bibliographic references, indicate potential challenges. These challenges may relate to the infrastructure, skills or policies necessary to support the deposit of a more diverse range of content.

Conclusion

There is no lie in saying that Africa is endowed with a rich and diverse heritage, some of which has been captured in its literature and scholarly research. This wealth of knowledge is not only a testament to the continent's historical and cultural depth but also holds significant value for global academia. Open Access Repositories (OARs) are crucial in enhancing the visibility of African scholarly communications. By providing unrestricted access to research outputs, OARs facilitate a broader dissemination of African intellectual contributions, ensuring that they reach a wider audience beyond traditional publishing barriers. The visibility gained through OARs can lead to increased citations and recognition for both academic institutions and individual authors, amplifying their impact on the global stage. This is particularly important for Africa, which has an immense reservoir of knowledge and innovative research that deserves to be shared and acknowledged worldwide. The continent cannot afford to lag behind in the realm of scholarly output visibility. Therefore, it is imperative that OARs are given the attention they deserve. Stakeholders must collaborate and make deliberate efforts to ensure that African scholarly work is effectively represented alongside that of their global counterparts. This proactive approach will help to highlight Africa's

contributions to global knowledge and ensure that its intellectual treasures are appropriately recognised and valued in the international academic community.

Recommendations

To this end, the study recommends that:

1. *African institutions should commit to establishing and maintaining OARs:* African institutions must move beyond mere verbal commitments and take tangible actions to establish and maintain Open Access Repositories (OARs). The creation of these repositories should not be seen as a secondary concern but as a fundamental part of advancing African scholarly output on the global stage. Institutions need to invest in the infrastructure, resources and training required to ensure that OARs are functional, accessible and actively managed.
2. *African countries and regions should promote National and Regional Initiatives:* African countries and regions should consider the development of OARs as a collaborative national or regional project. By adopting a coordinated approach, countries can support and encourage institutions that are currently lagging behind. This could involve creating frameworks for shared resources, establishing guidelines and providing incentives to foster the development and adoption of OARs across the continent. Such initiatives can also help to standardise practices and enhance the overall quality of African scholarly communications.
3. *African authors should be educated on the benefits of OARs:* African authors need to be informed about the advantages of depositing their scholarly work in open access repositories. This education should focus on how depositing in OARs can increase the visibility and impact of their research, leading to higher citation rates and broader recognition. Awareness campaigns, workshops and training sessions can help authors understand the benefits and navigate the process of depositing their work in these repositories.

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Badanie globalnej widoczności afrykańskiej komunikacji naukowej: analiza porównawcza repozytoriów otwartego dostępu w Afryce

DOI: <http://dx.doi.org/10.12775/FT.2024.005>



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Przysłany: 21 III 2024

Zaakceptowany: 31 VII 2024

Dr Okeoma Chinelo Ezechukwu jest wybitnym bibliotekarzem z bogatym doświadczeniem zarówno w bibliotekach publicznych, jak i akademickich. Uzyskała tytuł licencjata bibliotekoznawstwa/języka angielskiego na Uniwersytecie Nnamdi Azikiwe w Awka, tytuł magistra bibliotekoznawstwa i informacji naukowej na Uniwersytecie w Ibadan oraz doktorat z bibliotekoznawstwa i informacji naukowej na Uniwersytecie Nnamdi Azikiwe w Awka. Pełniła funkcję kierownika eBiblioteki i inwentaryzatora w Państwowej Centralnej Bibliotece Elektronicznej im. prof. Kennetha Dike'a (Rada Biblioteki Stanowej Anambra) w Awce, a obecnie pełni funkcję Kierownika Sekcji Konserwacji Dokumentów i Kierownika Repozytorium Instytucjonalnego w Bibliotece Uniwersytetu Uyo. Oprócz pełnienia funkcji administracyjnych, dr Ezechukwu wniosła znaczący wkład w tę dziedzinę poprzez publika-

cję kilku artykułów zarówno w lokalnych, jak i międzynarodowych czasopismach. Ponadto pracuje jako wykładowca w niepełnym wymiarze godzin na Wydziale Bibliotekoznawstwa i Informacji Naukowej na Uniwersytecie Uyo w Nigerii. Jej obszar zainteresowań to bibliotekarstwo cyfrowe, bibliometria i analiza cytowań oraz usługi bibliotek publicznych. Jej pasją jest integracja nowoczesnych technologii z usługami bibliotecznymi i informacyjnymi. Certyfikowana przez Nigeryjską Radę Rejestracji Bibliotekarzy (LRCN), jest aktywnym członkiem Nigeryjskiego Stowarzyszenia Bibliotek (NLA) i jego Sekcji Technologii Informacyjnych. Z dr Ezechukwu można się skontaktować za pośrednictwem poczty elektronicznej pod adresem okeomaezechukwu@uniuyo.edu.ng.

Dr Egbe Adewole-Odeshi jest doświadczonym bibliotekarzem z ponad dziesięcioletnią praktyką zawodową. Jej przygoda akademicka obejmuje licencjat z ekonomii na Uniwersytecie Stanowym Delta w Nigerii, tytuł magistra nauk informacyjnych na Uniwersytecie Ibadan w Nigerii oraz doktorat z bibliotekoznawstwa i informacji naukowej na Uniwersytecie Calabar w Nigerii. Pracowała jako bibliotekarka systemowa i specjalistka ds. zasobów w Centrum Zasobów Edukacyjnych na Uniwersytecie Covenant w Ota, w Nigerii. Dr Adewole-Odeshi, certyfikowany bibliotekarz w Nigeryjskiej Radzie Rejestracji Bibliotekarzy (LRCN), pełni obecnie funkcję kierownika Sekcji E-Zasobów i Automatyzacji w Bibliotece Uniwersytetu Uyo. Dodatkowo dzieli się swoją wiedzą jako wykładowca w niepełnym wymiarze godzin na Wydziale Bibliotekoznawstwa i Informacji Naukowej, opiekując się studentami na poziomie dyplomowym, licencjackim i podyplomowym. Dr Adewole-Odeshi jest aktywnym członkiem Nigeryjskiego Stowarzyszenia Bibliotek w oddziale stanowym Akwa Ibom. Współpracowała zarówno z czasopismami lokalnymi, jak i międzynarodowymi. Jej obszar specjalizacji obejmuje; e-zasoby biblioteczne, automatyzacja bibliotek i digitalizacja. Posiada umiejętności m.in. w zakresie katalogowania online, korzystania z oprogramowania do wykrywania plagiatów firmy Turnitin, indeksowania czasopism online i administrowania witrynami internetowymi. Można się z nią skontaktować za pośrednictwem egbeodeshi@uniuyo.edu.ng.

Dr Ufuoma Dymphna Onobrakpor uzyskała tytuł magistra na Uniwersytecie Stanowym Delta w Abraka, tytuł magistra zarządzania informacją na Uniwersytecie Ahmadu Bello w Zarii oraz tytuł doktora filozofii w dziedzinie bibliotekoznawstwa i informacji naukowej na Uniwersytecie Rolniczym Michaela Okpara w Umudike w Nigerii. Jest certyfikowanym bibliotekarzem w Nigeryjskiej Radzie Rejestracji Bibliotekarzy. Dr Onobrakpor jest bibliotekarzem akademickim w Bibliotece Uniwersytetu Uyo i dyrektorem American Space: Uyo Window on America. Wykłada również na Wydziale Bibliotekoznawstwa i Informacji Naukowej Uniwersytetu w Uyo. Dr Onobrakpor jest aktywnym członkiem Nigeryjskiego Stowarzyszenia Bibliotek (NLA) oddziału stanowego Akwalbom, sekcji IT Nigeryjskiego Stowarzyszenia Bibliotek (NLA) oraz Krajowego Stowarzyszenia Edukatorów Bibliotekoznawstwa i Informacji Naukowej (NALISE). Uczestniczyła w kilku konferencjach krajowych i międzynarodowych. Jej prace były szeroko publikowane, w formie artykułów w lokalnych i międzynarodowych czasopismach recenzowanych i jest autorką kilku rozdziałów w książkach. Jej obszary specjalizacji obejmują technologie informacyjne i komunikacyjne (ICT),

e-zasoby, umiejętność korzystania z informacji, edukację użytkowników zasobów bibliotecznych oraz wyszukiwanie i wyszukiwanie informacji. Z dr Onobrakporom można się skontaktować pod adresem uonobrakpor@uniuyo.edu.ng.

Słowa kluczowe: repozytoria otwartego dostępu; repozytoria afrykańskie; afrykańska komunikacja naukowa; widoczność dorobku naukowego; OpenDOAR; repozytoria cyfrowe

A bstrakt

C el: Niniejszy artykuł jest badaniem porównawczym repozytoriów w Afryce pod kątem globalnej widoczności afrykańskiej komunikacji naukowej. Ma na celu przedstawienie szczegółowego opisu i porównania repozytoriów w Afryce według regionu, kraju, typu repozytorium, roku założenia, typu treści, typu oprogramowania i języka treści.

P rojekt/metodologia/podejście: Korzystając z metodologii systematycznego przeglądu treści i techniki całkowitego enumeratywnego doboru próby, dokonano przeglądu łącznie 259 afrykańskich repozytoriów pobranych z bazy danych Directory of Open Access Repositories w ciągu jednego tygodnia.

W yniki: Badanie wykazało, że spośród 5 905 wymienionych repozytoriów, 259 pochodzi z Afryki. Repozytoria są rozmieszczone w 24 z 54 krajów tworzących kontynent, co stanowi 44% reprezentacji afrykańskiej komunikacji naukowej przez kraje w przestrzeni globalnej. W podziale na regiony, Afryka Wschodnia miała największą liczbę repozytoriów (101 (39%)), niezmiennie stając się regionem afrykańskim o najbardziej widocznej komunikacji naukowej, podczas gdy Afryka Środkowa miała najmniejszą liczbę repozytoriów (1) (0,4%). W podziale na kraje Republika Południowej Afryki znalazła się na czele innych krajów z 51 (20%) repozytoriami, podczas gdy Kamerun miał ich najmniej (1 (0,3%)). Afrykańska komunikacja naukowa z największą widocznością to nauki społeczne (223), podczas gdy najmniej zarchiwizowanym przedmiotem jest matematyka (176). Afrykańska komunikacja naukowa udostępniana w przestrzeni globalnej jest w większości generowana przez instytucje edukacyjne, ponieważ badanie pokazuje, że 243 (94%) OAR w Afryce to repozytoria instytucjonalne.

O ryginalność/wartość: Badanie ujawniło niewielki wkład afrykańskich repozytoriów w zapewnienie globalnej widoczności afrykańskiej komunikacji naukowej. Ujawnia to słabość kontynentu afrykańskiego w badaniu potencjału OAR w szerszym rozpowszechnianiu ich komunikacji naukowej. Afryka ma drugą co do wielkości populację na świecie i powinna generować więcej komunikacji naukowej w przestrzeni globalnej. W związku z tym w badaniu zaleca się m.in., aby instytucje afrykańskie zobowiązały się do ustanowienia i utrzymania OAR, jeśli afrykańska komunikacja naukowa będzie widoczna w przestrzeni globalnej.

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Die Untersuchung der globalen Sichtbarkeit der afrikanischen wissenschaftlichen Kommunikation: eine Vergleichsanalyse von Open-Access-Repositoryn in Afrika

DOI: <http://dx.doi.org/10.12775/FT.2024.005>



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Zugesandt: 21 III 2024

Angenommen: 31 VII 2024

Dr. Okeoma Chinelo Ezechukwu ist eine hervorragende Bibliothekarin mit reicher Erfahrung in öffentlichen und akademischen Bibliotheken. Sie hat einen Bachelorabschluss in Bibliothekswissenschaft / Anglistik der Nnamdi Azikiwe Universität in Awka, einen Masterabschluss im Fachbereich Bibliotheks- und Informationswissenschaft der Universität in Ibadan sowie einen Dokortitel im Fachbereich Bibliotheks- und Informationswissenschaft der Nnamdi Azikiwe Universität in Awka. Sie arbeitete als Leiterin der eLibrary und Katalogisiererin in der Prof. Kenneth Dike State Central eLibrary (Anambra State Library Board), Awka, und derzeit ist sie Leiterin der Abteilung für Dokumentenkonservierung und des institutionellen Repositoriums an der Universitätsbibliothek Uyo. Abgesehen von ihren administrativen Aufgaben hat Dr. Ezechukwu wesentlich zu diesem Fachbereich beigetra-

gen, indem sie mehrere Artikel in lokalen und internationalen Fachzeitschriften veröffentlicht hat. Zudem ist sie Dozentin im Lehrstuhl für Bibliotheks- und Informationswissenschaft der Uyo Universität in Nigeria. Ihr Forschungsinteresse umfasst digitale Bibliothekswissenschaft, Bibliometrie und Zitationsanalyse sowie Dienstleistungen öffentlicher Bibliotheken. Ihre Leidenschaft besteht darin, moderne Technologien mit Bibliotheks- und Informationsdiensten zu integrieren. Sie besitzt ein Zertifikat des Nigerianischen Bibliotheksregistrationsrats (Librarians' Registration Council of Nigeria, LRCN), ist aktives Mitglied des Verbands der Nigerianischen Bibliotheken (Nigerian Library Association, NLA) und seiner Sektion für Informationstechnologie. Dr. Ezechukwu ist per E-Mail unter der Adresse okeomaezechukwu@uniuyo.edu.ng erreichbar.

Dr. Egbe Adewole-Odeshi ist eine erfahrene Bibliothekarin mit über zehn Jahren Berufserfahrung. Ihre akademische Laufbahn umfasst einen Bachelorabschluss in Ökonomieder Delta Bundesuniversität in Nigeria, einen Masterabschluss im Fachbereich Wissenschaftliche Information der Universität Ibadan in Nigeria sowie einen Dokortitel im Fachbereich Bibliothekswissenschaft und Informationswissenschaft von der Universität Calabar in Nigeria. Sie arbeitete als Systembibliothekarin und Spezialistin für Ressourcen im Zentrum der Bildungsressourcen an der Universität Covenant Ota in Nigeria. Dr. Adewole-Odeshi ist eine zertifizierte Bibliothekarin im Nigerianischen Bibliotheksregistrationsrat (Librarians' Registration Council of Nigeria, LRCN), arbeitet derzeit als Leiterin der Sektion E-Ressources and Automation in der Universitätsbibliothek Uyo. Zusätzlich unterrichtet sie als Dozentin im Lehrstuhl für Bibliotheks- und Informationswissenschaft und betreut Studierende im Diplom-, Bachelor- und Aufbaustudium. Dr. Adewole-Odeshi ist ein aktives Mitglied des Verbands der Nigerianischen Bibliotheken (Nigerian Library Association, NLA), Bundesabteilung Akwa Ibom. Sie hat sowohl zu lokalen als auch internationalen Fachzeitschriften einen großen Beitrag geleistet. Ihr Spezialgebiet umfasst: elektronische Bibliotheksressourcen, Bibliotheksautomatisierung und Digitalisierung. Sie verfügt über Fähigkeiten in der Online-Katalogisierung, der Nutzung von Turnitin zur Plagiaterkennung, der Online-Indexierung von Zeitschriften und der Verwaltung von Websites. Sie kann unter egbeodeshi@uniuyo.edu.ng kontaktiert werden.

Dr. Ufuoma Dymphna Onobrakpor hat einen Bachelorabschluss der Delta Bundesuniversität, Abraka, einen Masterabschluss in Informationsverwaltung von der Ahmadu Bello Universität, Zaria, sowie einen Dokortitel im Fachbereich Bibliothekswissenschaft und Wissenschaftliche Information von der Michael Okpara Universität für Landwirtschaft, Umudike, Nigeria. Sie ist eine zertifizierte Bibliothekarin im Nigerianischen Bibliotheksregistrationsrat (Librarians' Registration Council of Nigeria, LRCN). Dr. Onobrakpor ist eine akademische Bibliothekarin in der Universitätsbibliothek Uyo und Direktorin von American Space: Uyo Window on America. Zudem unterrichtet sie als Dozentin an der Fakultät für Bibliotheks- und Informationswissenschaft der Uyo Universität. Sie ist auch ein aktives Mitglied der Abteilung des Verbands der Nigerianischen Bibliotheken (Nigerian Library Association, NLA), Bundesabteilung Akwa Ibom, der IT-Sektion desselben Verbands und des Nationalverbands der Bibliotheks- und Informationswissenschaftlichen Ausbilder (National Association of Library and

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S **chlüsselworte:** Open-Access-Repositoryen; afrikanische Repositoryen; afrikanische wissenschaftliche Kommunikation; Sichtbarkeit von Forschungsergebnissen; Katalog der Open-Access-Repositoryen (OpenDOAR); digitale Repositoryen

Z **usammenfassung**

Z **iel:** Der vorliegende Artikel ist eine Vergleichsanalyse von afrikanischen Repositoryen im Hinblick auf die globale Sichtbarkeit der afrikanischen wissenschaftlichen Kommunikation. Sein Ziel ist, die Repositoryen in Afrika nach den folgenden Kriterien: Region, Land, Typ des Repositoryums, Gründungsjahr, Inhaltstyp, Softwaretyp, Inhaltssprache, umfassend zu beschreiben und miteinander zu vergleichen.

P **rojekt / Methodologie / Zugang:** Durch die Anwendung der Methodologie der systematischen Inhaltsübersicht und der Technik der vollständigen Stichprobenauswahl wurden innerhalb einer Woche insgesamt 259 afrikanische Repositoryen aus dem Katalog der Open-Access-Repositoryen überprüft.

F **orschungsergebnisse:** Die Studie zeigte, dass 259 der 5905 genannten Repositoryen aus Afrika stammen. Sie sind auf 24 der 54 Länder des Kontinents verteilt, was insgesamt 44% der Repräsentation der afrikanischen wissenschaftlichen Kommunikation auf globaler Ebene ausmacht. Nach Region hatte Ostafrika die größte Anzahl an Repositoryen, 101 (39%), und ist damit die Region in Afrika mit der sichtbarsten wissenschaftlichen Kommunikation, während Zentralafrika die geringste Anzahl an Open-Access-Repositoryen (OAR) aufweist, 1 (0,4%). Nach dem Landeskriterium hatte die Republik Südafrika die meisten Repositoryen mit 51 (20%), während Kamerun am wenigsten hatte, 1 (0,3%). Die am sichtbarsten vertretene wissenschaftliche Disziplin in Afrika sind die Sozialwissenschaften auf Platz 223, während das am wenigsten archivierte Fach Mathematik auf Platz 176 liegt. Die wissenschaftliche Kommunikation in Afrika, die global zugänglich ist, wird überwiegend von Bildungseinrichtungen generiert, da die Studie zeigt, dass 243 (94%) der OAR in Afrika institutionelle Repositoryen sind.

O **riginalität / Wert:** Die Untersuchung hat gezeigt, dass afrikanische Repositoryen nur einen geringen Beitrag zur globalen Sichtbarkeit der afrikanischen wissenschaftlichen Kommunikation leisten. Sie offenbart die Schwäche des afrikanischen Kontinents bei der Erschließung des Potenzials von Open-Access-Repositoryen (OAR) zur breiteren Verbreitung ihrer wissenschaftlichen Kommunikation. Afrika hat die zweitgrößte Bevölkerung der Welt und sollte daher mehr wissenschaftliche Kommunikation im globalen Raum generieren.

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D

Digital literacy of library and information science postgraduates and ubiquitous learning in state owned universities, south-south, Nigeria

DOI: <http://dx.doi.org/10.12775/FT.2024.006>



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Received: 26 IV 2024

Accepted: 19 VII 2024

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K

Keywords: Digital Literacy, Ubiquitous learning, mobile computing, cloud computing, Multimedia, social media

Abstract: The study investigated digital literacy of library and information science postgraduate students and ubiquitous learning in state universities in south-South, Nigeria. Four (4) objectives, four research questions, and four hypotheses guided the study. The hypotheses were tested at 0.05 level of significance. The study adopted a correlational design and the population was 221 comprising library and information science postgraduate students from eight (8) state universities in South-South, Nigeria. The census sampling technique was used to select the entire population of 221 which represents the sample size. Instrument titled “Digital Literacy of Library and Information Science Postgraduate Students and Ubiquitous Learning Questionnaire” (DLLISPSULQ) was used for data collection. The reliability of the instrument was established through test-retest methods and was determined using Cronbach Alpha method which yielded reliability coefficient of 0.89. The study was analyzed using mean and standard deviation for research questions and Pearson Product Moment Correlation for hypotheses. It was revealed that there was a significant relationship between digital literacy of LIS postgraduate students and ubiquitous learning in state universities in South-South, Nigeria. It was recommended that Library and Information Science schools in South-South, Nigeria should as a matter of policy direct all LIS educators to adopt the use of ubiquitous technologies in teaching to enhance the adoption of ubiquitous learning by Postgraduate students.

Introduction

The burgeon of innovative technologies, proliferation of computing devices, digitization of information resources, and the use of telecommunications wireless internet have transformed the mode of teaching and learning. Education has, therefore, undergone major changes in recent years with the development of digital information transfer, storage, and communication methods which recorded a significant effect. This development has allowed for access to global communications and the number of resources available to today’s students as the traditional method is no longer very suitable in the current information society characterized by the utilization of digital technologies which allow students the opportunity to learn from anywhere, at any time, and any place (Ahiauzu et al., 2020).

Chng and Samsudin (2013) had noted that after the initial impact of computers and their applications in education, the introduction of electronic learning and mobile learning epitomized the constant transformations that were occurring in education. The assimilation of ubiquitous computing in education hence marks another great step forward, with Ubiquitous Learning (u-learning) emerging through the concept of ubiquitous computing, which is both pervasive and consistent, enabling students to access educational resources easily, flexibly, calmly, and seamlessly. They are widely used to enhance learning especially in digital environment and from any distance; thus, there is the need for digital literacy.

Digital literacy according to Western Sydney University (2020) is possessing the skills required to live, learn, and work in an environment where communication

of information and access to information is mainly through digital technologies like internet platforms, social media, and mobile devices. It is a skill that is required to learn and work in an environment that is characterized by digital technologies such as social media, gadgets, internet platforms, learning management systems, computing technologies, cloud technologies, and self-learning tools like YouTube. Digital literacy of students can be enhanced if teachers will apply digital media in teaching and learning. This will spur students to use digital media which will in turn enhance their digital literacy and motivate them to partake in ubiquitous learning environment.

According to Zhang (2015), ubiquitous learning can be viewed as the integration of mobile learning and electronic learning, allowing for personalization and customization to student's real needs. Chng and Samsudin (2013) noted that ubiquitous learning is usually confused with mobile learning but the latter is dependent on the use of mobile technologies to facilitate learning while ubiquitous learning emphasizes on the learning context where learning can happen anywhere and anytime with the ubiquitous tools. Bdiwi and Bargaoui (2015) believed that ubiquitous learning tools helps in establishing effortless interaction between authentic and digital learning resources and at the same time offering personalized learning opportunities. Ubiquitous learning tools could be multi-media, mobile computing, social media, cloud technology, Learning Management System (LMS), and cloud computing.

Ubiquitous learning, characterized by its anytime-anywhere access to educational resources facilitated through technology, is progressively being adopted in Nigeria. The rise in mobile phone usage and internet penetration has significantly contributed to this trend. Reporting from Statista, Sasu (2024) confirmed that as of 2022, Nigeria had nearly 84 million internet users. This figure is projected to grow to 117 million internet users in 2027, marking a substantial increase from previous years. This growth provides a foundation for the expansion of ubiquitous learning, enabling students to access educational materials via smartphones, tablets, and laptops. Various educational institutions have begun to leverage online platforms to supplement traditional learning methods, recognizing the potential to enhance educational outcomes through digital means. Despite the positive trends, the implementation of ubiquitous learning in Nigeria faces several critical challenges. Infrastructural deficiencies, such as unreliable electricity supply and insufficient internet coverage, particularly in rural areas, hinder the effective adoption of digital learning platforms. Reporting World Bank statistics, Ugwoke et al. (2020) noted that only 41% of rural dwellers have access to electricity as compared to 86% of the urban population in Nigeria. Moreover, high data costs remain a barrier for many students, limiting their ability to engage consistently with online educational content. The disparity in technological access exacerbates educational inequalities, making it difficult for students in underserved regions to benefit from ubiquitous learning.

