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STRATEGIES FOR CONTENT DEVELOPMENT OF WEB-ORIENTED ENCYCLOPEDIC RESOURCES IN EDUCATION

Abstract. This article examines strategies for populating web-based encyclopedic resources in the field of education. The relevance of this study stems from the growing role of digital encyclopedic systems in structuring knowledge, ensuring access to verified information, and establishing a unified conceptual and terminological framework for the education sector. In the context of the development of open digital platforms and the collective creation of knowledge, the issue of organizing the processes of creating, updating, and quality control of encyclopedic content takes on particular importance. The aim of the study is to analyze contemporary strategies for populating web-oriented encyclopedic resources and to identify their organizational and technological characteristics within digital educational systems. The study employs methods of analyzing scientific sources, comparative analysis of digital encyclopedic resources, and the generalization of approaches to organizing content processes. Three main strategies for populating web-based encyclopedic resources have been identified: expert-editorial, community-based, and hybrid. These strategies differ in terms of content organization models, participant roles, and mechanisms for ensuring information quality. It is argued that the expert-editorial strategy is most effective for specialized resources focused on terminology standardization, whereas the community model ensures scalability and rapid content updates. Hybrid approaches allow for combining open user participation with expert verification mechanisms. The scientific novelty of the study lies in the systematization of strategies for populating web-oriented encyclopedic resources and their examination in relation to the scale of operation, subject specialization, and user participation model. The practical significance of the results lies in the possibility of using them to improve organizational and technological approaches to the creation and development of digital encyclopedic resources in the field of education. Prospects for further research are related to the development of models for evaluating the quality of encyclopedic content and the integration of artificial intelligence tools into the processes of creating, updating, and verifying knowledge.

Keywords: web-based encyclopedias; digital encyclopedic resources; content development strategies; expert-editorial model; hybrid model; community-based model

INTRODUCTION

The modern educational environment is characterized by the rapid development of digital tools, the growing volume of data, and the constant transformation of scientific knowledge. In such conditions, resources that enable the