In response to these challenges, various initiatives are being undertaken to improve the digital learning in Nigeria. The Nigerian government, along with private sector stakeholders, is investing in digital infrastructure to bridge the gap between

urban and rural areas. Programs aimed at enhancing digital literacy and providing affordable internet access are being implemented to ensure a more inclusive educational environment. For instance, the National Open University of Nigeria (NOUN) has expanded its online course offerings and support services to reach a broader audience (NOUN, 2024). Additionally, the COVID-19 pandemic has underscored the necessity for resilient educational systems, prompting further investment in technology-driven learning solutions. While progress is ongoing, a collaborative effort from all sectors is essential to fully realize the potential of ubiquitous learning in Nigeria. Notwithstanding, digital literacy is key component in the adoption of ubiquitous learning. This is because according to Robinson et al. (2020) discontentment and unequal digital skills will exclude people from exploiting digital tools such as ubiquitous learning opportunities. Regrettably, Parlakkılıç (2020) observed that research on u-learning is ongoing, especially the ubiquitous learning system theory and application methods are being investigated. Furthermore, there is insufficient attention given to digital literacy and ubiquitous learning. Thus, the need for this study.

Statement of the Problem

The development and proliferation of digital tools have influenced every sphere of human endeavour including the method of teaching and learning. Consequently, universities are leveraging various learning tools to facilitate teaching and learning. These include the use of instructional materials, multimedia, and the adoption of online learning platforms such as distance learning, mobile learning, e-learning, and now ubiquitous learning. Interestingly, the state of ubiquitous learning in Nigeria is gradually improving, driven by increasing mobile phone usage and internet penetration. However, significant challenges such as unreliable electricity, high data costs, and limited internet coverage, particularly in rural areas, hinder widespread adoption. Digital literacy is crucial in this context, as it empowers students and educators to effectively use technology for learning. Enhancing digital literacy is essential to maximize the benefits of ubiquitous learning, ensuring that all students, regardless of their location, can access and utilize digital educational resources effectively. Initiatives aimed at improving digital skills and providing affordable internet access are pivotal in bridging the educational divide and fostering a more inclusive learning environment in Nigeria. This is because digital literacy is a formidable skill in the digital world of which when lacked, limits one from harnessing ubiquitous learning opportunities but from preliminary observation by the researcher, it seems that postgraduate students are reluctant in the adoption of ubiquitous learning as they apparently rely on physical classroom lecturers for study. Could this be attributed to lack of digital literacy? There is, therefore, a need to investigate the digital literacy of LIS Postgraduate students and ubiquitous learning.

Objectives of the Study

The aim of the study is to determine the relationship between digital literacy of library and information science postgraduate students and ubiquitous learning in state universities in South-South, Nigeria. Specifically, the study seeks to:

1. Investigate the relationship between mobile computing literacy of LIS postgraduate students and ubiquitous learning in state universities in South-South, Nigeria
2. determine the relationship between cloud computing literacy of LIS postgraduate students and ubiquitous learning in state universities in South-South, Nigeria
3. unravel the relationship between social media literacy of LIS postgraduate students and ubiquitous learning in state universities in South-South, Nigeria
4. discover the relationship between multi-media literacy of LIS postgraduate students and ubiquitous learning in state universities in South-South, Nigeria

Research Questions

1. What is the relationship between mobile computing literacy of LIS postgraduate students and ubiquitous learning in state universities in South-South, Nigeria?
2. What is the relationship between cloud computing literacy of LIS postgraduate students and ubiquitous learning in state universities in South-South, Nigeria?
3. What is the relationship between social media literacy of LIS postgraduate students and ubiquitous learning in state universities in South-South, Nigeria?
4. What is the relationship between multi-media literacy of LIS postgraduate students and ubiquitous learning in state universities in South-South, Nigeria?

Hypotheses

The hypotheses are stated in null form and will be tested at 0.05 level of significance

- Ho₁ There is no significant relationship between mobile computing literacy of LIS postgraduate students and ubiquitous learning in state universities in South-South, Nigeria
- Ho₂ There is no significant relationship between cloud computing literacy of LIS postgraduate students and ubiquitous learning in state universities in South-South, Nigeria

- Ho₃ There is no significant relationship between social media literacy of LIS postgraduate students and ubiquitous learning in state universities in South-South, Nigeria
- Ho₄ There is no significant relationship between multi-media literacy of LIS postgraduate students and ubiquitous learning in state universities in South-South, Nigeria

Literature Review

Technology Acceptance Model (TAM)

Technology Acceptance Model (TAM) was first created by Davis in 1989 (Daniels et al. 2023). TAM proposed that perceived ease of use and perceived usefulness of technology are predictors of user attitude toward using the technology, subsequent behavioural intentions, and actual usage. Perceived ease of use was also considered to influence perceived usefulness of technology. Perceived usefulness refers to the degree to which the user believes that using the technology improves user's work performance. On the other hand, perceived ease of use refers to how effortless the user perceives using the technology could be. Both are considered distinct factors influencing the user's attitude toward using the technology. According to Chigozie-Okwum et al. (2018), technological innovation has been the pillar of success in many organizations in the knowledge age, irrespective of the organization type. The user attitude toward a system is a determining factor in whether they will use the system or not.

In the case of ubiquitous learning, in order for the students to adopt ubiquitous learning tools and use them effectively, the students ought to have a positive attitude toward the tools, perceive them as useful, and be willing to try them. This could require a big perceptual adjustment, depending on the students' current perception of usefulness of the ubiquitous learning.

Different authors have applied TAM in various technological studies to ascertain its relevance in the adoption of technology. For example, Mady and Baadel (2020) investigated YouTube as a learning aid and hinged the study on a TAM model and discovered from the result of hypotheses that there is a positive relationship between the perceived usefulness and the student's adoption of YouTube as a learning tool and there is a positive relationship between the ease of use and the students' adoption of YouTube as a learning tool. Similarly, Al-Hamad et al. (2020) used TAM to study the use of smart devices in teaching and learning as well as their reality and challenges in Jordan universities and discovered that perceived ease of use was also hypothesized to influence perceived usefulness and attitude toward using the technology. Such attitude toward using the technology determined the behavioural intention to use that technology. Mohammadi et al. (2020) also investigated mobile phone use in education and learning by faculty members of technical-engineering groups: and revealed that the levels of "Ease of Use" and "Self-ef-

ficacy” are above average. Mobile use also presents some challenges and barriers that also rise above adequate and acceptable levels. However, usefulness remains at an average level.

Based on the assertions and findings by various authors, it is clear that Technology Acceptance Model is a determinant of the adoption of technology. The TAM model is, therefore, relevant to this study which sought to investigate digital literacy of library and information science students and ubiquitous learning. This is because looking at the indices of the TAM model, perceived ease of use and perceived usefulness, it can be hypothesized that if library and information science students perceived that ubiquitous learning tools will enhance their learning experiences with ease and effortless, it will influence their adoption of ubiquitous learning. Digital literacy of library and information science students which the study sought to ascertain could be a militating factor against the adoption of ubiquitous learning, its perceived usefulness could motivate the students to acquire the skills. This should enable them to exploit the usefulness which of course with its ease of use, thus, will encourage the adoption of ubiquitous learning among library and information science students. The TAM model is, therefore, suitable for this study.

Digital Literacy

Digital literacy according to Okwu et al. (2022) is the ability to locate, analyze, exploit, and generate information using digital tool, communication tools, or networks. Furthermore, it is the capacity to leverage information in a variety of formats from a variety of digital sources. Digital literacy involves the mastery of ideas, and is not just about using the technology itself. Bravoet al. (2021) noted some digital literacy to include media literacy, information literacy, digital scholarship, communications and collaboration, and ICT literacy. Audrinand Audrin (2022) identified technical, cognitive, and social-emotional as dimensions of digital literacy. Omehia et al. (2021) emphasized that individuals need to be able to locate, navigate, retrieve, and utilize information from various sources. Similarly, Silamut and Petsangsri (2020) noted that one not only needs to be able to search and manage but also to scrutinize and integrate digital information. Lestari et al. (2020) recognized that digital literacy has become formidable skills in the digital age. This could enable people to easily navigate on the web, search for articles and videos, and share information with friends.

Ubiquitous Learning (U-Learning)

The concept of Ubiquitous Learning has generated a lot of misconceptions due to other related concepts like the e-learning and the mobile-learning. Although they seem to imply the same thing, they are not. They can, however, be said to have the same goal which is to enhance teaching and learning due to their similarities in dealing with the issues of space and time in learning. In trying to explain the dif-

ferent meanings of the terms e-learning, mobile learning and Ubiquitous Learning, Parlakkılıç (2020) noted that most of the e-learning systems work on a client-server architecture structure or on a central server logic where the learner is dependent on the system and the teacher and often uses the specific resources provided to him or her.

E-learning can be described as the distribution and use of information in the network environment in education and training. The system in this structure is sometimes called distributed learning, online learning, virtual learning, and web-based learning. E-learning covers all of these and is conducted online, offline, synchronously and asynchronously with networked wired devices and systems (Naidoo, 2006). As an extension of e-learning, m-learning is used today, but m-learning is considered a new level of development as a subset of e-learning. M-learning is a wireless and internet-based e-learning system and requires a permanent commitment to the physically existing network such as Mobile Telephone Network (MTN), Globacom, and Airtel. The advantages of m-learning over e-learning are elasticity, cost, ease of use, and use in time-dependent applications. The devices used in the m-learning system are Personal Development Assistance (PDA), mobile phones, laptop, notebook, and tablet computer devices.

Mobile Computing Literacy and Ubiquitous Learning

According to Omehia and Nsirim (2022), mobile computing is commonly defined as the technology used in cellular communications that is portable, powered by battery and uses wireless connectivity which encompasses all computing devices that allow internet connection and communication at any time. They include cell phones, tablet computers, and laptops. Mobile computing is a human-computer interface through which multimedia resources such as data, text, image, voice, and video can be communicated and or transmitted using computers or wireless devices. The mobile hardware packages include laptops, smartphones, tablet, Personal Digital Assistants, and mobile software packages include Simbian, windows mobile, and application software such as mobile social media like Facebook, WhatsApp, and Twitter (Igwela & Nsirim, 2018). They facilitate communication between educators and students. Students can use their smart devices to download course materials through Learning Management Systems (LMS), submit assignments and projects get announcements, interact with lecturers, and undertake other educational activities. Some teachers encourage students to use smart devices outside classrooms, yet some are very reluctant to their use inside the classroom and during lectures. Alshammari (2020) studied the current use of mobile devices among students and faculty in teaching in a Saudi Arabian Context. The results showed that students predominantly used their mobile devices informally outside the classroom to facilitate their English language learning.

Cloud Computing Literacy and Ubiquitous Learning

The National Institute of Standards and Technology (as cited in Kuliya et al., 2015) defined cloud computing as a means for enabling convenient and on-demand network access to a distributed pool of configurable computing resources such as networks, servers, storage, applications, as well as services that can be speedily provisioned and allows for minimal management effort and service provider interaction. Cloud computing can be leveraged for various educational purposes, such as recording lectures for students to access at their convenience, uploading documents and resource links, providing access to ubiquitous learning materials like e-lecture notes, e-books, and e-journals, posting grades, creating online chat rooms, and discussion boards for student interaction, such as with Google Hangouts. Omehia and Nsirim (2022) investigated computing technologies and paperless classroom in library schools in Rivers State. The study revealed that most of the respondents could use some cloud computing applications such as email but lacked the skills to use GoogleDocs. However, the study also revealed that there was a significant relationship between cloud computing and paperless classroom in library schools in Rivers State. The study recommended that the library schools management should as a matter of policy implement the use of cloud computing in library schools in Rivers State.

Social Media Literacy and Ubiquitous Learning

Social media comprises a collection of internet-based interactive platforms that are built upon the principles and technology of Web 2.0, allowing users to generate and exchange content. According to Chen et al. (2012), social media has found utility in higher education, enabling students to share learning materials, engage in peer review, and maintain personal blogs reflecting on their learning experiences. Its advent has had a profound impact on students, affecting both their academic and social lives as they connect for various purposes. Chughet al. (2021) claim that social media facilitates interaction by bringing together instructors, students, and other academic stakeholders to foster knowledge construction in teaching and learning. Tayo et al. (2019) examined social media usage among undergraduates and its influence on their studies in Obafemi Awolowo University, Ile-Ife, Nigeria. The results show social media platforms used by undergraduates include WhatsApp, Facebook, Instagram, YouTube, Twitter, LinkedIn, Google Plus, Snapchat, and Skype. Undergraduates perceived purposes of social media usage included academic.

Multimedia literacy and Ubiquitous Learning

Multimedia refers to computer-based systems that employ associative connections to enable learners to explore and retrieve information containing text, audio, visuals, video, animations, and other media. According to Abdulrahman et al.

(2020), multimedia employs various types of media and communication technologies to enhance content visualization and user interaction. Udim and Etim (2016) examined the use of multimedia in teaching and learning of political science in University of Uyo, Akwa Ibom State, Nigeria. The study revealed that due to lack of digital literacy and lack of understanding of the benefits of multimedia facilities, there was minimal use of multimedia in teaching and learning of political science. The study recommended that the Federal Government of Nigerian should see multimedia integration effort at the university as an embracing project to development in education and should support by allocating and releasing adequate funds to invest in massive Internet connectivity.

Methodology

The study adopted correlational research design. Two Hundred and Twenty-One (221) library and information science postgraduate students were the population of the study. It comprised all postgraduate students in library schools in state universities in South-South, Nigeria. The library schools in the state universities are Department of Library and Information Science, Akwai-Ibom State University, Mkpata-Enin; Department of Library and Information Science, Ambrose Ali University, Ekpoma, Edo State, Department of Library and Information Science, Cross Rivers State University, Calabar; Department of Library and Information Science, Delta State University Abraka, Department of Library and Information Science, Ignatius Ajuru University of Education, Port Harcourt,; Department of Library and Information Science, Niger Delta University, Bayelsa State; and Department of Library and Information Science, Rivers State University, Port Harcourt, Rivers State. However, of all the library schools in the state universities, only four library schools in three state universities in the South-South Geopolitical Zone are offering post graduate programs in library and information science. Therefore, the target population of the study are 221 postgraduate students in the four (4) state library schools in four state universities in South-South. They are Department of Library and Information Science, Ambrose Ali University, Ekpoma, Edo State (11), Department of Library and Information Science, Delta State University Abraka (98), Department of Library and Information Science, Ignatius Ajuru University of Education, Port Harcourt (99) and Department of Library and Information Science, Rivers State University, Port Harcourt, Rivers State (13).

Two Hundred and Twenty-One (221) library and information science postgraduate students were the sample size of the study. This was drawn from the target population of the four library schools with postgraduate programs in four state universities in South-South geo political zone, Nigeria. Census sampling technique was, therefore, used since the population was not large.

Questionnaire was used to gather data from the respondents. The researcher developed a questionnaire titled "Digital Literacy of Library and Information Science

Postgraduate Students and Ubiquitous Learning Questionnaire (DLLISPSULQ)". It comprises two (2) sections. Sections A and B. Section A contained information on the independent variables and Section B focused on the dependent variable. Each of the items was assigned a 4-point rating scale of Strongly Agree (SA) – 4 points; Agree (A) – 3 points; Disagree (D) – 2 points; and Strongly Disagree (SD) – 1 point. Test-retest method was adopted. To determine the reliability of the instrument, 20 copies of the questionnaire were administered to the postgraduate students in the Department of Library and Information Science, Imo State University who were not part of the study. The Cronbach Alpha Method was used to establish the consistency reliability coefficient which yield a coefficient of 0.89. This indicates the instrument is reliable.

The researcher with the help of research assistants in each of the institutions studied, administered the questionnaire. The research assistants were briefed by the researcher on the administration of the questionnaire. This approach ensured proper administration and completion of the questionnaire. Out of 221 copies of the instrument administered to the respondents, 214 were found valid and used for the analysis. Data were analyzed using Mean Scores and Standard Deviation in answering the research questions. The Pearson Product Moment Correlation (PPMC) was used to test the null hypotheses at 0.05 level of significance. This was computed using the Statistical Package for Social Science (SPSS) software version 23. The decision to accept or reject was based on the mean rating of 2.50, this implied that any item with a mean of 2.50 and above was accepted while any item with a mean below 2.50 was rejected.

RESULTS

Research Question 1: What is the relationship between Mobile Computing Literacy of LIS Postgraduate Students and Ubiquitous Learning?

Table 1. Mobile Computing Literacy of LIS Postgraduate Students

S/N	Item	SA	A	D	SD	\bar{x}	\pm	Decision
1	Download documents and files using laptop	91	123	0	0	3.4	3.4	Agree
2	Engage in online classroom using smart phones	88	126	0	0	3.4	3.4	Agree
3	Use mobile phones to access the internet	100	114	0	0	3.5	3.5	Agree
4	Share information using mobile devices	102	112	0	0	3.5	3.5	Agree
5	Collaborate with educators using mobile devices	69	111	23	11	3.1	3.3	Agree
	Weighted Mean	3.38>2.5					3.4	Agree

The result from Table 1 shows the mobile computing literacy of LIS postgraduate students. It revealed that item 3 has a mean score of 3.5 and standard deviation of 3.5. This indicates that LIS postgraduate students possessed the skills to use mobile phones to access the internet. Item 4 has a mean score of 3.5 and standard deviation of 3.5. This indicates that LIS postgraduate students possessed the skills to share information using mobile devices. Item 1 has mean score of 3.4 and standard deviation of 3.4. This indicates that LIS postgraduate students could download files, documents using laptop. Item 2 has mean score of 3.4 and standard deviation of 3.4. This indicates that LIS postgraduate students possessed the literacy skill to engage in online classroom using smart phones. Item 5 has mean score of 3.1 and standard deviation of 3.3. This indicates that LIS postgraduate students could collaborate with educators using mobile devices. The weighted mean of 3.3 which is greater than the criterion mean of 2.5 indicates that LIS postgraduate students in state universities in South-South, Nigeria, possessed mobile computing literacy to exploit ubiquitous learning.

Research Question 2: What is the relationship between Cloud Computing Literacy and Ubiquitous Learning of LIS Postgraduate Students?

Table 2. Cloud Computing Literacy of LIS Postgraduate Students

S/N	Item: cloud computing literacy helps me to:	SA	A	D	SD	\bar{x}	\pm	Decision
1	Share files and document through emails	101	113	0	0	3.5	3.5	Agree
2	Use of GoogleDocs to collaborate with lecturers	21	46	86	61	2.1	2.8	Disagree
3	Save documents and files on One Drive	34	64	74	42	2.4	3.0	Disagree
4	Subscribe to YouTube and access online lectures	24	91	75	24	2.5	2.9	Agree
5	Make use of online databases	30	100	64	20	2.7	3.0	Agree
	Weighted Mean					2.64 > 2.5	3.0.	Agree

Table 2 shows the cloud computing literacy of LIS Postgraduate students in state universities in South-South, Nigeria. The study reveals that item 1 has a mean score of 3.5 and standard deviation of 3.5. This implies that LIS postgraduate students could share files and document through emails. Item 5 has the mean score of 2.7 and standard deviation of 3.0. This implies that LIS postgraduate students could make use of online databases. Item 4 has mean score of 2.5 and standard deviation of 2.9. This implies that LIS postgraduate students could subscribe to YouTube and access online lecture. On the other hand, Item 3 has a mean score of 2.4 and standard deviation of 3.0. This implies that most of the LIS postgraduate students

lack the literacy skills to save documents and files on One Drive. Item 2 has mean score of 2.1 and standard deviation of 2.9. This implies that most of the LIS postgraduate students lack the literacy to use GoogleDocs to collaborate with lecturers and fellow students. However, the weighted mean of 2.6 which is greater than the criterion mean of 2.5 implies that LIS postgraduate students in State universities in South-South, Nigeria, possessed the cloud computing literacy to adopt ubiquitous learning.

Research Question 3: What is the relationship between Social Media Literacy and Ubiquitous Learning of LIS Postgraduate Students?

Table 3: Social Media Literacy of LIS Postgraduate Students

S/N	Item: Social media literacy helps me to:	SA	A	D	SD	\bar{x}	\pm	Decision
1.	Take lectures through Facebook	120	92	2	0	3.6	3.6	Agree
2.	Use Skype	22	92	78	22	2.5	2.9	Agree
3.	Subscribe to YouTube channels	66	123	15	10	3.1	2.9	Agree
4.	Chat using WhatsApp	121	93	0	0	3.6	3.6	Agree
5.	Link to learning websites via social media	21	91	79	23	2.5	2.9	Agree
Weighted Mean						3.0 >2.5	3.1	Agree

Table 3 shows the social media literacy of LIS postgraduate students in state universities in South-South, Nigeria. It reveals that item 4 has mean score of 3.6 and standard deviation of 3.6. This implies that postgraduate students possessed the literacy to chat using WhatsApp. Item 1 has mean score of 3.6 and standard deviation of 3.6. This implies that postgraduate students possessed the literacy to take lectures through Facebook. Item 3 has mean score of 3.1 and standard deviation of 2.9. This implies that LIS postgraduate students possessed the literacy to subscribe to YouTube channels. Item 2 has mean score of 2.5 and standard deviation of 2.9. This indicates that LIS postgraduate students could use Skype. Item 5 has mean score of 2.5 and standard deviation of 2.9. This implies that LIS postgraduate students could link to learning websites via social media. The weighted mean of 3.0 revealed that LIS postgraduate students possessed the social media literacy to leverage ubiquitous learning opportunities.

Research Question 4: What is the relationship between Multimedia Literacy and Ubiquitous Learning of LIS Postgraduate Students?

Table 4. Multimedia Literacy of LIS Postgraduate Students

S/N	Item: Multimedia literacy enables me to:	SA	A	D	SD	\bar{x}	\pm	Decision
1.	Combine text, audio, and video in knowledge sharing	27	83	86	18	2.6	2.9	Agree
2.	Get better understanding of using a combination of text, audio & video	25	80	89	20	2.5	2.9	Agree
3.	Use graphics in communication	22	55	80	57	2.2	2.9	Disagree
4.	Understand messages passed using animation	67	122	15	10	3.1	2.9	Agree
5.	Understand the use of symbols in knowledge transfer	24	82	84	24	2.5	2.9	Agree
Weighted Mean						2.5>2.5		Agree

Table 4 shows the multimedia literacy of LIS postgraduate students. It reveals that item 3 has mean score of 3.1 and standard deviation of 2.9. This indicates that postgraduate students could understand messages passed using animation. Item 1 has mean score of 2.6 and standard deviation of 2.9. This indicates that postgraduate students could combine text, audio, and video in knowledge sharing. Item 2 has mean score of 2.5 and standard deviation of 2.9. This indicates that postgraduate students get better understanding of using a combination of text, audio & video. Item 5 has mean score of 2.5 and standard deviation of 2.9. This shows that postgraduate students understand the use of symbols in knowledge transfer. On the other hand, item 3 has the mean score of 2.2 and standard deviation of 2.9. This indicates that LIS postgraduate students lacked the digital literacy to use graphics in communication. However, the weighted mean indicates that LIS postgraduate students in state universities in South-South, Nigeria, possessed the multimedia literacy to exploit the potentials of ubiquitous learning.

Hypothesis One: There is no significant relationship between mobile computing literacy of LIS postgraduate students and ubiquitous learning in state universities in South-South, Nigeria

Table 5. Summary of Pearson Product Moment Correlation between Mobile Computing Literacy and Ubiquitous Learning in State Universities in South-South, Nigeria.

SN	Variables		Mobile Computing Literacy	Ubiquitous Learning
1	Mobile Computing Literacy	Pearson Correlation	1	0.832
		Sig. (2-tailed)		0.001
		N	214	214
2	Ubiquitous Learning	Pearson Correlation	0.832	1
		Sig. (2-tailed)	0.001	
		N	214	214
*. Correlation is significant at the 0.05 level (2-tailed).				

Table 5 shows the pair of mobile computing literacy and ubiquitous learning obtained a correlation coefficient of $r = 0.832$. This indicates a positive and high relationship and is statistically significant at 0.05 alpha level (Sig. $0.001 < 0.05$). Consequently, the null hypothesis which stated that there is no significant relationship between mobile computing literacy of LIS postgraduate students and ubiquitous learning in state universities in South-South, Nigeria, was rejected. There is, therefore, a significant relationship between mobile computing literacy of LIS postgraduate students and ubiquitous learning in state universities in South-South, Nigeria.

Hypothesis Two: There is no significant relationship between cloud computing literacy of LIS postgraduate students and ubiquitous learning in state universities in South-South, Nigeria.

Table 6. Summary of Pearson Product Moment Correlation between Cloud Computing Literacy and Ubiquitous Learning in State Universities in South-South, Nigeria

SN	Variables		Cloud Computing Literacy	Ubiquitous Learning
1	Cloud Computing Literacy	Pearson Correlation	1	0.532
		Sig. (2-tailed)		0.001
		N	214	214
2	Ubiquitous Learning	Pearson Correlation	0.532	1
		Sig. (2-tailed)	0.001	
		N	214	214
*. Correlation is significant at the 0.05 level (2-tailed).				

Table 6 shows that the pair of cloud computing literacy and ubiquitous learning obtained a correlation coefficient of $r = 0.532$. This indicates a positive and moderate relationship and is statistically significant at 0.05 alpha level ($\text{Sig.}0.001 < 0.05$). As a result, the null hypothesis which stated that there is no significant relationship between cloud computing literacy of LIS postgraduate students and ubiquitous learning in state universities in South-South, Nigeria, was rejected. There is, therefore, a significant relationship between cloud computing literacy of LIS postgraduate students and ubiquitous learning in state universities in South-South, Nigeria.

Hypothesis three: there is no significant relationship between social media literacy of LIS postgraduate students and ubiquitous learning in state universities in South-South, Nigeria

Table 7. Summary of Pearson Product Moment Correlation between Social Media Literacy and Ubiquitous Learning in State Universities in South-South, Nigeria

SN	Variables		Social Media Literacy	Ubiquitous Learning
1	Social Media Literacy	Pearson Correlation	1	0.899
		Sig. (2-tailed)		0.001
		N	214	214
2	Ubiquitous Learning	Pearson Correlation	0.899	1
		Sig. (2-tailed)	0.001	
		N	214	214

*. Correlation is significant at the 0.05 level (2-tailed).

Table 7 shows that the pair of social media literacy and ubiquitous learning obtained a correlation coefficient of $r = 0.899$. This indicates a positive and high relationship and is statistically significant at 0.05 alpha level ($0.001 < 0.05$). Hence, the null hypothesis which stated that there is no significant relationship between social media literacy of LIS postgraduate students and ubiquitous learning in state universities in South-South, Nigeria, was rejected. There is, thus, a significant relationship between social media literacy of LIS postgraduate students and ubiquitous learning in state universities in South-South, Nigeria.

Hypothesis Four: there is no significant relationship between multimedia literacy of LIS postgraduate students and ubiquitous learning in state universities in South-South, Nigeria.

Table 8. Summary of Pearson Product Moment Correlation between Multimedia Literacy and Ubiquitous Learning in State Universities in South-South, Nigeria

SN	Variables		Multi-media Literacy	Ubiquitous Learning
1.	Multi-media Literacy	Pearson Correlation	1	0.565
		Sig. (2-tailed)		0.001
		N	214	214
4.	Ubiquitous Learning	Pearson Correlation	0.565	1
		Sig. (2-tailed)	0.001	
		N	214	214
*. Correlation is significant at the 0.05 level (2-tailed).				

Table 8 shows that the pair of multi-media literacy and ubiquitous learning obtained a correlation coefficient of $r = 0.565$. This denotes a positive and moderate relationship and is statistically significant at 0.05 alpha level (Sig. $0.001 < 0.05$); therefore, the null hypothesis which stated that there is no significant relationship between multi-media literacy of LIS postgraduate students and ubiquitous learning in state universities in South-South, Nigeria, was rejected. There is a significant relationship between multi-media literacy of LIS postgraduate students and ubiquitous learning in state universities in South-South, Nigeria.

Discussion of the Findings

Mobile computing literacy of LIS postgraduate students and ubiquitous learning in state universities in South-South, Nigeria

The result of hypothesis one shows that there is a positive and high relationship between mobile computing literacy of LIS postgraduate students and ubiquitous learning in state universities in South-South, Nigeria. This implies that mobile computing literacy of postgraduate students is crucial in leveraging ubiquitous learning as it could enable postgraduate students to use mobile phones to access the internet, share information using mobile devices, download files, documents using laptop, engage in online classroom using smart phones, and collaborate with educators using mobile devices. It could also afford them the opportunities to use their devices to submit assignments and projects, get announcements, interact with lecturers and undertake other educational activities. On the other hand, if postgraduate students lack mobile computing literacy it could constitute a threat to the future method of teaching and learning in the academia. This is because mobile computing has created a revolution with new advances, new ideas and new users for

machines that are considered useful for handful of tasks. Thus, with the scope and ubiquity of computer technology, it should be noted that digital services are driven by user needs and as long as users continue to follow technological trends, there will be continuous growth in the mobile computing. Also, with high-speed connections probably becoming ubiquitous in the future, the accessibility and popularity of mobile computing will only increase further and with new innovations like Li-Fi technology, internet will be accessible through the light of all things.

This study is incongruent with that of Mwalukasa (2023) on postgraduate students' use of mobile phones as a supporting tool for learning at Sokoine University of Agriculture, Tanzania and discovered that few respondents mobile phones to upload and share information on various websites. The result of this study states that there is a significant relationship between computing technologies and ubiquitous learning could be due to the role mobile computing performs in learning everywhere and students ability to use mobile computing tools in learning.

Cloud computing literacy of LIS Postgraduate Students and Ubiquitous Learning in State Universities in South-South, Nigeria

The result of hypothesis two shows that there is a significant relationship between Cloud computing literacy of LIS postgraduate students and ubiquitous learning in state universities in South-South, Nigeria. This implies that cloud computing literacy skills are imperative in adopting ubiquitous learning as it could enable postgraduate students to share files and document through emails, make use of online databases, subscribe to YouTube, and access online lecture and also allow teachers to store teaching and learning materials, assignments, administer quizzes, and carry out learning activities as well as facilitate learning activities where the students can employ mobile applications including Google drive, Google slides, Google docs, and other additional learning materials through E-dictionary, Google Translate, Google Images, Google-dictionary, and Wikipedia. On the other hand, lack of cloud computing literacy could be a threat to facilitating the adoption of technological methods of teaching and learning in the LIS education as Madhav et al. (2018) rightly noticed that students had problems with the usage of cloud computing due to lack of skills whereas if they could actually learn more through practical experience that would enable cloud computing literacy which could facilitate and enhance their adoption of ubiquitous learning opportunities. This study is consistent with Omehia and Nsirim (2022) on computing technologies and paperless classroom in library schools in Rivers State and revealed that there was a significant relationship between cloud computing skills and paperless classroom in library schools in Rivers State. The finding of this study that there is a significant relationship between cloud computing literacy of LIS postgraduate students and ubiquitous learning could be due to the realization of the need to exploit the potentials of cloud computing in learning as well as the students literacy toward the use of cloud computing tools.

Social media literacy of LIS postgraduate students and ubiquitous learning in state universities in South-South, Nigeria

The result of hypothesis three revealed that there is a significant relationship between social media literacy of LIS postgraduate students and ubiquitous learning in state universities in South-South, Nigeria. This indicates that with social media literacy postgraduate students will have enhanced experience and perhaps motivation in leveraging the ubiquitous learning tool as it could enable postgraduate students to enable postgraduate students to chat using WhatsApp, take lectures through Facebook, subscribe to YouTube channels, use Skype, link to learning websites via social media. Etim et al. (2016) discovered that usage of the social media facilitated a significant difference in performance between those who used the social media network and those who did not. On the other hand, without social media literacy, postgraduate students will not be able to exploit the benefits of using social media tools in ubiquitous learning such as share learning resources, engage in peer review, and write personal/reflective blogs concerning their learning experiences. However, this study is in line with the study of Imoke et al (2021) who studied social media as teaching/learning tools in Nigerian tertiary institutions: contributory driver to 21st century inclusive education efforts and revealed that students had favourable perceptions concerning utilization of the social media tools for teaching/learning as a vital contributor towards driving the 21st century inclusive education efforts as they agreed that social media increased their academic-based task solving abilities, enabled them to contribute more meaningfully to class related critical thinking issues, upgraded their commitment toward learning from colleagues' academic related mistakes, enhanced their creative and research skills, boost willingness to chat with friends concerning academic related issues, and strengthened self-taking desires for posting on academic learning platforms. The result of this study could be attributed to high extent of social media literacy of postgraduate students and the proliferation of social media platforms and their use in academic activities particularly in ubiquitous learning.

Multi-media literacy of LIS postgraduate students and ubiquitous learning in state universities in South-South, Nigeria

The result of hypothesis four revealed that there is a significant relationship between multi-media literacy of LIS postgraduate students and ubiquitous learning in state universities in South-South, Nigeria. This implies that multimedia literacy could influence postgraduate students utilization of ubiquitous learning tool since it could help them to combine text, audio, and video in knowledge sharing, get better understanding of a concept of using a combination of text, audio & video, understand the use of graphics in communication, understand messages passed using animation, and understand the use symbols in knowledge transfer. On the other hand, without multi-media literacy, postgraduate students would find it difficult

to harness the potentials of ubiquitous learning due to the features of ubiquitous learning which cannot do without multimedia contents. However, the study supports the study of Oshinaike and Adekunmisi (2012) on the use of multimedia for teaching in University of Ibadan and discovered that although the majority of the respondents did not have access to the multimedia resources on campus, they used the materials at their homes and cybercafés.

Conclusion

The modern educational system is hopefully expecting more innovations in the method of teaching and learning. This is in addition to the improved system which has integrated various learning innovations into the system such as e-learning, online, learning, mobile learning, and ubiquitous learning. Notwithstanding, dealing with the improved educational system that has brought in the concept of ubiquitous learning requires digital literacy. This study investigated digital literacy of library and information science postgraduate students and ubiquitous learning in state universities in South-South, Nigeria, and revealed that there is a significant relationship between digital literacy (mobile computing literacy, cloud computing, social media literacy, multimedia literacy, virtual classroom literacy, basic computer literacy, and information retrieval literacy) of LIS postgraduate students and ubiquitous learning in state universities in South-South, Nigeria. Thus, students' ability to manipulate mobile computing, cloud computing, social media, multimedia, virtual classroom, basic computer operations, and information retrieval will help in facilitating and promoting the adoption ubiquitous learning.

Recommendations

Based on the findings of the study, the following recommendations were made:

1. Postgraduate students in library schools in South-South should continue to leverage mobile computing in learning.
2. Postgraduate students should improve on the use of cloud computing. This should be done by constantly utilizing cloud computing facilities such as GoogleDocs, OneDrive, etc.
3. Social media should be fully utilized in teaching and learning at the postgraduate level.
4. Library schools in South-South should deploy state-of-the-art multimedia enabled tools. The tools such as smart board should not only be deployed but be accessible and usable by postgraduate students for Power Point presentation.

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Umiejętności cyfrowe absolwentów bibliotekoznawstwa i informacji naukowej oraz wszechobecne nauczanie na uniwersytetach państwowych, południe-południe, Nigeria

DOI: <http://dx.doi.org/10.12775/FT.2024.006>



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Otrzymano: 26 IV 2024

Zaakceptowano: 19 VII 2024

Dr Onyema Nsirim jest bibliotekarzem i wykładowcą w Instytucie Bibliotekoznawstwa i Informacji Naukowej Stanowego Uniwersytetu Nauki i Technologii w Enugu. Uzyskał swój licencjat bibliotekoznawstwa i informacji naukowej na Uniwersytecie w Ilorin w Ilorin, tytuł magistra i doktora bibliotekoznawstwa i informacji naukowej na Uniwersytecie Edukacyjnym Ignatius Ajuru w Port Harcourt. Jest Certyfikowanym Bibliotekarzem (CLN) przez Radę Rejestracji Bibliotekarzy Nigerii (LRCN) oraz Sekretarzem Nigeryjskiego Stowarzyszenia Bibliotek (NLA), Rivers State Chapter. W obszarze jego zainteresowań znajduje się bibliotekarstwo cyfrowe.

Dr Oluchi Okeke jest bibliotekarzem i kierownikiem Katedry Bibliotekoznawstwa i Informacji Naukowej na Państwowym Uniwersytecie Nauki i Technologii w Enugu. Jest certyfikowanym bibliotekarzem (CLN) przez Radę Rejestracji Bibliotekarzy Nigerii (LRCN)

i członkiem różnych stowarzyszeń zawodowych, w tym Nigeryjskiego Stowarzyszenia Bibliotek (NLA), Krajowego Stowarzyszenia Edukatorów Bibliotek i Informacji Naukowej.

Słowa kluczowe: umiejętności cyfrowe; wszechobecne uczenie się; przetwarzanie mobilne; chmura obliczeniowa; Multimedia; media społecznościowe

Streszczenie: W badaniu badano umiejętności cyfrowe studentów studiów podyplomowych z zakresu bibliotekoznawstwa i informacji naukowej oraz wszechobecnego uczenia się na uniwersytetach stanowych w południowo-południowej Nigerii. Badanie przyświecało czterem (4) celom, czterem pytaniami badawczym i czterem hipotezom. Hipotezy przetestowano na poziomie istotności 0,05. W badaniu przyjęto projekt korelacyjny, a populacja liczyła 221 osób składających się ze studentów studiów podyplomowych z bibliotekoznawstwa i informacji naukowej z ośmiu (8) uniwersytetów stanowych w południowo-południowej Nigerii. Technika doboru próby spisowej została wykorzystana do wybrania całej populacji liczącej 221 osób, które reprezentują wielkość próby. Do zbierania danych wykorzystano narzędzie zatytułowane "Digital Literacy of Library and Information Science Postgraduate Students and Ubiquitous Learning Questionnaire" (DLLISPSULQ). Niezawodność przyrzędu została uzyskana za pomocą metod test-retest i została określona za pomocą metody Alphy Cronbacha, która dała współczynnik niezawodności 0,89. Badanie analizowano przy użyciu średniej i odchylenia standardowego dla pytań badawczych oraz współczynnika korelacji Pearsona dla hipotez. Okazało się, że istnieje istotny związek między umiejętnościami cyfrowymi studentów studiów podyplomowych LIS a wszechobecnym uczeniem się na uniwersytetach stanowych w południowo-południowej w Nigerii. Zalecono, aby szkoły bibliotekoznawstwa i informacji naukowej w południowo-południowej Nigerii w ramach polityki pokierowały wszystkich nauczycieli LIS w stronę przyjęcia stosowania wszechobecných technologii w nauczaniu w celu zwiększenia przyjęcia wszechobecnego uczenia się przez studentów studiów podyplomowych.

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Die Fähigkeit zur Nutzung digitaler Technologien unter Absolventen von Aufbaustudiengängen in Bibliotheks- und Informationswissenschaft sowie die Verbreitung des Lernens an den staatlichen Universitäten in der Region South-South, Nigeria

DOI: <http://dx.doi.org/10.12775/FT.2024.006>



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Zugesandt: 26 IV 2024

Angenommen: 19 VII 2024

Dr. Onyema Nsirim ist Bibliothekar und Dozent der Fakultät für Bibliotheks- und Informationswissenschaft der Wissenschaftlich-Technologischen Staatsuniversität in Enugu. Er hat einen Bachelorabschluss im Fachbereich Bibliotheks- und Informationswissenschaft der Ilorin Universität in Ilorin, einen Masterabschluss und einen Dokortitel im selben Bereich von der Ignatius Ajuru Bildungsuniversität in Port Harcourt. Er ist ein zertifizierter Bibliothekar (CLN) im Nigerianischen Bibliotheksregistrierungsrat (Librarians' Registration Council of Nigeria, LRCN) und Sekretär des Verbands der Nigerianischen Bibliotheken (Nigerian Library Association, NLA), Bundesstaat Rivers. Sein Forschungsinteresse umfasst die digitale Bibliothekswissenschaft.

Dr. Oluchi Okeke ist eine Bibliothekarin und Leiterin des Lehrstuhls für Bibliotheks- und Informationswissenschaft an der Staatsuniversität für Wissenschaft und Technologie in Enugu, eine zertifizierte Bibliothekarin (CLN) im Nigerianischen Bibliotheksregistrationsrat (Librarians' Registration Council of Nigeria, LRCN) und Mitglied verschiedener Berufsverbände, darunter des Verbands der Nigerianischen Bibliotheken (Nigerian Library Association, NLA), des Nationalverbands der Bibliotheks- und Informationswissenschaftlichen Ausbilder (National Association of Library and Information Science Educators, NALISE).

S **chlüsselworte:** digitale Kompetenzen; allgegenwärtiges Lernen; mobiles Computing; Cloud-Computing; Multimedia; soziale Medien

Z **usammenfassung:** Die Studie bezog sich auf die digitalen Kompetenzen der Studierenden in Aufbaustudiengängen im Fach Bibliotheks- und Informationswissenschaft sowie das allgegenwärtige Lernen an den staatlichen Universitäten im Südteil Nigerias. Sie basierte auf vier Zielen, vier Forschungsfragen und vier Hypothesen. Die Hypothesen wurden auf dem Signifikanzniveau von 0,05 getestet. Die Studie nahm ein korrelatives Design an und die Population umfasste 221 Personen, darunter Studierende der Aufbaustudiengänge in Bibliotheks- und Informationswissenschaft von acht staatlichen Universitäten im südlichen Teil Nigerias. Zur Auswahl der gesamten Population von 221 Personen, die die Stichprobengröße darstellte, wurde die Zählungstechnik angewendet. Zur Datenerhebung wurde ein Instrument genannt „Digitale Kompetenzen von Aufbaustudenten in Bibliotheks- und Informationswissenschaft und allgegenwärtiges Lernen“ (DLLISPSULQ) verwendet. Die Zuverlässigkeit des Instruments wurde mit der Test-Retest-Methode und der Cronbachs Alpha-Methode bestimmt, die einen Zuverlässigkeitskoeffizienten von 0,89 ergab. Die Studie wurde unter Verwendung des Mittelwerts und der Standardabweichung für die Forschungsfragen sowie der Pearson-Korrelation für die Hypothesen analysiert. Es wurde ein signifikanter Zusammenhang zwischen den digitalen Kompetenzen der Aufbaustudenten in LIS und allgegenwärtigem Lernen an den staatlichen Universitäten in South-South in Nigeria festgestellt. Es wurde empfohlen, dass Bibliotheks- und Informationsschulen in South-South in Nigeria als politische Maßnahme allen LIS-Pädagogen vorschreiben, den Einsatz allgegenwärtiger Technologien im Unterricht zu übernehmen, um die Akzeptanz des allgegenwärtigen Lernens durch die Aufbaustudenten zu erhöhen.



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Lukasz Schubbe's *Carmen de nova constitutione Gymnasii Thoruniensis* from 1568 in the collection of the Provincial Public Library – the Copernicus Library in Toruń

DOI: <http://dx.doi.org/10.12775/FT.2024.007>



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Received: 31 V 2024

Accepted: 21 VI 2024

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The year 1568 is an important turning point in the history of Toruń education. Then, on 8 March, as a result of the reorganisation of the municipal school carried out under the direction of Rector Maciej Breu (Dreikopel, 2015, 60), the local gymnasium formally began its operation. In the intention of the then city authorities, as well as the author of the reform himself, it was to become a school of a humanistic character, a rigorously Protestant religious face and a conservative educational model (Salmonowicz, 1978, 141). Such a model of teaching, religious formation and upbringing in a gymnasium results directly from the information that can be found in the 40-page publication in quarto *Novae scholae T[h]orun[us]ensis ratio doctrinae et disciplinae* (hereinafter: *Ratio*, 1568) published in the same year in the publishing house of Jakub Rhode in Gdańsk. The above-mentioned print, which is currently in the collection of the Provincial Public Library – the Copernicus Library in Toruń (file no. 102799), contains primarily *Constitutio Scholae T[h]oruniensis* (*Ratio*, f. [B4]–[E4]), describing the principles of religious education, the curriculum and the order regulations in force in gymnasiums (Dreikopel, 2015, 59–67; 2016, 63–70). These provisions are preceded by a programmatic introduction by Maciej Breu, dedicated “candido et aequo Lectori” (*Ratio*, f. A2–A[4]), as well as a speech on the occasion of the introduction of the new rector, which was given by pastor Szymon Musaeus (Tync, 1928, 29, 36–37, 63), doctor of theology and honorary professor at the gymnasium, who was the head of the Protestant clergy in Toruń (*Ratio*, f. A[4]–[B3]). The last two folios of the publication from 1568 (*Ratio*, f. [E4]–[F1]) are occupied by the Latin carmen, of which creator is Łukasz Schubbe (Lucas Schubbaeus), the then rector of the school. Unfortunately, our information about the author of this poetic trifle is fragmentary and concerns only the Toruń period of Schubbe’s didactic and literary activity, i.e. the years 1568–1572 (Tync, 1928, 62, 66). He was certainly a man who had received a thorough education and, like the rector Breu, probably had a master’s degree in artium. This is evidenced by both Schubbe’s position in the school’s structure and the fact that he was entrusted with teaching in the highest sixth grade at the time. It should be added that education in the higher grades, i.e. the fourth, fifth and sixth, was carried out in a 2-year system, so the rector supervised young men who de facto had to complete the last stage of education in a 9-year lower secondary school (Salmonowicz, 1978, 141). The information that can be found in the school laws (*Ratio*, f. D[1]–D2), it follows that Schubbe taught Greek and Latin grammar in the above-mentioned class, as well as translated from both classical languages, making the reading of *Carmina aurea* by Pythagoras, *Gnomes* by Phocylides and *Epistulae ad familiars* by Cicero a subject (Dreikopel, 2015, 63–64). He was also a talented poet, which is confirmed not only by the above-mentioned carmen, but also by the biblical poem written in hexameter *Historia rerum gestarum heroici ducis Gideonis*, published in 1569 in the Toruń printing house of Stanisław Worffschauffel (Tync, 1928, 62), which is currently in the collection of the Gdańsk Library of the Polish Academy of Sciences (file no. Qb 10062 adl. 18).

Interesting to me in this study *Carmen de nova constitutione Gymnasii T[h]oruniensis* Schubbe wrote in Latin, using a metric measure, which in this case is the elegiac couplet. On the one hand, this work is part of the typical trend of occasional poetry, and on the other hand, it is an important testimony, the author of which reliably brings the reader closer to the backstage of the reorganization and reform of the Toruń school. Taking into account the importance of Schubbe's poem as source material and the obvious limitations imposed on the translator by the need to maintain the requirements of Latin metre, I decided to translate prose into Polish. Those places in the translation that I have put in square brackets are my complement or addition as a translator. I also include a transliteration of the text of carmen from 1568, in which I standardized the spelling and punctuation, and also solved the abbreviations used by the author. In the original text, I make the necessary correction, the lexical, syntactic and metric legitimacy of which I refer to in the commentary to the Polish translation.

* * *

**Carmen de nova constitutione Gymnasii T[h]oruniensis,
scriptum a Luca Schubbaeo, eiusdem Conrectore**

Si quis opus studiis neget esse virisq[ue] peritis,
floreat ut Christi coetus et urbis honos,
hunc ego vix sani cerebri, sed mentis egentem
et reor, et moneo, gustet ut elleborum.

^{/5/} Artibus absq[ue] bonis sed non doctrina parari
et sine linguarum cognitione potest.

Nobiscum pariter constat non nasci et artes,
sed nos erudiunt limina docta scholae.

Publica res igitur, nec non Ecclesia Christi
^{/10/} poscit honoratas constituisse scholas.

Haec reputans noster vigilanti mente Senatus
ampla monasterii templa domosq[ue] capit.
Idq[ue] repurgatum veterem traduxit in usum
et celebris voluit nomen habere scholae.

^{/15/} Sumptibus immensis habitacula plurima Phoebos
condidit et Phoebi quos pius ardor habet.

Nec satis hoc, variis multos eduxit ab oris
artibus insignes et pietate viros,
qui pueris tradant teneris elementa sub annis

^{/20/} et doceant mores cum pietate bonos.

Caetera quid memorem? Tali ratione docentes
utuntur, velut haec edita forma refert.

Hic Germanus homo Graium praeterq[ue] Latinum

sermonem discet verba Polona loqui.

^{/25/} Namq[ue] professorem nutrit schola nostra Polonum,
ingenii Musae quem decora[ve]re bonis.

Sarmaticusq[ue] puer, studium nisi desit et usus,
discet Teutonicos ore referre modos.

Passibus ergo citis, seu te Germanica tellus,

^{/30/} sive Polona tenent tecta, venito puer!

Sumptibus hic aequis artes moresq[ue] pudicos
et veri discas dogmata pura Dei.

At vos, o cives, pia factaiuvate Senatus
vestraq[ue] sit doctas cura fovere scholas.

^{/35/} Hospitiis pateant aedes, adiungite mensis,

Qui[bu]s sors magnificas dura negavit opes.

Sic alias haec ante scholas caput ex[s]eretaltum
et vestrum memori nomen honore feret.

Christe, Dei fili, nostrum Tu dirige coetum,

^{/40/} dicat ut et faciat non nisi grata Tibi.

* * *

Song on the occasion of the new way of organizing [teaching] in the Toruń Gymnasium, written by Łukasz Schubbe, the rector of this [school]

^{/1-2/} If anyone says that we do not need doctrines and learned men to develop the congregation of Christ, and also the good name of the city, ^{/3-4/} I think that such a man is not entirely sane, and certainly lacks reason, and I recommend that he should taste the decoction of the hellebore. ^{/5-6/} Education cannot be acquired without moral virtues and knowledge of languages. ^{/7-8/} It is known, however, that [this kind of] skills are not born with us, but we acquire them by entering the threshold of a school full of science. ^{/9-10/} Hence both the state and the church of Christ require us to create excellent schools. ^{/11-12/} With this in mind and thinking prudently, our City Council acquired churches as well as spacious monastery buildings. ^{/13-14/} After their renovation, they intended them for their former use, wanting them to be called an excellent school. ^{/15-16/} With enormous expenditure, they created countless abodes, not only for Phoebus, but also for those who are held in their power by his holy flame. ^{/17-18/} Moreover, they brought men from various parts of the world who were distinguished by learning and piety, ^{/19-20/} to teach boys from an early age the basics of knowledge and to teach them good manners and piety. ^{/21-22/} Why should I mention the other things? When teaching, they use a method that reflects the pattern presented [in this work]. ^{/23-24/} [It] is here that a newcomer from Germany, in addition to speaking Greek and Latin, will also learn to express himself in Polish. ^{/25-26/} For our school maintains a professor of the Polish [language], whom

the Muses [generously] endowed with gifts. ^{/27-28/} A boy from Poland, if he does not lack diligence and practice, will also learn to compose statements in German. ^{/29-30/} So come quickly, young man, regardless of whether you are held by the German land or by the thatched roofs of Poland! ^{/31-32/} With the same expenses, you will gain knowledge and decent morals here, and you will learn the unblemished teachings of the true God. ^{/33-34/} In the meantime, you, citizens, support the godly deeds of the City Council and take care to cultivate schools full of knowledge. ^{/35-36/} Open the doors of your homes to the newcomers and set tables [for those] whose difficult fate has barred the way to great wealth. ^{/37-38/} May this school thus raise its head higher than the others, and may it bear your name with grateful respect. ^{/39-40/} And you, Christ, Son of God, so lead our congregation that it will say and do only that which is pleasing to you.

Comment:

^{/3-4/} ...*that he should taste the decoction of the hellebore (...gustet ut elleborum): hellebore, Greek helléboros, Latin elleborus, elleborum, veratrum; specifically, it is its white or black variety (veratrum album, veratrum nigrum), from which the decoction was applied orally in states of insanity, and even madness as a medicinal decoction due to its strong cleansing effect on the body (Abramowiczówna, 1960, II, 103; Gawryś, 2008, 192; Korpanty, 2001, I, 641; Plezia, 1998, II, 308).*

^{/7-8/} *It is known, however, that [this kind of] skills are not born with us... (Nobiscum partier constat non nascietartes):* here I correct the original version of Schubbe's text, proposing in place of the word *nascier*, which does not exist in Latin, the form of the infinitive *nasci* as fully justified lexically and syntactically, followed by the conjunction *et* (here: *however*) that in line with the rules of metrics; it can be assumed that in the sixteenth-century original we are dealing with a printing error rather than a lack of philological competence of the author of the poem.

^{/11-12/} ... *our City Council acquired churches as well as spacious monastery buildings (noster... Senatus ampla monasterii templa domosq[ue] capit):* the events of 1559 are mentioned here, when the city councillors formally took over the Church of the Assumption of the Blessed Virgin Mary, commonly referred to as the Church of the Virgin Mary, together with the monastery buildings, from the Franciscan Order and handed them over to the Protestants; the second of the temples mentioned by the author of the poem is the present cathedral basilica of St. John the Baptist and St. John the Evangelist, until the end of the twentieth century referred to as the church of St. John; it should be noted that while the first of the churches and the former monastery buildings were made available to Protestants, the church of St. John was used until 1596 together with the Catholics (Tync, 1928, 24–26; Dreikopel, 2015, 60).

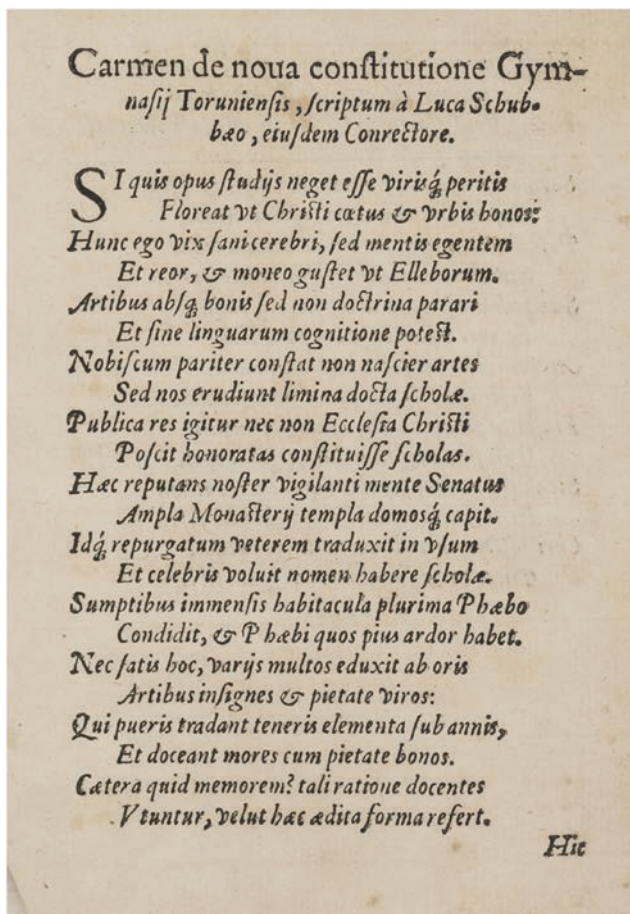
^{/13-14/} *After their renovation, they intended them for their former use... (Idq[ue] repurgatum veterem traduxit in usum...):* a thorough renovation of the former monastery buildings was carried out in the years 1564–1565; after its com-

pletion, the buildings were intended for the needs of the already existing municipal school, which functioned at the church of St. John, and from 1565 also at the church of the Virgin Mary; in this context, the City Council actually designated it *for its former use*, because from the fourteenth century, still in the times of the Franciscan Order, there was a monastery school there (Tync, 1928, 26–27).

^{/15-16/} *To Phoebus...: Phoebus, Greek Phoibos, Latin Phoebus – “the Shining One”, epithet and often, especially in Latin, the name of Apollo; in Schubbe’s poem he undoubtedly appears as the god of wisdom and the guide of the muses who take care of every kind of field of science and art (Kopaliński, 2015, 51, 800).*

^{/17-18/} *... they brought men from various parts of the world who were distinguished by learning and piety... (...varijs multos eduxit ab orisartibusinsignes et pietateviros...):* indeed, on the list of 10 teachers who began classes in the gymnasium in 1568 (*Ratio*, 1568, f. D[1]–D2), there is only one, i.e. Leopold Pannoniensis, about whom it can be assumed that his hometown was Toruń (Tync, 1928, 62). The others, namely rector Breu, rector Schubbe, honorary professors – Musaeus, Cziremberg, Burchardi, as well as Gutting, Thulmeiner, Coletus and Nicolai, teaching at the school as *collegae*, came from outside Toruń.

^{/25-26/} *For our school maintains a professor of the Polish [language]... (Namq[ue] professorem-nutrit schola nostra Polonum...):* this position was held at that time by Michał Nicolai, working as a Polish cantor in the churches of the Virgin Mary and St. John, about whom we have no further information apart from these references; however, we know quite well the details of the functioning of the so-called Scho-



The first page of *Carmen de noua constitutione Gymnasii Thoruniensis* by Lucas Schubbe from 1568.

Source: Provincial Public Library – the Copernicus Library in Toruń, file no. 102799.

la Polonica in the gymnasium, which, by the way, determined a kind of uniqueness of teaching in the Toruń school, especially in the upper grades (*Ratio*, 1568, f. C[1]–C3; Tync, 1928, 39–40; Dreikopel, 2015, 62–64).

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Łukasza Schubbeo *Carmen de nova constitutione Gymnasii Thoruniensis* z 1568 r. w zbiorach Wojewódzkiej Biblioteki Publicznej – Książnicy Kopernikańskiej w Toruniu

DOI: <http://dx.doi.org/10.12775/FT.2024.007>



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Otrzymano: 31 V 2024

Zaakceptowano: 21 VI 2024

Dr Tomasz Dreikopel pracuje na stanowisku adiunkta dydaktycznego w Instytucie Filozofii Uniwersytetu Warmińsko-Mazurskiego w Olsztynie. W 1999 r. uzyskał magisterium na Wydziale Humanistycznym Uniwersytetu Mikołaja Kopernika w Toruniu, a w roku 2008 doktorat na Wydziale Filologicznym Uniwersytetu Mikołaja Kopernika w Toruniu. Jego zainteresowania badawcze dotyczą m.in. filozofii starożytnej oraz jej szeroko pojętej recepcji, zwłaszcza w gimnazjach akademickich Gdańska i Torunia na przełomie XVI i XVII w. Jest autorem kilkudziesięciu publikacji, zamieszczonych m.in. na łamach „Nowego Filomaty”, „Rocznika Toruńskiego”, „Szkieł Humanistycznych”, „Folia Toruniensia”, „Humanistyki i Przyrodoznawstwa” oraz w kilku monografiach zbiorowych. Z ostatnich publikacji tego autora należy wymienić: *Die welt weit Erste lateinische Übersetzung der Schrift von Pseudo-Aristoteles Περὶ τῶν ἀρετῶν καὶ κακῶν aus den Beständen der Kopernikus-Bücherei in Toruń (Thorn), angefertigt von Simon Grynaeus, Professoran der Universität Basel*, Folia Toruniensia, t. 21: 2021, s. 185-201; *Charakterystyka gniewu jako ludzkiej namiętności u Arystotelesa ze Stagiry*, [w:] *Żółć - gniew - furia. Medyczne i kulturowe aspekty na przestrzeni dziejów*, red. W. Ślusarczyk, G. Frischke, Lublin 2022, s. 29-38; *Erläuterungen zur Habsucht (aneleutheria, illiberalitas) als Laster in Aristotelis de virtutibuslibellus von Franz Tidicaeus*, Folia Toruniensia, t. 22: 2022, s. 113-126.

Rok 1568 stanowi istotną cezurę w dziejach szkolnictwa toruńskiego. Wówczas, w dniu 8 marca, w rezultacie przeprowadzonej pod kierunkiem rektora Macieja Breua (Dreikopel, 2015, 60) reorganizacji szkoły miejskiej, formalnie rozpoczęło swoją działalność tamtejsze gimnazjum. W zamyśle ówczesnych władz miasta, jak i samego autora reformy miało stać się szkołą o charakterze humanistycznym, rygorystycznie protestanckim obliczu wyznaniowym i konserwatywnym modelu wychowawczym (Salmonowicz, 1978, 141). Taki model nauczania, formacji religijnej i wychowania w gimnazjum wynika wprost z informacji, które znajdują się w opublikowanej w tym samym roku w gdańskiej oficynie Jakuba Rhode, liczącej 40 stron in quarto *Novae scholae T[h]orun[i]ensis ratio doctrinae et disciplinae* (dalej: *Ratio*, 1568). Wspomniany druk, który obecnie znajduje się w zbiorach Wojewódzkiej Biblioteki Publicznej – Książnicy Kopernikańskiej w Toruniu (sygn. 102799), zawiera przede wszystkim *Constitutio Scholae T[h]orunien-sis* (*Ratio*, k. [B4]–[E4]), opisującą zasady wychowania religijnego, program nauczania oraz obowiązujące w gimnazjum przepisy porządkowe (Dreikopel, 2015, 59–67; 2016, 63–70). Zapisy te poprzedza mające w pewnym sensie charakter programowy słowo wstępne Macieja Breua, dedykowane „candido et aequo Lectori” (*Ratio*, k. A2–A[4]), a także mowa z okazji introdukcji nowego rektora, którą wygłosił pastor Szymon Musaeus (Tync, 1928, 29, 36–37, 63), doktor teologii i profesor honorowy w gimnazjum, który stał na czele protestanckiego duchowieństwa w Toruniu (*Ratio*, k. A[4]–[B3]). Dwie ostatnie karty publikacji z 1568 r. (*Ratio*, k. [E4]–[F1]) zajmuje łacińskie carmen, którego twórcą jest Łukasz Schubbe (Lucas Schubbaeus), ówczesny konrektor szkoły. Nasze informacje na temat autora tego poetyckiego drobiazgu mają, niestety, charakter fragmentaryczny i dotyczą wyłącznie toruńskiego okresu działalności dydaktycznej i literackiej Schubbego, tj. lat 1568–1572 (Tync, 1928, 62, 66). Z całą pewnością był człowiekiem, który odebrał staranne wykształcenie i zapewne, podobnie jak rektor Breu, posiadał tytuł magistra artium. Świadczy o tym zarówno pozycja Schubbego w strukturze szkoły, jak i fakt, że powierzono mu prowadzenie zajęć w najwyższej wówczas klasie szóstej. Należy dodać, że nauka w klasach wyższych, tj. czwartej, piątej i szóstej, przebiegała w systemie 2-letnim, a zatem pod opieką konrektora znajdowali się młodzieńcy, którzy de facto mieli do zrealizowania ostatni etap edukacji w 9-letnim gimnazjum (Salmonowicz, 1978, 141). Z informacji, jakie odnajdujemy w ustawach szkoły (*Ratio*, k. D[1]–D2), wynika, że Schubbe wykładał we wspomnianej klasie gramatykę grecką i łacińską, a także prowadził translatoria z obu języków klasycznych, czyniąc przedmiotem lektury *Carmina aurea* Pitagorasa, *Gnomy* Fokylidesa oraz *Epistulae ad familiares* Cyserona (Dreikopel, 2015, 63–64). Był też utalentowanym poetą, czego potwierdzeniem jest nie tylko wspomniane powyżej carmen, ale także napisany heksametrem poemat biblijny *Historia rerum gestarum heroiciducis Gedeonis*, opublikowany w 1569 r. w toruńskiej oficynie drukarskiej Stanisława Worffschauffela (Tync, 1928, 62), który znajduje się obecnie w zasobach Biblioteki Gdańskiej Polskiej Akademii Nauk (sygn. Qb 10062 adl. 18).

Interesujące mnie w niniejszym opracowaniu *Carmen de nova constitutione Gymnasii T[h]oruniensis* napisał Schubbe w języku łacińskim, posługując się miarą metryczną, jaką w tym przypadku jest dystych elegijny. Utwór ten z jednej strony wpisuje się w typowy nurt poezji okolicznościowej, z drugiej zaś stanowi ważne testimonium, którego autor rzetelnie przybliży czytelnikowi kulisy związane z reorganizacją i reformą szkoły toruńskiej. Biorąc pod uwagę znaczenie wiersza Schubbego jako materiału źródłowego oraz oczywiste ograniczenia, jakie narzuca tłumaczowi konieczność zachowania wymogów łacińskiego metrum, zdecydowałem się na dokonanie translacji na język polski prozą. Te miejsca w przekładzie, które ująłem w nawias kwadratowy, są moim, jako tłumacza, uzupełnieniem bądź dodatkiem. Zamieszczam ponadto transliterację tekstu carmen z 1568 r., w której ujednoliciłem pisownię i interpunkcję, a także rozwiązałem zastosowane przez autora abrewiacje. W tekście oryginału wprowadzam konieczną poprawkę, do której zasadności leksykalnej, składniowej i metrycznej odnoszę się w komentarzu do polskiego tłumaczenia.

* * *

Carmen de nova constitutione Gymnasii T[h]oruniensis, scriptum a Luca Schubbaeo, eiusdem Conrectore

Si quis opus studiis neget esse virisq[ue] peritis,
floreat ut Christi coetus et urbis honos,
hunc ego vix sani cerebri, sed mentis egentem
et reor, et moneo, gustet ut elleborum.

^{/5/} Artibus absq[ue] bonis sed non doctrina parari
et sine linguarum cognitione potest.

Nobiscum pariter constat non nasci et artes,
sed nos erudiunt limina docta scholae.

Publica res igitur, nec non Ecclesia Christi
^{/10/} poscit honoratas constituisse scholas.

Haec reputans noster vigilanti mente Senatus
ampla monasterii templa domosq[ue] capit.
Idq[ue] repurgatum veterem traduxit in usum
et celebris voluit nomen habere scholae.

^{/15/} Sumptibus immensis habitacula plurima Phoebos
condidit et Phoebi quos pius ardor habet.

Nec satis hoc, variis multos eduxit ab oris
artibus insignes et pietate viros,
qui pueris tradant teneris elementa sub annis

^{/20/} et doceant mores cum pietate bonos.

Caetera quid memorem? Tali ratione docentes

utuntur, velut haec edita forma refert.
 Hic Germanus homo Graium praeterq[ue] Latinum
 sermonem discet verba Polona loqui.
^{/25/} Namq[ue] professorem nutrit schola nostra Polonum,
 ingenii Musae quem decora[ve]re bonis.
 Sarmaticusq[ue] puer, studium nisi desit et usus,
 discet Teutonicos ore referre modos.
 Passibus ergo citis, seu te Germanica tellus,
^{/30/} sive Polona tenent tecta, venito puer!
 Sumptibus hic aequis artes moresq[ue] pudicos
 et veri disces dogmata pura Dei.
 At vos, o cives, pia facta iuvate Senatus
 vestraq[ue] sit doctas cura fovere scholas.
^{/35/} Hospitiis pateant aedes, adiungite mensis,
 Qui[bus] sors magnificas dura negavit opes.
 Sic alias haec ante scholas caput ex[s]eret altum
 et vestrum memori nomen honore feret.
 Christe, Dei fili, nostrum Tu dirige coetum,
^{/40/} dicat ut et faciat non nisi grata Tibi.

* * *

Pieśń z okazji nowego sposobu organizacji [nauczania] w Gimnazjum Toruńskim, napisana przez Łukasza Schubbego, konrektora tejże [szkoły]

^{/1-2/} Jeżeli ktoś twierdzi, że nie potrzeba [nam] nauk i mężów uczonych, żeby mogło rozwijać się zgromadzenie Chrystusa, a także dobre imię miasta, ^{/3-4/} uważam, że taki [człowiek] nie jest całkiem zdrow na umyśle, a na pewno brak mu rozumu; zalecam [więc], aby skosztował wywaru z ciemieżycy. ^{/5-6/} Wykształcenia zaś nie można zdobyć bez [poznania] zalet moralnych i znajomości języków. ^{/7-8/} Wiadomo jednak, że [tego rodzaju] umiejętności nie rodzą się razem z nami, ale nabywamy ich, [wkraczając] w progi pełnej uczoneości szkoły. ^{/9-10/} Stąd też zarówno państwo, jak i Chrystusowy kościół wymagają [od nas], abyśmy stworzyli znakomite szkoły. ^{/11-12/} Mając to na uwadze i myśląc rozważnie nasza Rada Miasta pozyskała świątynie, a także przestronne zabudowania klasztorne. ^{/13-14/} Po ich odnowieniu przeznaczyła je do dawnego użytku, pragnąc, aby zyskały miano znakomitej szkoły. ^{/15-16/} Dzięki ogromnym nakładom stworzyła niezliczone siedziby nie tylko Febusowi, ale i tym, których dzierży w swej mocy jego święty płomień. ^{/17-18/} Co więcej, sprowadziła z różnych stron świata odznaczających się uczoneością i bogobojnością mężów, ^{/19-20/} aby przekazywali chłopcom od najmłodszych lat podstawy wiedzy oraz uczyli dobrych obyczajów i pobożności. ^{/21-22/} Po

cóż mam wspominać o pozostałych sprawach? Nauczając używają takiej metody, którą odzwierciedla przedstawiony [w tym utworze] wzorzec. ^{/23-24/} [To] tutaj przybyś z Niemiec poza mówieniem [w językach] greckim oraz łacińskim będzie się uczyć również wypowiedzania się w języku polskim. ^{/25-26/} Albowiem nasza szkoła utrzymuje profesora [języka] polskiego, którego Muzy [hojnie] obdarzyły dobrami zdolności. ^{/27-28/} Także chłopiec [pochodzący] z Polski, o ile nie zabraknie [mu] pilności i praktyki, nauczy się tworzyć wypowiedzi w języku niemieckim. ^{/29-30/} Szybkim więc krokiem przybywaj, młody człowieku, niezależnie od tego, czy trzyma cię przy sobie niemiecka ziemia, czy też polskie strzechy! ^{/31-32/} Przy takich samych wydatkach zdobędziesz tutaj wiedzę i przyzwoite obyczaje oraz [poznasz] niczym nieskalane nauki prawdziwego Boga. ^{/33-34/} Tymczasem wy, obywatele, wspierajcie zbożne uczynki Rady Miasta i zadbajcie, aby pielęgnować pełne uczoności szkoły. ^{/35-36/} Otwórzcie przybyszom drzwi domów i zastawcie stoły [przed tymi], którym niełatwy los zamknął drogę do wielkiego majątku. ^{/37-38/} Niechaj w ten oto sposób ta szkoła wzniesie głowę wyżej niż inne i niech nosi wasze imię z wdzięcznym szacunkiem. ^{/39-40/} Ty zaś, Chrystusie, synu Boży, tak prowadź nasze zgromadzenie, aby mówiło i czyniło tylko to, co jest Tobie miłe.

Komentarz:

^{/3-4/} ...*aby skosztował wywaru z ciemężycy (...gustet ut elleborum): ciemężycza*, gr. *helléboros*, łac. *elleborus*, *elleborum*, *veratrum*; konkretnie chodzi o jej białą lub czarną odmianę (*veratrum album*, *veratrum nigrum*), z której wywar aplikowano doustnie przy stanach niepoczytalności, obłąkania, a nawet szaleństwa jako leczniczy z powodu działania silnie oczyszczającego organizm (Abramowiczówna, 1960, II, 103; Gawryś, 2008, 192; Korpanty, 2001, I, 641; Plezia, 1998, II, 308).

^{/7-8/} *Wiadomo jednak, że... umiejętności nie rodzą się razem z nami...* (*Nobis cum pariter constat non nasci et artes*): w tym miejscu poprawiam oryginalną wersję tekstu Schubbego, proponując w miejsce słowa *nascier*, które w łacinie nie istnieje, formę bezokolicznika *nasci* jako w pełni uzasadnioną leksykalnie i składniowo oraz następujący po niej, a zgodny z regułami metryki spójnik *et* (tu: *jednak*); można przypuszczać, że w XVI-wiecznym oryginale mamy do czynienia raczej z błędem drukarskim, niż z brakiem filologicznych kompetencji autora wiersza.

^{/11-12/} ...*nasza Rada Miasta pozyskała świątynie, a także przestronne zabudowania klasztorne (noster... Senatus ampla monasterii templi domosq[ue] capit)*: mowa w tym miejscu o wydarzeniach z 1559 r., kiedy rajcy miejscy formalnie przejęli od zakonu franciszkanów i przekazali protestantom kościół Wniebowzięcia Najświętszej Marii Panny, powszechnie określany jako kościół Marii Panny, wraz z zabudowaniami klasztorowymi; drugą ze świątyń, o której wspomina autor wiersza, jest obecna bazylika katedralna św. Jana Chrzyciela i św. Jana Ewan-

gelisty, do końca XX w. określana jako kościół św. Jana; należy zaznaczyć, że o ile pierwszy z kościołów i zabudowania poklasztorne oddano do dyspozycji protestantom, o tyle z kościoła św. Jana korzystali do roku 1596 wspólnie z katolikami (Tync, 1928, 24–26; Dreikopel, 2015, 60).

^{/13-14/} *Po ich odnowieniu przeznaczyla je do dawnego uzytku... (Idq[ue] repurgatum veterem traduxit in usum...)*: gruntowny remont zabudowań poklasztornych przeprowadzono w latach 1564–1565; po jego zakończeniu budynki zostały przeznaczone na potrzeby istniejącej już szkoły miejskiej, która funkcjonowała przy kościele św. Jana, a od 1565 r. również przy kościele Panny Marii; w tym kontekście Rada Miasta rzeczywiście przeznaczyła je do dawnego użytku, ponieważ od XIV w., jeszcze za czasów zakonu franciszkańskiego, funkcjonowała tam szkoła klasztorna (Tync, 1928, 26–27).

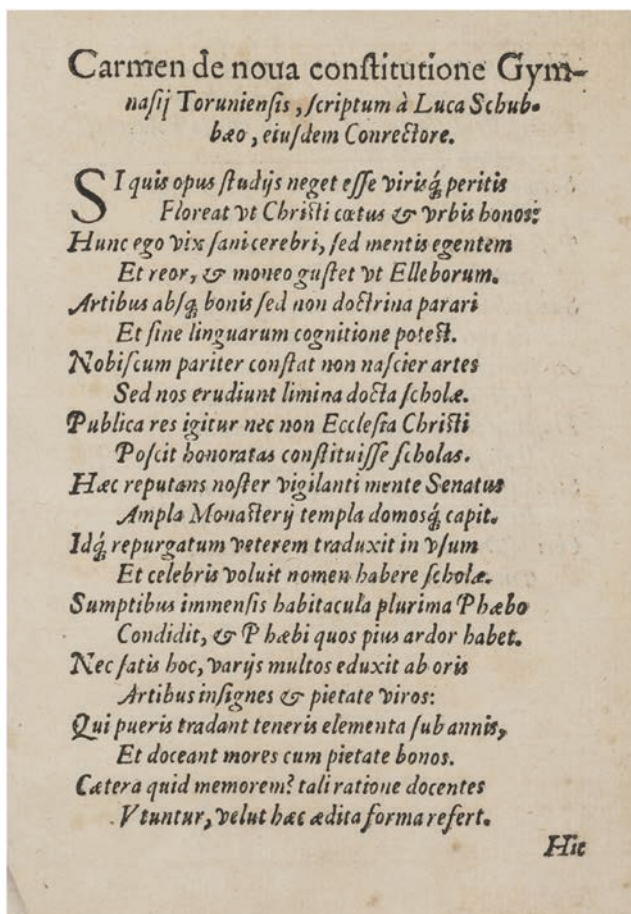
^{/15-16/} *Febusowi...: Febus*, gr. *Φοῖβος*, łac. *Phoebus* – „Jaśniejący”, epitet i często, zwłaszcza w języku łacińskim, imię Apollona; w wierszu Schubbego pojawia się niewątpliwie jako bóg mądrości i przewodnik muz, które sprawują opiekę nad każdego rodzaju dziedziną nauki i sztuki (Kopaliński, 2015, 51, 800).

^{/17-18/} *...sprowadzila z róznych stron świata odznaczających się uczonością i bogobojnością mężów... (...varijs multos eduxit ab orisartibusinsignes et pietate viros...)*: istotnie, na liście 10. nauczycieli, którzy w 1568 r. rozpoczęli zajęcia w gimnazjum (*Ratio*, 1568, D[1]), znajduje się tylko jeden, tj. Leopold Pannonius, co do którego można wysnuć przypuszczenie, że jego rodzinnym miastem był Toruń (Tync, 1928, 62).

Pozostali, a mianowicie rektor Breu, konrektor Schubbe, profesorowie honorowi – Musaeus,

Pierwsza strona *Carmen de nova constitutione Gymnasii Thoruniensis* Łukasza Schubbego z 1568 r.

Źródło: Wojewódzka Biblioteka Publiczna – Książnica Kopernikańska w Toruniu, sygn. 102799.



Cziremberg, Burchardi, a także Gutting, Thulmeiner, Coletus i Nicolai, nauczający w szkole jako *collegae*, pochodzili spoza Torunia.

^{/25-26/} *Albowiem nasza szkoła utrzymuje profesora [języka] polskiego... (Namq[ue] professorem nutrit schola nostra Polonum...)*: stanowisko to sprawował wówczas Michał Nicolai, pracujący jako polski kantor w kościołach Panny Marii i św. Jana, o którym poza tymi wzmiankami nie posiadamy bliższych informacji; dość dokładnie znamy natomiast szczegóły funkcjonowania w gimnazjum tzw. *Schola Polonica*, która zresztą stanowiła o pewnego rodzaju wyjątkowości nauczania w szkole toruńskiej, zwłaszcza w klasach wyższych (*Ratio*, 1568, k. C[1]–C3; Tync, 1928, 39–40; Dreikopel, 2015, 62–64).

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**Lukas Schubbes *Carmen de nova
constitutione Gymnasii Thoruniensis* von
1568 in den Beständen der Öffentlichen
Woiwodschaftsbibliothek – Kopernikus-
Bücherei in Thorn**

DOI: <http://dx.doi.org/10.12775/FT.2024.007>



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Zugesandt: 31 V 2024

Angenommen: 21 VI 2024

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S. 29–38; *Erläuterungen zur Habsucht (aneleutheria, illiberalitas) als Laster in Aristotelis de virtutibuslibellus von Franz Tidicaeus, FoliaToruniensia, Bd. 22: 2022, S. 113–126.*

Das Jahr 1568 wird für eine bedeutende Zäsur in der Geschichte des Thornischen Schulwesens gehalten. Damals, am 8. März, hat das dortige Gymnasium als Resultat der unter Leitung von Rektor Mathias Breu unternommenen Reorganisierung der Stadtschule (Dreikopel, 2015, 60) seine Tätigkeit öffentlich aufgenommen. In der Absicht der zeitgenössischen Stadtverwaltung sowie des Autors der Reform sollte es eine Schule von humanistischem Charakter mit einer strikt protestantischen konfessionellen Ausrichtung und einem konservativen Erziehungsmodell werden (Salmonowicz, 1978, 141). So ein Unterrichtsmodell wie auch eine solche Religionsformation und Erziehung im Gymnasium ergeben sich direkt aus den Angaben, die im 40 Seiten starken Druck im Format Quarto *Novae scholae T[h]orun[i]ensis ratio doctrinae et disciplinae* (weiter im Text: *Ratio*, 1568), der im selben Jahr in der Danziger Druckerei Jakob Rhodes erschienen ist, genannt wurden. Der besagte Druck, der heutzutage in den Beständen der Öffentlichen Woiwodschafsbibliothek – Kopernikus-Bücherei in Thorn aufbewahrt wird (Sign. 102799), enthält vor allem *Constitutio Scholae T[h]oruniensis* (*Ratio*, Bl. [B4]–[E4]), die die Grundsätze religiöser Erziehung, das Lehrprogramm sowie die an der Mittelschule geltenden Ordnungsvorschriften beschreibt (Dreikopel, 2015, 59–67; 2016, 63–70). Dem Inhalt gehen ein in gewisser Weise programmatisches Geleitwort Mathias Breus voraus, der „candido et aequo Lectori“ gewidmet ist (*Ratio*, Bl. A2–A[4]), sowie eine Ansprache anlässlich der Einführung des neuen Rektors, gehalten von Pastor Simon Musaeus (Tync, 1928, 29, 36–37, 63), Doktor der Theologie und Ehrenprofessor am Gymnasium, der an der Spitze des protestantischen Klerus in Thorn stand (*Ratio*, Bl. A[4]–[B3]). Die zwei letzten Blätter des Drucks von 1568 (*Ratio*, Bl. [E4]–[F1]) enthalten ein lateinisches Carmen, dessen Verfasser Lukas Schubbe (Lucas Schubbaeus) war, der damalige Konrektor der Schule. Unser Wissen über den Autor dieses dichterischen Werkes ist leider fragmentarisch und bezieht sich ausschließlich auf die Thornische Zeit der didaktischen und literarischen Tätigkeit Schubbes, d.h. die Jahre 1568–1572 (Tync, 1928, 62, 66). Mit Sicherheit war er ein Mensch, der eine sorgfältige Bildung erhalten hat und wahrscheinlich, ähnlich wie Rektor Breu, den Titel eines Magisters der Künste besaß. Das belegen sowohl die Position Schubbes in der Struktur der Schule als auch die Tatsache, dass ihm die Leitung des Unterrichts in der damals höchsten Klasse, also der sechsten, anvertraut wurde. Es ist hinzuzufügen, dass der Unterricht in höheren Klassen, von der vierten bis zur sechsten, im zweijährigen System verlief. Somit befanden sich unter der Obhut des Konrektors junge Männer, die in der Tat den letzten Abschnitt der Bildung im neunjährigen Gymnasium absolvieren mussten (Salmonowicz, 1978, 141). Aus den Einträgen in den Schulgesetzen (*Ratio*, Bl. D[1]–D2) geht hervor, dass Schubbe in der genannten Klasse griechische und lateinische Grammatik auslegte, Übersetzungsseminare in beiden klassischen Sprachen leitete und *Carmina aurea*

von Pythagoras, *Gnomien* von Phokylides sowie die *Epistulae ad familiares* von Cicero zum Gegenstand der Lektüre machte (Dreikopel, 2015, 63–64). Er war auch ein begabter Dichter, was nicht nur das obige Carmen, sondern auch das im Hexameter verfasste biblische Poem *Geschichte der Taten des heldenhaften Führers Gideon*, veröffentlicht im Jahre 1569 in der Thorner Druckerwerkstatt Stanislaus Worffschauffels (Tync, 1928, 62), das heutzutage in den Beständen der Danziger Bibliothek der Polnischen Akademie der Wissenschaften aufbewahrt wird (Sign. Qb 10062 adl. 18), belegen.

Das mich in dieser Studie interessierende *Carmende nova constitutione Gymnasii T[h]oruniensis* verfasste Schubbe auf Latein mithilfe von metrischem Maß, das in diesem Fall der elegische Distichon ist. Dieser Text wird einerseits in den typischen Strang der Gelegenheitsdichtung eingereiht, andererseits stellt er ein wichtiges Zeugnis dar, in dem der Autor dem Leser gewissenhaft die Hintergründe der Umstrukturierung und Reform der Thornischen Schule näherbringt. Angesichts der Bedeutung des Gedichts von Schubbe als Quellenmaterial sowie der offensichtlichen Einschränkungen, die sich für den Übersetzer durch die Notwendigkeit ergeben, den Anforderungen des lateinischen Metrums gerecht zu werden, habe ich mich entschieden, eine Übersetzung in Prosa vorzunehmen. Die Stellen in der Übersetzung, die ich in eckige Klammern gesetzt habe, sind Ergänzungen oder Zusätze von mir als Übersetzer. Ich füge außerdem eine Transliteration des Carmens aus dem Jahr 1568 bei, in der ich die Schreibweise und Interpunktion vereinheitlicht sowie die vom Autor verwendeten Abkürzungen aufgelöst habe. Im Originaltext nehme ich die notwendige Korrektur vor, deren lexikalische, syntaktische und metrische Begründung ich im Kommentar zur Übersetzung darlege.

* * *

**Carmen de nova constitutione Gymnasii T[h]oruniensis,
scriptum a Luca Schubbaeo, eiusdem Conrectore**

Si quis opus studiis neget esse virisq[ue] peritis,
floreat ut Christi coetus et urbis honos,
hunc ego vix sani cerebri, sed mentis egentem
et reor, et moneo, gustet ut elleborum.

^{/5/} Artibus absq[ue] bonis sed non doctrina parari
et sine linguarum cognitione potest.

Nobiscum pariter constat non nasci et artes,
sed nos erudiunt limina docta scholae.

Publica res igitur, nec non Ecclesia Christi

^{/10/} poscit honoratas constituisse scholas.

Haec reputans noster vigilanti mente Senatus
ampla monasterii templa domosq[ue] capit.

Idq[ue] repurgatum veterem traduxit in usum
et celebris voluit nomen habere scholae.

^{/15/} Sumptibus immensis habitacula plurima Phoebos
condidit et Phoebi quos pius ardor habet.

Nec satis hoc, variis multos eduxit ab oris
artibus insignes et pietate viros,
qui pueris tradant teneris elementa sub annis

^{/20/} et doceant mores cum pietate bonos.

Caetera quid memorem? Tali ratione docentes
utuntur, velut haec edita forma refert.

Hic Germanus homo Graium praeterq[ue] Latinum
sermonem discet verba Polona loqui.

^{/25/} Namq[ue] professorem nutrit schola nostra Polonum,
ingenii Musae quem decora[ve]re bonis.

Sarmaticusq[ue] puer, studium nisi desit et usus,
discet Teutonicos ore referre modos.

Passibus ergo citis, seu te Germanica tellus,

^{/30/} sive Polona tenent tecta, venito puer!

Sumptibus hic aequis artes moresq[ue] pudicos
et veri disces dogmata pura Dei.

At vos, o cives, pia facta iuvate Senatus
vestraq[ue] sit doctas cura fovere scholas.

^{/35/} Hospitiis pateant aedes, adiungite mensis,

Qui[bu]s sors magnificas dura negavit opes.

Sic alias haec ante scholas caput ex[s]eret altum
et vestrum memori nomen honore feret.

Christe, Dei filii, nostrum Tu dirige coetum,

^{/40/} dicat ut et faciat non nisi grata Tibi.

* * *

Lied zur Feier der neuen Art der Organisation des [Unterrichts] am Thornischen Gymnasium, geschrieben von Lukas Schubbe, dem Konrektor dieser [Schule].

^{/1-2/} Soll jemand behaupten, dass wir weder Wissenschaften noch Gelehrte brauchen, damit sich die Gemeinschaft Christi und der gute Ruf der Stadt entwickeln können, ^{/3-4/} so finde ich, dass eine solche [Person] nicht ganz gesund im Kopf ist und ihr sicher der Verstand fehlt; ich empfehle [also], einen Sud aus Nieswurz zu kosten. ^{/5-6/} Die Bildung hingegen darf also nicht erlangt werden, ohne die moralischen Vorzüge und die Kenntnis der Sprachen zu [erwerben]. ^{/7-8/} Es ist jedoch bekannt, dass [derartige] Fähigkeiten nicht von Geburt an vorhanden sind, sondern wir sie erwerben, wenn wir die Schwelle der Schule voller

Gelehrsamkeit [überschreiten].^{/9-10/} Daherfordern sowohl der Staat als auch die Kirche Christi [von uns], dass wir hervorragende Schulen schaffen.^{/11-12/} Unter Berücksichtigung dessen und mit Bedacht hat unser Stadtrat die Tempel sowie die großzügigen Klostergebäude erworben.^{/13-14/} Nach ihrer Renovierung widmete er sie wieder dem früheren Gebrauch und wünschte sich, dass sie den Ruf einer ausgezeichneten Schule erlangten.^{/15-16/} Durch immense Aufwendungen hat sie unzählige Sitze nicht nur für Febus, sondern auch für diejenigen geschaffen, die von seiner heiligen Flamme gehalten werden.^{/17-18/} Darüber hinaus hat sie fromme und gelehrte Männer aus verschiedenen Teilen der Welt herbeigerufen,^{/19-20/} um den Jungen von klein auf die Grundlagen des Wissens zu vermitteln und sie in guten Sitten und Frömmigkeit zu unterrichten.^{/21-22/} Warum sollte ich die übrigen Angelegenheiten erwähnen? Beim Unterrichten verwenden sie eine Methode, die das [in diesem Werk] dargestellte Muster widerspiegelt.^{/23-24/} [Hier] wird der Neuankömmling aus Deutschland neben dem Sprechen in der griechischen und lateinischen [Sprache] auch lernen, sich in der polnischen Sprache auszudrücken.^{/25-26/} Denn unsere Schule hält einen Professor der polnischen [Sprache], den die Musen mit Talenten [reich] beschenkt haben.^{/27-28/} Auch ein Junge, der aus Polen[stammt], sofern [ihm] Eifer und Praxis nicht fehlen, lernt, sich in der deutschen Sprache auszudrücken.^{/29-30/} Komm also schnell, junger Mensch, unabhängig davon, ob dich das deutsche Land oder polnische Hütten bei sich halten!^{/31-32/} Bei denselben Ausgaben wirst du hier Wissen und anständige Sitten erwerben sowie die unbefleckten Lehren des wahren Gottes [kennenlernen].^{/33-34/} Ihr Bürger hingegen, unterstützt die frommen Werke des Stadtrates und sorgt dafür, dass gebildete Schulen gepflegt werden.^{/35-36/} Öffnet den Neuankömmlingen die Türen eurer Häuser und deckt Tische [für diejenigen], deren schweres Los den Weg zur großem Reichtum verschlossen hat.^{/37-38/} Möge diese Schulesich auf diese Weise höher erheben als andere und euren Namen mit dankbarem Respekt tragen.^{/39-40/} Du, Christus, Sohn Gottes, führe unsere Versammlung so, dass sie nur das spricht und tut, was dir wohlgefällig ist.

Kommentar:

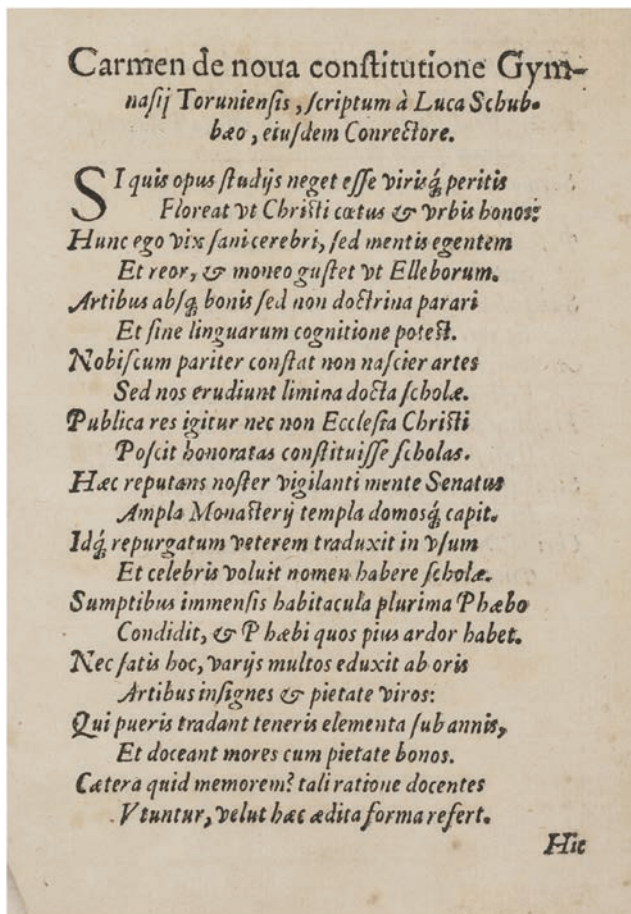
^{/3-4/} ... einen Sud aus Nieswurz zu kosten (...*gustet ut elleborum*): *Nieswurz*, griech. *helléboros*, lat. *elleborus*, *elleborum*, *veratrum*; es handelt sich genau um ihre weiße oder schwarze Variante (*veratrum album*, *veratrum nigrum*), die oral verabreicht wurde, und zwar bei Zuständen von Unzurechnungsfähigkeit, Wahnsinn und sogar Verrücktheit als Heilmittel aufgrund ihrer stark reinigenden Wirkung auf den Körper (Abramowiczówna, 1960, II, 103; Gawryś, 2008, 192; Korpanty, 2001, I, 641; Plezia, 1998, II, 308).

^{/7-8/} ... *Es ist jedoch bekannt, dass ... Fähigkeiten nicht von Geburt an vorgehanden sind...* (*Nobiscum pariter constat non nasci et artes*): an dieser Stelle berichte ich den Originaltext von Schubbe und schlage anstelle des nicht in der lateinischen Sprache existierenden Wortes *nascier* die Infinitivform *nasci* vor, die

sowohl lexikalisch als auch syntaktisch gerechtfertigt ist, sowie die nachfolgende Konjunktion *et* (hier: *jedoch*), die den metrischen Regeln entspricht; man kann vermuten, dass wir im Originaltext vom 16. Jahrhundert eher mit einem Druckfehler als einem Mangel an philologischen Kompetenzen des Dichters zu tun haben.

^{111-12/} ... *hat unser Stadtrat die Tempel sowie die großzügigen Klostergebäude erworben (noster... Senatus ampla monasterii templa domosq[ue] capit)*: diese Stelle bezieht sich auf die Ereignisse von 1559, als die städtischen Ratsherren die Kirche der Himmelfahrt der Allerheiligsten Jungfrau Maria, die allgemein als Marienkirche bekannt ist, zusammen mit den Klostergebäuden vom Franziskanerorden erhalten und an die Protestanten übergeben haben; der zweite Tempel, den der Dichter erwähnt, ist die heutige Domkirche St. Johannes der Täufer und Johannes der Evangelist, die bis zum Ende des 20. Jahrhundert als Johanneskirche bezeichnet wurde; es ist zu beachten, dass während die erste Kirche und die Klostergebäude den Protestanten zur Verfügung gestellt wurden, die Johanneskirche bis zum Jahr 1596 gemeinsam von Katholiken und Protestanten genutzt wurde (Tync, 1928, 24–26; Dreikopel, 2015, 60).

^{113-14/} *Nach ihrer Renovierung widmete er sie wieder dem früheren Gebrauch... (Idq[ue] repurgatum veterem traduxit in usum...)*: eine gründliche Renovierung der Klostergebäude führte man in den Jahren 1564–1565 durch; nach derer Abschluss wurden die Gebäude für die Bedürfnisse der bereits bestehenden städtischen Schule vorgesehen, die bei der Johanneskirche und ab 1565 auch bei der Kirche der Jungfrau Maria funktionierte; in diesem



Die erste Karte von *Carmen de noua constitutione Gymnasij Thoruniensis* von Lukas Schubæus dem Jahr 1568.

Quelle: Öffentliche Woiwodschafsbibliothek – Kopernikus-Bücherei in Thorn, Sign. 102799.

Zusammenhang hat der Stadtrat sie tatsächlich für ihren früheren Zweck vorgesehen, da dort seit dem 14. Jahrhundert, noch zur Zeit des Franziskanerordens, eine Klosterschule betrieben wurde (Tync, 1928, 26–27).

^{/15-16/} *Febus...*: *Febus*, griech. *Phoibos*, lat. *Phoebus* – „Strahlender“, ein Epitheton und häufig, besonders in der lateinischen Sprache, der Name Apollons; im Gedicht von Schubbe erscheint er zweifellos als Gott der Weisheit und Führer der Musen, die die Aufsicht über alle Bereiche von Wissenschaft und Kunst haben (Kopaliński, 2015, 51, 800).

^{/17-18/} ... *hat sie fromme und gelehrte Männer aus verschiedenen Teilen der Welt herbeigerufen...* (...*variis multos eduxit ab oris artibus insignes et pietate viros...*): auf der Liste von zehn Lehrern, die 1568 den Unterricht im Gymnasium begannen (*Ratio*, 1568, Bl. D[1]–D2), befindet sich tatsächlich nur einer, nämlich Leopold Pannonius, bei dem man vermuten könnte, dass seine Heimatstadt Thorn war (Tync, 1928, 62). Die übrigen, und zwar Rektor Breu, Konrektor Schubbe, Ehrenprofessoren Musaeus, Cziremberg, Burchardi wie auch Gutting, Thulmeiner, Coletus und Nicolai, die in der Schule als *collegae tätig waren, stammten aus außerhalb von Thorn*.

^{/25-26/} *Denn unsere Schule hält einen Professor der polnischen [Sprache]...* (*Namq[ue] professorem nutrit schola nostra Polonum...*): diese Stelle hatte damals Michael Nicolai inne, der als polnischer Kantor in der Marien- und der Johaneskirche tätig war; von ihm haben wir außer diesen Erwähnungen keine weiteren Informationen; hingegen kennen wir ziemlich genau die Einzelheiten über das Funktionieren der sog. *Schola Polonica* am Gymnasium, die übrigens eine Art Besonderheit des Unterrichts an der Thorner Schule ausmachte, insbesondere in den höheren Klassen (*Ratio*, 1568, Bl. C[1]–C3; Tync, 1928, 39–40; Dreikopel, 2015, 62–64).

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ragoun, Michal et al. *Knižní kultura českého středověku* [*Czech Book Culture in the Middle Ages*]. Vydání první. Dolní Břežany: Scriptorium, 2020. 399 pp. ISBN 978-80-7649-012-3.

DOI: <http://dx.doi.org/10.12775/FT.2024.008>



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Received: 30 IV 2024

Accepted: 21 VI 2024

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K

eywords: Czech lands; Middle Ages; codicology; manuscripts; illuminations

A

bstract: The monograph *Knižní kultura českého středověku* [*Czech Book Culture in the Middle Ages*] presents in four chapters the history of the manuscript and partially printed books and book culture, especially the area of book painting and book binding in the Czech lands in the Middle Ages until about the end of the 15th century. There is also an additional topic connected with book history, the period of incunabula. The authors of the individual chapters are Michal Dragoun, Jindřich Marek (Institute of Information Studies and Librarianship, Faculty of Arts, Charles University), Kamil Boldan (National Library of the Czech Republic), Milada Studničková (Institute of Art History, Czech Academy of Sciences). It

summarizes new knowledge in areas previously summarized in the publications published in the early 1990s, *Česká kniha v proměnách staletí [Czech Book through the centuries]*, compiled by a collective of authors under the leadership of Mirjam Bohatcová, and Josef Krása's study *České iluminované rukopisy 13.–16. století [Czech Illuminated Manuscripts 13th to 16th centuries]*. The reviewed book is based on many years of research done by the members of the author's team and also on partial studies by personalities of Czech and Moravian codicology and library science (e.g., Jiří Hlaváček, Petr Voit, Ladislav Dokoupil, and others).



**Knížní kultura
českého středověku**

MICHAL DRAGOUN
INDRICH MAREK
KAMIL HOLEDAN
MILADA STUĐNÍČKOVÁ

The collective monograph focuses thematically on Bohemian manuscript production up to 1500. Each chapter is devoted to one of the stages of Czech book culture. The book does not focus only on individual manuscripts, but also describes the circumstances of their creation. Separate sections are devoted to the important centres of book culture in the Czech state (the St. Vitus Chapter in Prague, the Olomouc Chapter during the pontificate of Jindřich Zdík, monastic scriptoria) and to institutional and private libraries. The individual chapters also define the stages of the development of the manuscript period of Czech book culture.

The first chapter, “Book Culture of the Premyslid and Luxemburg Period” (by Michal Dragoun), focuses on the beginnings of book culture on the territory of the Czech state in the 10th century. Transformation of book culture begins as early as the 13th century, when the circle of passive and active recipients of written text begins to expand and, at the same time, alongside the universal language of Latin manuscripts, the first evidence of texts of Bohemian and German linguistic provenance appears. In parallel, the author of the text traces the transformation of the book (the differentiation of manuscripts with regard to their purpose) in the context of the expansion of the circle of users (the establishment of the University of Prague in 1348, the spread of the book to the bourgeoisie during the reigns of Charles and Wenceslas of Luxembourg) and authors – scribes, illuminators and craftsmen–parchment makers, bookbinders (the emergence of secular scriptoria and the transfer of crafts associated with book production to the cities). It deals with hitherto neglected chapters related to book culture, e.g., the book in an aristocratic environment and the relationship of other members of the Luxembourg family (Jošt of Luxembourg) to books.

The second part, entitled “Book Culture from the Beginning of Hussitism to the End of the Reign of Jiří of Poděbrady 1419–1471” (by Jindřich Marek), focuses on manuscripts and specific features of book culture in the Czech lands during the Hussite period. Some genres recede into the background during the war years (e.g., the chivalric romance disappears), while mainly Bohemian and Latin spiritual preaching and polemical works develop, as recorded in surviving manuscripts. The author also points out the influence of the war period (the seizure of institutional libraries) on the price of manuscript books in Bohemia. The price was very favourable for foreign buyers. Other parts of this chapter discuss the relationship of recipients from different social classes to the book.

The third part, titled “Book Culture of the Jagiellonian Period to 1500” (by Kamil Boldan), is devoted to manuscript and printed book culture in the era of the media revolution. The author of the chapter, Kamil Boldan, traces the parallel of the manuscript and printed book, namely the common features of manuscript and printed book (e.g., the typeface, the graphic aspect, such as the use of calligraphers and illuminators in the processing of the illumination and graphic/woodcut pages), and the gradual “emancipation” of the printed book. He focuses in particular on the “emancipation” of the printed book in the field of writing, graphic dec-

oration – painting initials, illustration techniques) and the emergence of the book market in the Czech lands. He shows that the advent of the printing press did not completely supplant the manuscript book, citing as examples the area of Czech and Moravian legal literature (e.g., Znojmo, or the Tovačov book of municipal law), pedagogical writings for the University of Prague, or the Jena Codex associated with the environment of Czech Utraquism. The conclusion is devoted to libraries and reading in the late Middle Ages and in the beginnings of Renaissance. The book is understood by the authors not only as a medium for conveying information, but also as an artistic artefact, as Kamil Boldan presents it in the final part of his chapter on bookbinding.

A separate chapter “Illuminated Manuscripts of the Czech Middle Ages” by Milada Studničková is devoted to the painting decoration – illumination – of medieval manuscript production associated with the Czech lands. She analyses the artistic form of illuminations not only from the point of view of painting style, but also from the point of view of contemporary medieval connotations (e.g., the well-known drawing in the manuscript “De civitate Dei” depicting the illuminators of this work, Hildebert and Everwin). The authors have gathered a wealth of pictorial material not only from the collections of Czech memory institutions, church and monastic libraries (e.g. the National Library in Prague, the National Museum in Prague, the Scientific Library in Olomouc, the Strahov Monastery Prague, the Library of the Chapter of St. Vitus, *The Roman Catholic Metropolitan Archdiocese of Olomouc*, the Benedictine monastery in Rajhrad), but also from foreign institutions, including the Museum Plantin-Moretus Antwerp, the Vatican Apostolic Archive, Vatican City, the Metropolitan Museum of Art New York City, the British Library London, the Bayerische Staatsbibliothek München, the Österreichische Nationalbibliothek Wien, the Kungliga biblioteket Stockholm, and other institutions. The authors also used materials from the collections of Polish institutions – the Jagiellonian Library in Kraków, the National Museum in Kraków, and the Library of Nicolaus Copernicus University in Toruń.

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Dragoun, Michal i in. *Knižní kultura českého středověku [Czeska kultura książki w średniowieczu]*. Vydání první. Dolní Břežany: Scriptorium, 2020. 399 str. ISBN 978-80-7649-012-3.

DOI: <http://dx.doi.org/10.12775/FT.2023.008>



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Otrzymano: 30 IV 2024

Zaakceptowano: 21 VI 2024

Jana Brožovská Onderková pracuje jako adiunkt w Instytucie Języka Czeskiego i Bibliotekoznawstwa na Uniwersytecie Śląskim w Opawie w Czechach. Zajmuje się historią bibliotekarstwa publicznego w Czechosłowacji (1918–1938), stowarzyszeniami i stronnictwem politycznym w Czechosłowacji w okresie międzywojennym (1918–1938).

S

Słowa kluczowe: ziemie czeskie; średniowiecze; kodykologia; rękopisy; iluminacje

S

treszczenie: Monografia *Knižní kultura českého středověku [Czeska kultura książki w średniowieczu]* przedstawia w czterech rozdziałach historię książek rękopiśmiennych i częściowo drukowanych oraz kulturę książki, zwłaszcza dziedzinę malarstwa i oprawy książek na ziemiach czeskich w średniowieczu do końca XV wieku. Jest też dodatkowy temat związany z historią książki, czyli okres inkunabułów. Autorami poszczególnych rozdziałów są: Michal Dragoun, Jindřich Marek (Instytut Studiów nad Informacją i Bibliotekoznawstwem, Wydział Nauk Humanistycznych, Uniwersytet Karola), Kamil Boldan (Biblioteka Narodowa Republiki Czeskiej), Milada Studničková (Instytut Historii Sztuki Czeskiej Akademii Nauk). Podsumowuje nową wiedzę z dziedzin, które zostały wcześniej podsu-

mowane w publikacjach opublikowanych na początku lat dziewięćdziesiątych: *Česká kniha v proměnách staletí* [*Czeska książka przez wieki*], opracowanej przez kolektyw autorów pod kierownictwem Mirjam Bohatcovej, oraz w opracowaniu Josefa Krásy *České iluminované rukopisy 13.–16. století* [*Czeskie rękopisy iluminowane od XIII do XVI wieku*]. Recenzowana książka oparta jest na wieloletnich badaniach prowadzonych przez członków zespołu autora, a także na częściowych studiach osobistości czeskiej i morawskiej kodykologii i bibliotekoznawstwa (m.in. Jiříego Hlaváčka, Petra Voita, Ladislava Dokoupila i innych).

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DOI: <http://dx.doi.org/10.12775/FT.2023.008>



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Otrzymano: 9 VII 2023

Zaakceptowano: 11 VIII 2023

Jana Brožovská Onderková arbeitet als Dozentin am Institut für Tschechische Sprache und Bibliothekswissenschaft der Schlesischen Universität in Opava in Tschechien. Sie befasst sich mit der Geschichte des öffentlichen Bibliothekswesens in der Tschechoslowakei (1918–1938), der Verbände und der politischen Partei in der Tschechoslowakei in der Zwischenkriegszeit (1918–1938).

S

chlüsselworte: tschechische Gebiete; Mittelalter; Kodikologie; Handschriften; Illuminationen

Z

usammenfassung: Die Monografie *Knižní kultura českého středověku* [Tschechische Buchkultur im Mittelalter] schildert in vier Kapiteln die Geschichte der handschriftlichen und zum Teil auch gedruckten Bücher sowie der Buchkultur, vor allem die Frage der Buchmalerei und Buchbinderei auf tschechischem Boden im Mittelalter bis beinahe zum Ende des 15. Jahrhunderts. Es gibt noch einen weiteren Aspekt zur Geschichte des Buches, nämlich die Epoche der Inkunabeln. Unter den Autoren der einzelnen Kapiteln befinden sich Michal

Dragoun, Jindřich Marek (Institut für Informations- und Bibliothekswissenschaft, Fakultät für Kunst der Karls-Universität), Kamil Boldan (Nationalbibliothek der Tschechischen Republik), Milada Studničková (Institut für Kunstgeschichte, Tschechische Akademie der Wissenschaften). Die Publikation fasst den neuen Wissensstand in Disziplinen zusammen, die vorher in den Veröffentlichungen aus dem Anfang der 1990er Jahre umfassend dargestellt wurden: *Česká kniha v proměnách staří* [Tschechisches Buch im Laufe der Jahrhunderte], ausgearbeitet von einem Autorenteam unter der Leitung von Mirjam Bohatcova, sowie *České iluminované rukopisy 13.–16.století* [Tschechische illuminierte Handschriften vom 13. bis zum 16. Jahrhundert], bearbeitet von Josef Krása. Das rezensierte Buch basiert auf mehrjährigen Forschungsarbeiten des Autorenteam sowie einzelnen Untersuchungen zur tschechischen und mährischen Kodikologie sowie Bibliothekswissenschaft (darunter Jiří Hlaváček, Petr Voit, Ladislav Dokoupil und andere).

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B

beyond the Library Catalogue: Connecting Library Metadata to Wikidata

DOI: <http://dx.doi.org/10.12775/FT.2024.009>



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Received: 18 VI 2024

Accepted: 21 VI 2024

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K

Keywords: Wikidata; Semantic Web; Library Metadata; Library Catalogue; Wikimedia Projects; Libraries; Open data

A

Abstract

In this era of semantic web, libraries can leverage the power of Wikidata to enhance the discoverability of their resources, foster interoperability, as well as empower information seekers to navigate a richer and vast network of knowledge bases. This study adopted the review method to theoretically examine the concept of Wikidata and how libraries could benefit from

the technology by linking their metadata to the global knowledgebase, so as to increase the visibility and discoverability of library materials. The study X-rayed the application of Wikidata in libraries, particularly in the area of increasing visibility and discoverability of library of resources. With Wikidata, libraries could create a web of interconnected knowledge bases that transcends boundaries. It emphasized the importance of integrating Wikidata into libraries, as this could help to shape the open knowledge ecosystem and empower libraries to better serve their user communities in an ever-changing World. The study further advocates for the adoption of Wikidata in libraries so as to project library resources for the greater good of mankind.

Introduction

Libraries are known to be a warehouse of knowledge, housing diverse kinds of information resources. A distinctive characteristic of libraries is that information resources are organized following a standard classification and cataloguing system. However, to ensure the discoverability and easy retrieval of resources from the library, librarians prepare a metadata of all resources in the library. According to the national information standards organization as cited in Carnegie Mellon University Libraries (2023), a "metadata refers to structured information that describes, explains, locates, or otherwise makes it easier to retrieve, use, or manage an information resource." It is a structured information that allows library users to identify, locate, and retrieve a resource from the library (Kardos, 2022).

The existence of metadata in libraries ensures that libraries are able to effectively practice the laws of Library Science as propounded by Ranganathan. Overall, the importance of metadata in libraries cannot be overemphasized, as they not only help in the retrieval of information resources in the libraries, but also facilitate the organization, indexing, discovery, analysis, and use of the information resources.

Although library metadata offers a clear pathway to accessing the information resources in the library, poor accessibility to the metadata itself could pose a threat to accessing library materials. While it is important for libraries to develop their own metadata, it is equally extremely important for the metadata to be visible and accessible to all library users. Even with the advent of diverse forms of information technologies, many libraries still battle with poor visibility of their bibliographic records. There is also the challenge of many libraries having their bibliographic records in silos which further disconnect one information system from another, thereby limiting the flow of information and reducing the accessibility of library data. However, a novel technology that could help address these limitations and amplify the visibility and accessibility of library metadata is Wikidata. Being a linked data technology, Wikidata is able to work with structured data to connect several knowledge base or metadata repositories together (Evenstein Sigalov & Nachmias, 2023).

Understanding Wikidata

Wikidata is an open knowledge base of structured linked data that can be edited by humans and machines alike (Odell, Lemus-Rojas and Brys, 2022). As a sister project to Wikipedia, Wikivoyage, Wikiquote and other Wikimedia projects, Wikidata was launched in 2012 and it is powered by the MediaWiki API extension. As with Wikipedia, Wikidata offers multilingual benefits, as it can be edited in over 300 languages (Malyshev et al., 2018). As explained on Wikidata.org (2024), Wikidata can be described as a free, collaborative, and multilingual knowledge base of linked data that can be edited by humans and machines. The technology represents a powerful tool for improving information discovery and interoperability as it typically contains linked structured data about entities such as people, places, and things.

As observed by Ford and Iliadis (2023), Wikidata is a fact facilitating infrastructure that is being linked to other web technologies, including search engines and virtual assistants. In fact, the interconnectivity with other platforms like Google, Alexa, Amazon, Apple, IBM, and OpenAI enhances the visibility and discoverability of contents in it, hence, offers a new level of discoverability for libraries.

Moreover, Evenstein Sigalov and Nachmias (2023) observed that a key feature of Wikidata is its ability to integrate different data knowledge bases following a well-defined data model. The interaction with Wikidata allows users to engage in crucial tasks such as data curation and data extraction using different tools and techniques (Evenstein Sigalov & Nachmias, 2023). In order to effectively engage Wikidata, it is important for Wikidata users to understand the core components of the data structure in Wikidata. This typically includes Wikidata item and label (that is the main subject of Wikidata entries, representing concepts, objects, places, institutions, people, amongst others); properties (this is typically recognized with a unique P-code). Properties in Wikidata help describe the attributes of the Wikidata item and can include different data types such as numbers, text, date, or even geographic coordinates. The Wikidata's data structure also includes statements. Statements in the context of Wikidata typically consists of an item, property, and a value. In fact, statements in Wikidata refer to key-value pairs that link items to properties and provide specific values for those properties. This data structure allows for complex data relationships and rich interconnected data.

What Makes Wikidata Suitable for Library Metadata?

As a collaborative knowledgebase of linked open data, Wikidata offers many benefits and are suitable for GLAM (Galleries, Libraries, Archives, and Museum) institutions, especially in building linking bibliographic records. Tharani (2021) noted that the Wikidata technology allows libraries to link local metadata to the global knowledge, thereby enhancing the visibility and discoverability of the materials in the library. In fact, the Wikidata infrastructure is suitable for library cooperation as libraries are able to share and link their bibliographic records with other libraries.

As observed by Tharani (2021), integration and interoperability of authority data are two of the many reasons why Wikidata is suited for libraries and other GLAM institutions.

Furthermore, Aycock (n.d) noted that Wikidata is used among GLAM communities for cooperative cataloguing practice and increasing visibility of collections on the shelf. Ultimately, Wikidata helps bring better visibility to affiliated persons, organizations, and collections in an institution. Moreso, Nkiko and Okuonghae (2021) observed that the Wikidata is suitable for the 21st century library as it enhances the visibility and discoverability of library collections, as well as interoperability among libraries. With Wikidata, the share ability and usability of library data is enhanced. In addition, Lemus-Rojas and Pintscher (2018) maintained that Wikidata query service (SPARQL query service) offers great potentials for analyzing and querying library data. Given that the Wikidata is a data based of structured linked data, libraries can easily query and analyze their bibliographic data using the SPARQL query service. Thus, making the technology a suitable match for library operations.

Linking Library Metadata to Wikidata: Answering the “How”

Although anyone with a computer and internet can edit Wikidata, linking library metadata to Wikidata requires a bit more knowledge about the Wikidata structure and properties. As with Wikipedia, there are often several ways to achieve a result in Wikidata, including in linking library metadata to Wikidata. Ultimately, library bibliographic records could be linked to Wikidata using either the manual approach or the batch upload approach using the Wikidata Quick statements.

Manually create Wikidata items: One way to link library metadata to Wikidata is by creating Wikidata items for each of the bibliographic records and adding an external identifier to link the resources back to its origin or back to where it can be found. The advantage with this method is that librarians are more likely to get more precise and accurate data since each record is entered one after the other.

Batch Upload Using the Wikidata Quick statement: batch upload of library bibliographic record is also allowed in Wikidata by using a Wikidata tool known as Quick statement. Quick statement allows for the creation and linking of multiple records to Wikidata at a go. The method is faster compared to the manual method and it is often adopted by big libraries. Although, precision and accuracy level of the batch upload is often lower than the manual method.

Libraries Connecting their Metadata to Wikidata: Practical Examples

There are several practical examples of the use of Wikidata in promoting library metadata. In fact, different types of libraries have embraced the idea of connecting their data to the global knowledge base of linked open data. For instance, the National Library of Wales has linked thousands of items to Wikidata for im-

proved visibility and easy access to tools for querying and visualizing the collections (Evans, 2023). The library also uses Wikidata to create interactive timelines of its collections. Furthermore, the University of Texas Libraries has created over 1,000 items for its Benson Latin American Collection on Wikidata by using a tool called Mix'n' match that matches external catalogues with Wikidata entries. In addition, Williams (n.d) noted that the London School of Economics Library has connected part of its bibliographic records to Wikidata so as to improve discoverability and linking them to other sources such as VIAF, ISNI, LCNAF.

Moreover, several pilot programs have been set up in different libraries across the world. In 2023, a team of Wikimedians in Nigeria organized a Wikibase Pilot project in Nigerian libraries (https://meta.wikimedia.org/wiki/Wikibase_in_Nigerian_Libraries). In the same vein, the Smithsonian libraries organized a PCC Wikidata pilot project to link the library data to Wikidata.

Challenges to Connecting Library Metadata to Wikidata

As with other technologies, the adoption of Wikidata in libraries is faced with several challenges, including among libraries from the global north. A common challenge with connecting library metadata to Wikidata is the issue of sustainability. The responsibility of linking library metadata to Wikidata is not a one-off affair. As libraries increase in collections, so will their bibliographic data increase. However, more often than not, it is difficult to keep editing Wikidata or linking library metadata to Wikidata because the action does not support daily library routine. Hence, it is difficult to sustain the practice. Another glaring challenge to connecting library metadata to Wikidata is that it is time consuming. Whether items are manually created or the batch upload method is adopted, the process involved in linking library metadata requires significant amount of time. This can be problematic especially in libraries with limited staff strength. The implication of this is that it is likely to negatively impact other library services. The processes involved in connecting library bibliographic records to Wikidata require the librarian to learn new skills (Wikidata skills) and these are often not taught in library schools.

In addition, there is the issue of lack of control over data that is being shared. A situation where the library does not have control over the global knowledge graph and cannot easily delete records at will poses a serious challenge and in fact, may hinder many libraries from embracing the innovation.

Conclusion

The promise of Wikidata extends across libraries worldwide, offering substantial prospects for the future of information management. Connecting library metadata to Wikidata offers numerous benefits for libraries, especially in the area of discoverability of information resources, collaboration and resource sharing,

amongst others. Given that the future favours linked open data, connecting library metadata to Wikidata is now a matter of necessity rather than a mere option.

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Poza katalogiem bibliotecznym: łączenie metadanych bibliecznych z Wikidata

DOI: <http://dx.doi.org/10.12775/FT.2024.009>



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Otrzymano: 18 VI 2024

Zaakceptowano: 21 VI 2024

Omorodion Okuonghae jest dyrektorem ds. usług e-bibliecznych na Uniwersytecie Glorious Vision w Ogwa w stanie Edo w Nigerii. Uzyskał tytuł licencjata i magistra bibliekoznawstwa i informacji naukowej na Uniwersytecie Stanowym Delta w Abraka w Nigerii. Opublikował liczne publikacje naukowe w renomowanych krajowych i międzynarodowych czasopismach z zakresu bibliekoznawstwa i informacji naukowej. Wygłaszał również referaty na wielu konferencjach lokalnych, krajowych i międzynarodowych. Omorodion otrzymał kilka nagród i wyróżnień, w tym nagrodę „Najlepszy prezenferatu” na 57. konferencji i dorocznym walnym zgromadzeniu Nigeryjskiego Stowarzyszenia Bibliek oraz ogólne wyróżnienie dla najlepszego absolwenta na Wydziale Bibliekoznawstwa i Informacji Naukowej Uniwersytetu Stanowego Delta w Abraka w Nigerii. Omorodion jest pasjonatem bibliekarstwa, nowych technologii w bibliekach, umiejętności informacyjnych i komunikacji naukowej. Jest członkiem NLA. Google Scholar: <https://scholar.google.com/citations?hl=pl&user=SXYe37MAAAAJ>

S

łowa kluczowe: Wikidane; Sieć semantyczna; Metadane biblieki; Katalog biblieczny; Projekty Wikimedia; Biblieki; Otwarte dane

S

treszczenie: W erze sieci semantycznej, biblieki mogą wykorzystać moc Wikidata, aby zwiększyć wykrywalność swoich zasobów, wspierać interoperacyjność, a także umożliwić osobom poszukującym informacji poruszanie się po bogatszej i rozległej sieci baz wiedzy. W tym badaniu przyjęto metodę przeglądu do teoretycznego zbadania koncepcji Wikida-

nych i tego, w jaki sposób biblioteki mogą skorzystać z tej technologii poprzez powiązanie swoich metadanych z globalną bazą wiedzy, aby zwiększyć widoczność i wykrywalność materiałów bibliotecznych. W badaniu prześwietlono zastosowanie Wikidanych w bibliotekach, szczególnie w obszarze zwiększania widoczności i wykrywalności bibliotek zasobów. Dzięki Wikidany, biblioteki mogą stworzyć sieć wzajemnie połączonych baz wiedzy, które przekraczają granice. Podkreślono znaczenie integracji Wikidanych z bibliotekami, ponieważ może to pomóc w kształtowaniu otwartego ekosystemu wiedzy i umożliwić bibliotekom lepsze słuźenie społecznościom użytkowników w ciągle zmieniającym się świecie. Badanie dodatkowo rekomenduje przyjęcie Wikidanych w bibliotekach w celu projektowania zasobów bibliotecznych dla większego dobra ludzkości.

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Jenseits des Bibliothekskatalogs: Verknüpfung von Bibliotheksmetadaten mit Wikidata

DOI: <http://dx.doi.org/10.12775/FT.2024.009>



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Zugesandt: 18 VI 2024

Angenommen: 21 VI 2024

Omorodion Okuonghae ist Leiter der elektronischen Bibliotheksdienste an der Glorious Vision Universität, Ogwa, Bundesstaat Edo, Nigeria. Er hat einen Bachelor- und Masterabschluss in Bibliotheks- und Informationswissenschaft von der Delta Bundesuniversität in Abraka in Nigeria, und ist Autor zahlreicher wissenschaftlicher Publikationen in renommierten lokalen und internationalen Stellen im Fachbereich Bibliotheks- und Informationswissenschaft. Omorodion Okuonghae hielt auch Vorträge auf vielen lokalen, nationalen und internationalen Konferenzen. Er ist Preisträger einiger Preise und Auszeichnungen, darunter des Preises „Best Paper Presenter“ auf der 57. Tagung und der jährlichen Generalversammlung des Verbands der Nigerianischen Bibliotheken (Nigerian Library Association, NLA) sowie eine Anerkennung für die besten Absolventen der Fakultät für Bibliotheks- und Informationswissenschaft, Delta Bundesuniversität, Abraka, Nigeria. Omorodion ist ein begeisterter Bibliothekar, der sich für neue Technologien in Bibliotheken, Informationskompetenz und wissenschaftliche Kommunikation interessiert. Er ist Mitglied des Verbands der Nigerianischen Bibliotheken (Nigerian Library Association, NLA). Google Scholar: <https://scholar.google.com/citations?hl=pl&user=SXYe37MAAAAJ>

S

chlüsselworte: Wikidata; semantische Netzwerke; Bibliotheksmetadaten; Bibliothekskatalog; Wikimedia-Projekte; Bibliotheken; offene Daten

Z

usammenfassung: In der heutigen Zeit der semantischen Netzwerke können die Bibliotheken die Macht von Wikidata nutzen, um die Auffindbarkeit ihrer Sammlungen zu erhöhen, die Interoperabilität zu unterstützen und den Informationssuchenden die Navigation

durch ein reichhaltigeres und umfassenderes Wissensnetzwerk zu ermöglichen. In dieser Studie wurde eine Übersichtsmethode verwendet, um theoretisch das Konzept von Wikidata zu untersuchen, aber auch das, wie Bibliotheken von dieser Technologie profitieren könnten, indem sie ihre Metadaten mit einer globalen Wissensdatenbank verknüpfen, um die Sichtbarkeit und Auffindbarkeit von Bibliotheksmaterialien zu erhöhen. Die Studie beleuchtet die Anwendung von Wikidata in Bibliotheken, insbesondere im Bereich der Erhöhung der Sichtbarkeit und Auffindbarkeit von Bibliotheksressourcen. Mit Wikidata könnten Bibliotheken ein Netzwerk verknüpfter Wissensdatenbanken schaffen, das Grenzen überschreitet. Die Bedeutung der Integration von Wikidata in Bibliotheken wird hervorgehoben, da dies zur Gestaltung eines offenen Wissensökosystems beitragen und den Bibliotheken eine bessere Unterstützung der Nutzergemeinschaft in einer sich ständig verändernden Welt ermöglichen könnte. Die Studie befürwortet auch die Einführung von Wikidata in Bibliotheken zur Verwaltung von Bibliotheksressourcen zum Wohl der Menschheit.

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R

Report on the international library and information scientific conference: the past years of BOBCATSSS

DOI: <http://dx.doi.org/10.12775/FT.2024.010>



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Received: 13 VIII 2024

Accepted: 23 VIII 2024

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Erzsébet Dani is an associate university professor at the University of Debrecen, Hungary, who teaches several courses in Library and Information Science, Culture, and Literature. She graduated from Eszterházy Károly College, at Eötvös Lóránd University, and was awarded her PhD degree in Eötvös Loránd University Doctoral Program for Literature and Cultural Studies (2008). She got her habilitation degree (sociology, 2016) at the University of Debrecen. She is the Head of the Department of Library and Information Science and the Director of the Bács-Kiskun County Library. Her general research interests are reading research/digital reading narratives, dissemination of scientific results, cultural identity, and institutional history in the Carpathian Basin. She has two scientific monographs and several published studies.

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K

keywords: BOBCATSSS, conference, library and information science, knowledge exchange, LIS education

A

Abstract: The BOBCATSSS organization, an annual event coordinated by library and information science students from various European universities, fosters collaboration and knowledge exchange within the library and information science (LIS). Since its inception in 1993, BOBCATSSS conferences have served as a significant platform for students, professionals, and academics to present research, discuss contemporary issues, and explore emerging trends in LIS. The unique student-driven nature of the conference ensures the inclusion of fresh perspectives and innovative approaches, reflecting the dynamic and evolving landscape of the discipline. Each year, the conference is hosted by different universities across Europe, promoting cultural exchange and enhancing the international dimension of LIS education and research. The themes of BOBCATSSS conferences are diverse, covering a wide range of topics such as digital libraries, information literacy, knowledge management, and the impact of emerging technologies on information services. By providing an interdisciplinary forum, BOBCATSSS facilitates the development of new ideas and the establishment of professional networks, contributing significantly to the advancement of LIS.

Introduction and background

BOBCATSSS (the organization's name is an acronym representing the cities of the original participating universities: Budapest, Oslo, Barcelona, Co-

penhagen, Amsterdam, Tampere, Stuttgart, and Szombathely) is an annual symposium organized by students from various European universities, focusing on topics within the field of library and information science (LIS). Established in 1993, as a collaborative initiative among students from several European universities, aimed at creating a platform for the exchange of knowledge and ideas in the field of library and information science (LIS). The mission of BOBCATSSS is to facilitate an international platform for the exchange of ideas, research findings, and innovations in LIS. By emphasizing student involvement, BOBCATSSS promotes the professional development of future LIS professionals and fosters international collaboration and networking opportunities. Over the years, BOBCATSSS has grown significantly, both in scope and participation. The conferences have evolved to address the dynamic changes and challenges within the LIS field, reflecting contemporary issues such as digital transformation, information ethics, and the impact of new technologies on information services. Key milestones in the history of BOBCATSSS include its expansion to include a diverse range of topics, the introduction of virtual conference formats, and the increasing internationalization of participants and speakers. Each year, the conference is hosted by different universities, ensuring a rich variety of perspectives and expertise.

A distinctive feature of BOBCATSSS is its strong emphasis on student involvement. Students from participating universities uniquely organize the conferences, offering them hands-on experience in conference planning, management, and execution. This student-driven approach not only fosters leadership and organizational skills but also encourages active engagement and collaboration among young professionals in the LIS field. Students are responsible for various aspects of the conference, including theme selection, program development, and logistical arrangements, under the guidance of faculty advisors. This model of student participation enhances the educational experience by allowing students to contribute to and shape the discourse within their professional community, preparing them for future roles as LIS practitioners and leaders.

The objective of this report is to analyze the BOBCATSSS conferences held between 2020 and 2024, examining their themes, session highlights, and overall contributions to the LIS field. This analysis aims to identify emerging trends, challenges, and opportunities presented at these conferences, providing insights into how BOBCATSSS has influenced the professional growth of participants and contributed to advancements in LIS. By evaluating the content and outcomes of these conferences, the study seeks to understand the evolving landscape of LIS education and practice, and how BOBCATSSS continues to be pivotal in shaping the future of the discipline.

Analysis of Conferences (2020–2024)

BOBCATSSS 2020 (France)

The 2020 conference, hosted in Paris, France, was notable for its focus on “Information management, fake news and disinformation.” Key themes included the impact of artificial intelligence, big data, and digital libraries on information management and access. The conference emphasized the role of technology in enhancing the efficiency and effectiveness of LIS services. Looking at the keywords of the accepted paper abstracts, the three most common keywords were fake news (N=13), information literacy (N=5), and media literacy (n=5). As we can see among them, fake news is widespread.

BOBCATSSS 2021 (Virtual)

Due to the COVID-19 pandemic, the 2021 conference “Digital Transformation” was held virtually, hosted by Porto Polytechnic in Portugal. This format allowed for broader international participation and highlighted the resilience and adaptability of the LIS community. Topics included remote library services, digital literacy, and the challenges and opportunities of virtual learning environments. Among the keywords indicated in the abstract, digitalization (including the form of digitization) occurs most often (N=12), just ahead of digital transformation (N=10). These are followed by Covid-19 and libraries as keywords (N=5).

BOBCATSSS 2022 (Hungary)

In 2022, the conference returned to Hungary, specifically Debrecen. The event focused on integrating traditional and digital libraries, exploring the balance between preserving historical collections and embracing digital innovations. Discussions also centered on user experience design and the importance of accessibility in LIS services. The keywords in the abstracts of the 2022 conference paper, poster, and workshop abstracts also show a wide variation, with 14 of the more than 130 keywords occurring more than once. The three most frequent keywords were public library/libraries (n=5), Open Science (n=4), and bibliometrics analysis (n=3). It is interesting to note that COVID-19 was hardly used.

BOBCATSSS 2023 (Norway)

Held in Oslo, Norway, the 2023 conference expanded on themes of sustainable development and LIS. Participants explored how LIS can contribute to sustainability goals, with sessions on green libraries, sustainable information practices, and the role of libraries in supporting community resilience and environ-

mental awareness. Among the keywords of the abstracts of the 2023 conference, the most frequent were the following:

information behavior (n=7), academic libraries (n=6), public libraries (n=6), library/libraries (n=6), open access (n=5).

BOBCATSSS 2024 (Portugal)

The conference in Coimbra, Portugal, focused on “Information Profession and Sustainable Development.” Anticipated topics included the role of libraries in supporting social justice, the ethical implications of AI in LIS, the future of information governance, trends, and common themes.

Key Findings and Recommendations

Strengths

- Innovation and adaptability: BOBCATSSS conferences consistently address current and emerging trends in LIS, showcasing innovative research and practices.
- Student engagement: The active involvement of students in organizing and participating in the conferences adds a dynamic and forward-thinking perspective.
- Diverse participation: The conferences attract a wide range of participants from different countries, fostering international collaboration and knowledge exchange.

Weaknesses

- Virtual format challenges: The shift to virtual conferences presented challenges in networking and interactive engagement, which are integral to the BOBCATSSS experience.
- Resource allocation: Ensuring adequate resources and support for student organizers can be challenging, impacting the overall execution of the events.

Impact of LIS community

The BOBCATSSS conferences have a profound impact on the library and information science (LIS) community, promoting innovation, international collaboration, and professional development. These conferences serve as a vital platform for the dissemination of the latest research and innovative practices in the LIS field. By providing a space for students, researchers, and professionals to present their findings, share ideas, and discuss emerging trends and technologies, BOBCATSSS fosters a culture of continuous learning and adaptation within the LIS community. This ensures that professionals remain current with the latest advancements and methodologies.

Moreover, BOBCATSSS conferences attract participants from various countries, thereby encouraging international cooperation and understanding in LIS. The diverse participation enriches the dialogue and offers multiple perspectives on common challenges and opportunities. By facilitating international networking, BOBCATSSS helps build a global community of LIS professionals who can collaborate on research projects, share resources, and support each other's work.

A unique and significant aspect of BOBCATSSS is the substantial involvement of students in organizing and presenting at the conferences. This engagement provides students with practical experience in project management, public speaking, and academic research. It also allows early-career professionals to showcase their work and gain recognition in the field, empowering the next generation of LIS leaders.

Each year, BOBCATSSS conferences focus on themes relevant to the current state of LIS, such as digital transformation, sustainability, and the integration of artificial intelligence in LIS services. By addressing these contemporary issues, the conferences ensure that the LIS community is prepared to meet current and future challenges.

Participation in BOBCATSSS conferences also significantly contributes to professional development. Attendees have opportunities for continuing education, skills enhancement, and knowledge acquisition through workshops, keynote speeches, and panel discussions that provide insights into new tools, techniques, and best practices applicable to their work.

The emphasis on lifelong learning at BOBCATSSS aligns with the mission of many LIS institutions to support continuous education for their patrons and staff. The conferences highlight the importance of staying informed and adaptable in a rapidly changing information environment.

Furthermore, BOBCATSSS conferences foster a sense of community among LIS professionals. By bringing together individuals with shared interests and goals, these events create a supportive network where members can seek advice, collaborate on initiatives, and build professional relationships that extend beyond the conference itself, for example, it gives young professionals a serious opportunity in the field of publication opportunities in specific scientific rated journals with no publication charge.

Overall, the BOBCATSSS conferences play a crucial role in advancing the LIS profession. They provide a dynamic forum for discussing innovative ideas, promoting international collaboration, empowering new professionals, and addressing the evolving needs of the LIS community. The impact of these conferences is felt globally as they help shape the future of libraries and information services in an increasingly digital and interconnected world.

Conclusion

BOBCATSSS conferences between 2020 and 2024 have demonstrated resilience and adaptability in the face of global challenges. They have continued to provide a vital platform for LIS professionals and students to share knowledge, innovate, and collaborate. Moving forward, building on these strengths, addressing the identified challenges, and ensuring that BOBCATSSS remains at the forefront of LIS education and research is essential.

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Sprawozdanie z międzynarodowej konferencji naukowej poświęconej bibliotece i informacji: minione lata BOBCATSSS

DOI: <http://dx.doi.org/10.12775/FT.2024.010>



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Otrzymano: 13 VIII 2024

Zaakceptowano: 23 VIII 2024

Dóra Szabó jest Dóra Szabó jest asystentką dydaktyczną w Katedrze Bibliotekoznawstwa i Informacji Naukowej Uniwersytetu w Debreczynie (Węgry). Dyplom uzyskała w 2020 roku jako nauczyciel języka i kultury niemieckiej oraz nauczyciel bibliotekoznawstwa i informacji naukowej. Obecnie jest pracownikiem naukowym w następujących projektach; CHERD-Hungary, Grupa Badawcza ds. Współpracy Rodziców i Nauczycieli MTA-DE, Węgierskie Stowarzyszenie Badaczy Edukacji HERA oraz zastępca redaktora naczelnego Central European Journal of Educational Research i czasopisma „Pedagógusképzés”. Członek Rady Stowarzyszenia BOBCATSSS (European Association for Library and Information Science, Education and Research). Aktywnie uczestniczy również w programach Erasmus+ i uniwersytetach letnich. Jej zainteresowania badawcze są dwojakie; Z jednej strony skupia się na przyszłych nauczycielach i ich postawach cyfrowych, umiejętnościach

cyfrowych oraz umiejętności korzystania z mediów i informacji oraz influencerach edukacyjnych, a z drugiej na bibliotekach, edukacji w zakresie czytania i pisanie oraz influencerach książkowych.

Erzsébet Dani jest profesorem nadzwyczajnym na Uniwersytecie w Debreczynie na Węgrzech, która prowadzi zajęcia z bibliotekoznawstwa i informacji naukowej, kultury i literatury. Ukończyła Eszterházy Károly College na Uniwersytecie Eötvösa Lóranda, a w 2008 roku uzyskała stopień doktora w Studium Doktoranckim Literaturoznawstwa i Kulturoznawstwa Uniwersytetu Loránd Eötvösa. Stopień doktora habilitowanego (sociologia, 2016) uzyskała na Uniwersytecie w Debreczynie. Jest kierownikiem Działu Bibliotekoznawstwa i Informacji Naukowej oraz dyrektorem Biblioteki Powiatowej Bács-Kiskun. Jej ogólne zainteresowania badawcze to badania czytelnicze/cyfrowe narracje czytelnicze, upowszechnianie wyników badań naukowych, tożsamość kulturowa i historia instytucjonalna w Basenie Karpackim. Ma na swoim koncie 2 monografie naukowe i kilka opublikowanych opracowań.

László Nemes uzyskał tytuł magistra informacji naukowej i bibliotekoznawstwa; Jako ekspert w dziedzinie szkolnictwa wyższego i zarządzania badaniami naukowymi ukończył studia magisterskie w zakresie archiwizacji oraz stanowisko kierownika ds. badań i innowacji. Tytuł doktora obronił w 2024 roku na Studiach Doktoranckich Bibliotekoznawstwa ELTE. Jego głównym tematem badawczym są procesy transferu wiedzy pomiędzy uczelniami a sektorem prywatnym oraz rola bibliotek w tych procesach. Od 2012 roku brał udział w kilku konferencjach BOBCATSSS jako gość, prezenter i organizator plakatów lub referatów.

Słowa kluczowe: BOBCATSS, konferencja, bibliotekoznawstwo i informacja naukowa, wymiana wiedzy, edukacja LIS

Streszczenie: Organizacja BOBCATSSS, coroczne wydarzenie koordynowane przez studentów bibliotekoznawstwa i informacji naukowej z różnych europejskich uniwersytetów, wspiera współpracę i wymianę wiedzy w ramach bibliotekoznawstwa i informacji naukowej (LIS). Od momentu powstania w 1993 roku, konferencje BOBCATSSS służą jako ważna platforma dla studentów, profesjonalistów i naukowców do prezentowania badań, omawiania współczesnych problemów i badania pojawiających się trendów w LIS. Unikalny, kierowany przez studentów charakter konferencji zapewnia włączenie świeżych perspektyw i innowacyjnych podejść, odzwierciedlających dynamiczny i ewoluujący krajobraz dyscypliny. Każdego roku konferencja jest organizowana przez różne uniwersytety w całej Europie, promując wymianę kulturalną i wzmacniając międzynarodowy wymiar edukacji i badań nad LIS. Tematyka konferencji BOBCATSSS jest zróżnicowana i obejmuje szeroki zakres tematów, takich jak biblioteki cyfrowe, kompetencje informacyjne, zarządzanie wiedzą oraz wpływ nowych technologii na usługi informacyjne. Zapewniając interdyscyplinarne forum, projekt BOBCATSSS ułatwia opracowywanie nowych pomysłów i tworzenie profesjonalnych sieci, przyczyniając się w znacznym stopniu do rozwoju LIS.

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Bericht über die internationale Bibliotheks- und Informationswissenschaftliche Konferenz: die vergangenen Jahre von BOBCATSSS

DOI: <http://dx.doi.org/10.12775/FT.2024.010>



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Zugesandt: 13 VIII 2024

Angenommen: 23 VIII 2024

Dóra Szabó ist Lehrassistentin am Institut für Bibliotheks- und Informationswissenschaft der Universität Debrecen (Ungarn). 2020 schloss sie ihr Studium als Lehrerin für die deutsche Sprache und Kultur sowie Bibliotheks- und Informationswissenschaften ab. Derzeit ist sie als Forscherin in den folgenden Projekten tätig: CHERD-Ungarn, MTA-DE Parent-Teacher Cooperation Research Group, HERA Hungarian Association of Researchers in Education wie auch stellvertretende Redaktorin von Central European Journal of Educational Research und der Fachzeitschrift „Pedagógusképzés“. Sie ist auch Mitglied des Vorstands des Verbands von BOBCATSSS (Europäische Vereinigung für Bibliotheks- und Informationswissenschaftliche Ausbildung und Forschung) und beteiligt sich aktiv an den Erasmus+ Programmen und Sommerkursen an Universitäten. Ihr Forschungsinter-

se ist zweiseitig: Einerseits konzentriert sie sich auf die zukünftigen Lehrer und ihre digitalen Grundlagen, Kompetenzen und Fähigkeiten im Umgang mit Medien und Informationen wie auch auf die Personen, die die Bildung beeinflussen, andererseits auf Bibliotheken, die Bildung im Bereich Lesen und Schreiben sowie auf die Buchinfluencer.

Erzsébet Dani ist Professorin der Universität in Debrecen in Ungarn, wo sie einige Kurse im Fachbereich Bibliotheks- und Informationswissenschaft, Kultur und Literatur leitet. Sie hat das Eszterházy Károly Kolleg an der Eötvös Lóránd Universität absolviert und einen Dokortitel im Doktorandenprogramm derselben Universität im Bereich Literatur und Kulturstudien (2008) erhalten. Sie hat auch einen Dokortitel (Soziologie, 2016) an der Universität Debrecen erworben. Erzsébet Dani ist Leiterin des Lehrstuhls für Bibliotheks- und Informationswissenschaft und Direktorin der Kreisbibliothek Bács-Kiskun. Ihr allgemeines Forschungsinteresse umfasst die Untersuchungen zu Lesen, digitalen Lesernarrationen, Verbreitung von Forschungsergebnissen, Kulturidentität und institutioneller Geschichte im Karpatenbecken. Sie ist Autorin von zwei wissenschaftlichen Monografien und einigen Bearbeitungen.

László Nemes hat einen Masterabschluss im Fachbereich Information und Bibliothekswissenschaft, als Spezialist für Hochschulmanagement und wissenschaftliche Forschung auch einen Masterabschluss in Archivierung sowie einen Abschluss als Forschungs- und Innovationsmanager. Er hat auch ein Doktorandenstudium absolviert und 2024 seine Dissertation im Rahmen des ELTE Library Science Doctoral Programme verteidigt. Sein wissenschaftliches Hauptinteresse konzentriert sich auf die Prozesse des Wissenstransfers zwischen Universitäten und dem privaten Sektor sowie die Rolle der Bibliotheken in diesen Prozessen. Seit 2012 hat er an einigen Tagungen von BOBCATSSS als Gast, Referent und Organisator teilgenommen.

Schlüsselworte: BOBCATSSS; Tagung; Bibliotheks- und Informationswissenschaft; Wissensaustausch; Bildung im Fachbereich Bibliotheks- und Informationswissenschaft

Zusammenfassung: Die BOBCATSSS-Organisation, eine jährliche Veranstaltung, die von Studierenden im Fach Bibliotheks- und Informationswissenschaft aus verschiedenen europäischen Universitäten koordiniert wird. Sie fördert die Zusammenarbeit und den Wissensaustausch im Bereich der Bibliotheks- und Informationswissenschaft (Library and Information Science, LIS). Seit ihrer Gründung im Jahr 1993 stellt die BOBCATSSS-Konferenz eine bedeutende Plattform für Studierende, Fachleute und Wissenschaftler dar, wodurch sie ihre Forschung präsentieren, über aktuelle Probleme diskutieren und aufkommende Trends im Bereich der Bibliotheks- und Informationswissenschaft erkunden können. Der einzigartige, studierendenorientierte Charakter der Konferenz gewährleistet die Einbeziehung neuer Perspektiven und innovativer Ansätze und spiegelt die dynamische und sich entwickelnde Landschaft dieses Fachgebiets wider. Jedes Jahr wird die Konferenz von verschiedenen Universitäten in ganz Europa organisiert, fördert den kulturellen Austausch und stärkt die internationale Dimension der Bildung und Forschung

im Bereich der Bibliotheks- und Informationswissenschaft. Die Themen der BOBCATSSS-Konferenzen sind vielfältig und umfassen ein breites Spektrum an Themen wie digitale Bibliotheken, Informationskompetenz, Wissensmanagement und die Auswirkungen neuer Technologien auf Informationsdienste. Durch die Bereitstellung eines interdisziplinären Forums erleichtert BOBCATSSS die Entwicklung neuer Ideen und den Aufbau beruflicher Netzwerke und trägt somit erheblich zur Weiterentwicklung der LIS bei.

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R

Report on the international scientific conference the Real Library – Library Reality, organised by the Institute of Library and Information Science of Eötvös Loránd University, Budapest, November 28–29, 2023

DOI: <http://dx.doi.org/10.12775/FT.2024.011>



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Received: 17 VIII 2024

Accepted: 23 VIII 2024

Katalin Németh received her PhD in 2013 from the Doctoral Programme in Library Science at the Doctoral School of Literary Studies of Eötvös Loránd University (ELTE) in Budapest. She is a senior lecturer and the deputy director of the Institute of Library and Information Science at the ELTE. She is responsible for the education and training affairs of the Institute, and member of the Association of Hungarian Librarians. She is currently researching skill development in libraries, and library management, customer relationship management.

K

eywords: conference, library and information science, global challenges, market economy

A

bstract: Since 2013, the Institute of Library and Information Science of Eötvös Loránd University in Budapest, Hungary has been organising the largest library and information science event, called the Real Library – Library Reality Conference (Valóságos könyvtár – könyvtári valóság), in Hungary every two years. In 2023, the two-day, peer-reviewed international conference with more than 50 speakers, focused on libraries and the market

economy. On the first day of the conference, library and archive directors, economists and academics shed light on the economic and political environment of the cultural sector. On the second day, the institute's lecturers and doctoral students presented their research, and there was also an English-language session with the Sukhothai Thammathirat Open University (Thailand) and Oslo Metropolitan University (Norway).

The Eötvös Loránd University of Budapest, the oldest and largest institution of librarianship in Hungary, offers a wide range of courses from the undergraduate to the doctoral level. The Institute of Library and Information Science at the Faculty of Humanities attaches great importance to providing regular opportunities for professional discourse and to supporting the publication activities and professional development of doctoral students. In 2013, the first Real Library – Library Reality conference (Valóságos könyvtár – könyvtári valóság) was organised by the Institute of Library and Information Science and the Doctoral Programme in Library Science of the Faculty of Humanities of Eötvös Loránd University for the first time joining the Hungarian Science Festival of the Hungarian Academy of Sciences. By 2023, the biennial conference series had been expanded to two days and become an international proceeding, with papers published in an edited volume. The programme usually includes a number of other events, such as book launches or performance by students from the Institute of Arts Communication and Music.

The Real Library – Library Reality VI was held on 28 and 29 November 2023, as usual during the Hungarian Science Festival. The motto of the Hungarian Science Day was “Science: responding to global challenges”, which perfectly fit with the themes of the conference. The conference was opened by Krisztina Horváth, associate professor, vice-dean of education in Eötvös Loránd University Faculty of Humanities, Máté Vincze, Deputy state secretary in the Ministry of Culture and Innovation and Prof. Péter Kizsl, director in the Institute of Library and Information Science.

Scholars on Libraries

It is a tradition that the first two presentations after the openings are delivered by distinguished professors from other departments of the university, who talk about their user experiences and expectations of libraries.

Prof. Ilona Feld–Knapp from the Institute of Germanic Studies spoke about the inspiring role of the library in her presentation on “The Teachers’ Library”. With a degree in German–Russian studies, she transitioned from a secondary school teacher to a university lecturer. She fondly recalled her experiences using the library of the Freie Universität Berlin, the library of the Herder Institute in Leipzig and the library of the Universität Wien, in addition to the National Library of Foreign Languages in Budapest. She mentioned the helpfulness of librarians at all

times, and said that beside digital materials that facilitate research, a relaxed, motivating library environment is just as important.

Prof. Tamás Mohay, doctor of the Hungarian Academy of Sciences, professor at the Institute of Ethnography, PhD programme leader, presented his thoughts under the title “Life in the Library, Library in Life”. In addition to highlighting the role of dedicated volumes as well as his interest in the methods of cataloguing, he used an analogy to illustrate the eternal nature of libraries. “Perhaps the Library is like a good kind of deciduous forest: it has a wide variety of trees, with new growth, richly fruiting trees and thick trunks that have already fallen, surrounded by a rich undergrowth. Trees can be cut down, trees can be burned, libraries can be burned; painful feelings can be done, but the forest remains. I don’t believe that new techniques for the transmission of culture will ‘do away’ with either books or libraries any more than photography has done away with painting, or film with photography.”

Libraries and Market Economy

The afternoon session explored the connections between culture and the economy from several perspectives.

Ákos Tóth, associate professor, vice–dean of education in John von Neumann University GAMF Faculty of Engineering and Computer Science chose the title: “The modified role of the state in the financing of culture”. One of the elements of the cultural economy that has developed over the last six decades is the understanding of the role of the state. Culture can be supported in four ways: direct and indirect aid from the state, market funding, tertiary sector.

Gergő Havadi, Head of the Research and Analysis Department of the Library Institute at National Széchényi Library, examined “The reality of libraries, as Financial trends in libraries in 2022”. In Hungary, the Library Institute collects statistical data on the basis of a legal mandate and has made available a harmonised time–series database of library statistics since 2015, which is used to produce twelve thematic reports every year since 2021. The section on finance covers income and expenditure, amounts spent on the purchase of documents and staff wages and allowances (Országos Széchényi Könyvtár, n.d.).

Nobert Rostás, chief government advisor of the Department of Libraries and Archives, State Secretariat for Culture, Ministry of Culture and Innovation, made a joint presentation titled “Financing the library system: the role of the state and local government”. Access to public cultural services is considered as important as access to health care or religious freedom. The legislation should set out, among many other aspects, the basic operating criteria and resources of public libraries, the rights and obligations of their owners and the principle of free and equal access.

Tamás Miszler, director of the Csorba Győző Library in Pécs, spoke about the new building shared with the University of Pécs in his presentation titled “Public Library Finances: the (re)development of the economic situation of the Csorba

Győző Library between 2019–2023”. The library provides services to 286 small villages in Baranya County, supported by two library buses. Mr Miszler explained how Covid and the energy crisis have had a negative impact on staff wages, while state aid has not increased either.

István Kenyeres, director general of the Budapest City Archives, head of the College of Libraries and Archives of the National Cultural Fund (NKA), talked about the “Fundraising for public collections: synergies and the NKA’s cultural support activities”. In addition to presenting the many new services offered by the archives, he also referred to the steady increase in expenditure. In 2021, the College of Libraries and Archives was established within the framework of the NKA, with the aim of providing balanced support to the Hungarian library and archival systems as a whole through its grants.’

Ekaterina Rogatchevskaia, lead curator of British Library Slavonic and East European Collections, interim head of British Library European, Americas and Oceania Collections in London, made an online presentation about “Financing library services in the UK: foreign collections at the British Library”. The presentation of the UK library system included a very interesting set of data. Because regular library use contributes to health wellbeing, the National Health Service (NHS) has made aggregate cost savings of £27.5 million a year among regular library users. The British Library, which also serves as a national library, is funded by the Department for Culture, Media and Sport, but is under the authority of the Parliament. British Library annual reports are freely available on the internet. The budget for the European, Americas and Oceania Collections is limited, so donations and bequests are welcome, as well as financial support from Friends of the British Library and the Collection Trust and others.

Prof. Ágnes Hajdu Barát from the Institute of Library and Information Science of Eötvös Loránd University, board member of Stichting IFLA Global Libraries, and member of IFLA Regional Division Committee (Europe), chose the title “Beyond the walls: the social utility of the library. IFLA’s proposal for the challenges ahead”. One of IFLA’s aims is to get the message about the social value of libraries across to their owners and users, which requires measurable data. A programme has been developed to identify community needs, develop services and measure impact (Public Library Association, n.d.). Impact Survey measures the impact of free digital literacy courses and free access to the internet and online resources. Prof. Hajdu Barát also mentioned the European Union’s Culture and Sustainability Programme, which is taking action to protect the environment in areas such as sustainable cultural tourism and the adaptive reuse of heritage buildings.

Prof. Péter Kizsl, director of the Institute of Library and Information Science of Eötvös Loránd University, and Bea Winkler, assistant lecturer of ELTE and director of the Hutýra Ferenc Library, Archives and Museum of the University of Veterinary Medicine, presented a very interesting title „The library is financial awareness by its very existence”: financial literacy survey among librarians in Hungary.

According to a questionnaire survey done in 2022 as part of the research conducted between 2020 and 2023, financial literacy and its development do not have a role in the work of librarians in Hungary, although there are many good practices worldwide. However, for many years now, the teaching of economic information has been a priority in the librarian courses at ELTE.

From teachers' research

On the morning of the second day, the lecturers from the Institute of Library and Information Science presented their current researches.

Máté Bibor, senior lecturer examined the “Librarian entrance exam at the OSZK in 1859”. Although there was no institutional training for librarians in Hungary in the 19th century, the future staff of the national library were expected to have a wide range of knowledge. The lecturer gave a detailed presentation of the questions, prepared for the candidates by Gábor Mátray. The compilation, including questions in Latin, covered all library workflows and history as well.

Nelli Boda Gáborné Köntös, senior lecturer, discussed the “Failure mode effects analysis in document description”. Despite cataloguing standards, records in library catalogues are often incorrect for various reasons, such as transcription, abbreviations or misspellings, and make retrieval difficult. The Risk Priority Number (RPN) obtained as a result of the Failure Mode Effects Analysis (FMEA) method helps to allocate resources for corrective actions and to determine the order of intervention.

Tibor Csík, senior lecturer, editor-in-chief of the journal *Book and Education*, delivered his presentation titled: “Library science belongs to the national economic field, to the intellectual economy. Adolf von Harnack’s library policy”. Born in 1851, the Lutheran theologian Adolf von Harnack, Director General of the Berlin Library, performed a role in setting up the research institutes of the Kaiser Wilhelm Society (from 1948, the Max Planck Society). Using the cooperation of Prussian university libraries, he laid the foundations for a pan-German library system and spearheaded the establishment of a German organisation to provide academic and research literature in higher education during the Weimar Republic. Harnack is credited with bringing private funds into the financing of scientific research institutions.

János Fodor, senior lecturer, asked the question about photo collections in today’s image-overloaded world: “Drop in the ocean: does a new collection of archival photos reduce or increase entropy?” The flood of visual information, driven by increasingly sophisticated algorithms, is causing overload as people scroll through thousands of images on their phones every day, lowering the stimulus threshold. The Institute of Library and Information Science needs to go further in the design of its digital collection model projects: in addition to considering the educational and scientific value, it needs to be more rigorous in its selection, paying attention to changes in user habits as well as the potential for stimulus thresholds

and unexpectedness, so that working with students prepares them for flexible, creative collection activity.

Pál Kerekes' honorary associate professor's presentation – Ten years of e-book. Numbers, trends, present and future – highlighted that after an initial boom, the sales of e-books had declined by 2022 compared to print books. However, contrary to commercial figures, data from freely available e-libraries show a significant increase in the number of readers.

Katalin Németh, senior lecturer, gave a presentation titled "Audience and community: the role of the library as a social space in facilitating skills development". The response to the parallel need for virtual and traditional physical spaces is reflected in both library architecture and service design. The presentation mainly analysed library services for Generation Z, born after 1995, while pointing out that the public library's tasks include, for example, helping individuals to develop their creativity, stimulating imagination, curiosity and empathy.

Zoltán Senkei-Kis, senior lecturer, examined the relationship between reading and marketing in his presentation titled "Reading promotion and book marketing: productive and counterproductive practices in Hungary, or how to wrap our books". The involvement of reading promotion programmes such as the International Book Festival Budapest, the Festive Book Week and Children's Book Days, the National Library Days, the Internet Fiesta, as well as the well-known marketing tools such as poster campaigns, social media, book blogs or booktubers, raises the question of whether they really help to increase the number of readers.

Zsuzsanna Tószegi, honorary associate professor, chose a very interesting and topical subject: "Smart library and personal data protection – or technology as a double-edged sword". Smart libraries will integrate state-of-the-art hardware and software tools to enable libraries to be open continuously, for example without librarians, and provide personalised services through the Internet of Things (IoT) and artificial intelligence (AI). However, the library processes a lot of personal data for this purpose, so in addition to the GDPR adopted in 2018, the European Union is preparing the Artificial Intelligence Act, which prohibits, for example, facial recognition.

Bea Winkler, assistant lecturer, looked into a popular teaching method titled "Gamification in librarian training – excerpts from educational practice". The presentation illustrated the gamified elements related to the courses taught at the Institute of Library and Information Science in 2018–2023 held by the lecturer, complemented by student feedback. In group exams, for example, students had to save the world, but there were also role-playing exercises where students personified the staff of a medium-sized library (with specific jobs and life situations) or they used different ICT tools. Using the gamification method increased the students' motivation, experimentation and helping each other.

From our PhD students' research

In the afternoon, the lecturers' presentations in the Hungarian-language session were followed by doctoral students from the Doctoral Programme in Library Science of the Doctoral School of Literary Studies.

Katalin Gacov, head of Ferenc Verseghy Library in Szolnok, linked her presentation – The library is a wise investment – to the central theme of the conference. One of the possible methods of analysis for summarising library values and results is the calculation of Return on Investment (ROI), which Hungarian libraries have started to use in recent years.

Albert Halász, librarian of the Regional and Studies Library in Murska Sobota presented the “Digital horizons of the first reading circle in Alsólendva”. In the 19th century, Lendava, now part of Slovenia, was also home to a reading circle that performed an important role in the education of the local population. The digitisation of public collections is a major contribution to local history research, and a lot of new information about the Civic Reading Circle has become available.

Helga Kardos, deputy head librarian of Faculty of Law and Political Science of Pázmány Péter Catholic University, analysed a hard question: Free use as the restriction of copyright – with special regard to the role of libraries. Over the last decades, cultural heritage institutions, including libraries, have been among the beneficiaries of one of the most important restrictions, the free use. In addition to a historical overview, the speaker presented amendments to the Hungarian Copyright Act to strengthen the fundamental human rights to knowledge and information.

Mária Leitgéb, librarian and assistant research fellow of Department of History of Architecture and Monument Preservation of Faculty of Architecture of Budapest University of Technology and Economics, gave a presentation titled “Location of the Departments of History of Architecture of the Technical University in the Second Half of the 19th Century and at the Turn of the Century”. The previous buildings of the university, which moved to its present site between 1904 and 1909, are documented in literature, architectural drawings and photographs. It was an interesting discovery that the Institute of Library and Information Science is now situated in the same location as the former library of the Department of Architecture, within the building completed in 1882, which today houses the ELTE Faculty of Humanities on Múzeum Street.

László Nemes, chairman of the Board of Trustees of the Hungarian Information Science Foundation, research fellow of the Károli Gáspár University of the Reformed Church in Hungary, searched “The place of humanities in the Hungarian knowledge transfer processes between university innovation ecosystems and private sector”. Today, the humanities are increasingly valued in the industrial and service sectors. So, it is worth examining how the relationship between universities and companies might evolve in the era of digitalisation, robotisation and the

fourth industrial revolution. The economic utility of the humanities is thus becoming justifiable in the political arena.

Réka Németh, school librarian of Árpád High School of Óbuda, presented her research titled “School library and infodiversity: Case study in the Árpád High School in Óbuda”. The term diversity in nature and society is also increasingly used in the context of information. Infodiversity is created by different social groups in different geographical locations or historical times. It is the school librarian’s responsibility to help children make sense of information in an environment that is often full of misinformation, while they are learning about different ways of thinking and different cultures.

Fruzsina Pataki, librarian of the Department of Collection Development of the ELTE University Library and Archives chose a popular topic: “The emergence and evolution of the concept of sustainable development in the field of library and information science.” The speaker traced the evolution of the concept of sustainability and sustainable development from the 1972 UN conference in Stockholm to the 2022 UNESCO World Conference. Humanities have been late to join the new approach, but interdisciplinary has led to its inclusion in the design of library buildings and services.

Mária Erika Soós, head of Debrecen University Press, drew attention to a very interesting issue with her presentation titled “The sustainable and enduring path of university publishing”. Publishing, mostly in English, is a prerequisite for advancing in international university rankings, but textbooks in the mother tongue of the country are also needed for active use of new terms and for teaching. University publishers need to find ways to distribute the intellectual products created at universities, taking into account changing reading habits and sustainability.

Anett Varga, librarian in Energy Strategy Institute Nonprofit Ltd. (Budapest), made her presentation titled “Collection building with microfilms – The microfilm laboratory of the Hungarian Geological Institute”. Between 1977 and 1993, the microfilm laboratory of the Hungarian State Geological Institute collected the deep drilling well logs under a cooperation agreement with the National Petroleum and Gas Industry Trust or the Bauxite Research Company. The microfilms, which were useful from a conservation and preservation point of view in the second half of the 20th century, are currently available with microfilm readers and microfilm scanners in the library.

Librarianship in the age of AI and after COVID

The English language session was organised with international partners, namely Sukhothai Thammathirat Open University in Thailand and Oslo Metropolitan University in Norway.

Namtip Wipawin and Songlak Sakulwichitsintu, associate professors in the PhD Program, Department of Information Science, School of Liberal Arts, Sukhothai Thammathirat Open University, and Lugsamee Nuamthanom Kimu-

ra and Chirasiri Kasemsin Vivekmetakorn, assistant professors, Department of English, gave a joint lecture titled “A network of book houses and libraries within the Bangkok Metropolitan Administration: A case of the training workshop”. Book houses as community libraries fall under the jurisdiction of the Bangkok Metropolitan District Office and are constructed in areas and communities with a certain population density and without a major metropolitan library. To facilitate the establishment of a network of book houses and libraries the lecturers did a research, which identified five areas of possible improvement: management, information technology, reading materials, after-reading activities and landscape design.

Fredrick Wawire Otike, a PhD Candidate at the Institute of Library and Information Science of the Eötvös Loránd University, helped doctoral students with his presentation titled “Navigating virtual conferences: Aberrations and implications for doctoral students in Hungary”. Advances in technology and Covid have both contributed to the virtualisation of previous face-to-face conferences. Symposiums, which also facilitate professional development and earn credits, are essential for doctoral students. The speaker explored the experiences and attitudes of doctoral students in Hungary towards conferences, finding that in-person conferences were considered more useful.

Chotima Watana, PhD Candidate of School of Liberal Arts, Sukhothai Thammathirat Open University, talked about the “Information perception problems concerning the preventive behaviours of coronavirus (Covid-19) epidemic of citizens in Bangkok”. Between December 2022 and February 2023, a survey was conducted on how Bangkok residents perceived information on the prevention of coronavirus. For example, due to a lack of media awareness and scepticism, the speaker proposed the introduction of SMS alerts for Public Health departments, and creation of a data verification agency, which guarantees the validity of news released through new media platforms.

Aulia Puspaning Galih, PhD Candidate at the Institute of Library and Information Science of the Eötvös Loránd University, spoke about “Research data management from the perspective of global organisations”. Every organisation handles data for a variety of reasons, some of which they generate themselves, so there is a need to store data and make them available in accordance with consistent policy. The speaker examined the data management policies and practices of several major organisations such as UNESCO, IFLA, OECD and DataCite. UNESCO for example creates toolkits and guidelines, Data Scite focused on persistent identifiers for research data.

Prof. Ragnar Andreas Audunson, professor emeritus of Oslo Metropolitan University, examined “The role of libraries in an age of digitization, AI, and conflicts”. In the duality of technological development, libraries face many challenges. Digitisation can increase accessibility, but it can also reduce the ability to read and concentrate. But even in the age of artificial intelligence, libraries offer a safe environment to explore the diversity of the world. Prof. Audunson will be a visiting

lecturer at the Institute of Library and Information Science of Eötvös Loránd University for one semester starting September 2024.

Asmaa Bouaamri, a PhD Candidate at the Institute of Library and Information Science of the Eötvös Loránd University, asked a provocative question: Do we need a degree to become a librarian? Of course, there is a need for library and information science training and qualifications, but the speaker suggested that cooperation with the labour market should be strengthened and made more effective, and students should be encouraged to gain international experience.

Rita Radó, PhD Candidate and assistant lecturer at the Institute of Library and Information Science of ELTE and head of Research Organisation Department in National Széchényi Library, titled her presentation “Beyond digitalization.” Many areas of library work need to be involved in digitisation and the provision of digitised material. This has an impact on the library organisation as a whole. Cataloguing, retrieval and restoration are just a few examples of the whole process of digitization; therefore, it requires proper regulation, process management and measurability.

Joseph Marmol Yap, a PhD Candidate of ELTE, talked about “Civic roles and responsibilities of librarians to combat information disorders: Preliminary results of a pilot study using discourse analysis”. Librarians support civic engagement as part of their profession. The speaker asked whether the information disruption of social media has affected librarians’ citizenship, participation and engagement. Because librarians are expected to have skills related to participatory culture, such as information literacy, social competences, marketing and effective communication, librarians should be able to adapt to the changing needs of the information landscape.

Farbod Kamgar, a PhD Candidate at ELTE, selected a pertinent topic for his presentation: “Investigating the relationship between library anxiety and critical thinking of graduate and undergraduate students conducting research in National Library of Iran”. 120 students were sent questionnaires between June and July 2023. The result of the research confirmed that critical thinking skills reduce library anxiety, hence the need to educate library users.

Three PhD candidates of Sukhothai Thammathirat Open University, Preedee Pluemsamrungsit, Petsawat Kankam and Vorawat Boonnak, chose the title: “Keyword analysis from articles published in library and information science journals by the Thai Journal Citation Index (TCI) database in 2021–2023”. The speakers analysed keywords in 251 articles from five journals that have been certified for quality in the Thai Journal Citation Index (TCI) database, between 2021 and 2023. COVID–19, digital literacy and library services were the most frequent keywords in 2021–23, but for example academic libraries, the elderly, information behaviour or service design were really common as well.

Katalin Bella, assistant lecturer at Institute of Library & Information Science of Eötvös Loránd University, talked about “Book history of the future: NFTs as new opportunities for publishing and book trade”. Research in book history can exam-

ine the emergence of non-replaceable tokens (NFTs) as experimental initiatives in the technological development of book publishing and book trade. However, the market for NFTs has not yet reached mainstream popularity, and the sale of rare books as NFTs faces a number of challenges, such as information asymmetry and market volatility. However, the tokenization of assets offers the potential to address fragmented ownership, which could be an attractive option for both high and low-net-worth investors.

Closing thoughts

In terms of the topics covered and the number of speakers, the Real Library – Library Reality is the largest Hungarian conference on library and information science, with a wide professional cooperation, featuring international speakers and a peer-reviewed system. As usual, the Institute of Library and Information Science is going to publish the papers resulting from the two-day conference in a peer-reviewed volume in 2024, thus ensuring the replenishment of the discipline's Hungarian-language textbooks and several prestigious international publications related to the topics and research presented at the conference. The professional programme is scheduled to continue in autumn of 2025, on the 75th anniversary of university librarian training in Hungary.

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Sprawozdanie z międzynarodowej konferencji naukowej Prawdziwa Biblioteka – Rzeczywistość Biblioteczna, zorganizowanej przez Instytut Bibliotekoznawstwa i Informacji Naukowej Uniwersytetu Loránda Eötvösa w Budapeszcie, 28–29 listopada 2023 r.

DOI: <http://dx.doi.org/10.12775/FT.2024.011>



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Otrzymano: 17 VIII 2024

Zaakceptowano: 23 VIII 2024

Katalin Németh uzyskała tytuł doktora w 2013 roku w ramach Studium Doktorskiego Bibliotekoznawstwa w Szkole Doktorskiej Literaturoznawstwa Uniwersytetu Loránda Eötvösa (ELTE) w Budapeszcie. Jest starszym wykładowcą i zastępcą dyrektora Instytutu Bibliotekoznawstwa i Informacji Naukowej ELTE. Jest odpowiedzialna za sprawy edukacyjne i szkoleniowe Instytutu oraz jest członkiem Stowarzyszenia Bibliotekarzy Węgierskich. Obecnie prowadzi badania nad rozwojem umiejętności w bibliotekach, zarządzaniem bibliotekami i zarządzaniem relacjami z klientami.

S

Słowa kluczowe: konferencja, bibliotekoznawstwo i informacja naukowa, wyzwania globalne, gospodarka rynkowa

S

treszczenie: Od 2013 roku Instytut Bibliotekoznawstwa i Informacji Naukowej Uniwersytetu Loránda Eötvösa w Budapeszcie na Węgrzech organizuje co dwa lata na Węgrzech największe wydarzenie biblioteczne i informacyjne pod nazwą Konferencja Prawdziwa Bib-

lioteka – Rzeczywistość Biblioteczna (Valóságos könyvtár – könyvtári valóság). W 2023 r. odbędzie się dwudniowa, recenzowana, międzynarodowa konferencja z udziałem ponad 50 prelegentów, poświęcona bibliotekom i gospodarce rynkowej. W pierwszym dniu konferencji dyrektorzy bibliotek i archiwów, ekonomiści i pracownicy naukowcy przybliżyli środowisko gospodarcze i polityczne sektora kultury. Drugiego dnia swoje badania zaprezentowali wykładowcy i doktoranci instytutu, odbyła się również sesja anglojęzyczna z Sukhothai Thammathirat Open University (Tajlandia) oraz Oslo Metropolitan University (Norwegia).

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Bericht über die internationale wissenschaftliche Konferenz „Die reale Bibliothek – Bibliotheksrealität“, organisiert vom Institut für Bibliotheks- und Informationswissenschaft der Eötvös Loránd Universität, Budapest, 28.–29. November 2023

DOI: <http://dx.doi.org/10.12775/FT.2024.011>



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Zugesandt: 17 VIII 2024

Angenommen: 23 VIII 2024

Katalin Németh hat 2013 einen Dokortitel im Doktorandenprogramm zur Bibliothekswissenschaft in der Doktorandenschule für Literaturstudien an der Eötvös Loránd Universität (ELTE) in Budapest erhalten. Sie ist Dozentin und Direktorin des Instituts für Bibliotheks- und Informationswissenschaft an der ELTE. Sie ist verantwortlich für die Bildungs- und Ausbildungsangelegenheiten des Instituts und Mitglied des Verbands der ungarischen Bibliothekare. Derzeit forscht sie zu Themen wie Kompetenzentwicklung in Bibliotheken, Bibliotheksmanagement und Kundenbeziehungsmanagement.

S

chlüsselworte: Tagung, Bibliotheks- und Informationswissenschaft, globale Veränderungen, Marktwirtschaft

Z

usammenfassung: Seit 2013 organisiert das Institut für Bibliotheks- und Informationswissenschaft der Eötvös Loránd Universität in Budapest, Ungarn, die größte Veranstaltung im Bereich Bibliotheks- und Informationswissenschaft, d.h. die Tagung „Valóságos könyvtár –

könyvtári valóság“ [Die reale Bibliothek – Bibliotheksrealität], die alle zwei Jahre in Ungarn stattfindet. Im Jahr 2023 konzentrierte sich die zweitägige, begutachtete internationale Konferenz mit mehr als 50 Referenten auf Bibliotheken und die Marktwirtschaft. Am ersten Tag der Tagung beleuchteten Bibliotheks- und Archivleiter, Ökonomen und Akademiker das wirtschaftliche und politische Umfeld des Kulturbereichs. Am zweiten Tag präsentierten die Dozenten und Doktoranden des Instituts ihre Forschungen, und es gab auch eine englischsprachige Sitzung mit der Sukhothai Thammathirat Open University (Thailand) und der Oslo Metropolitan University (Norwegen)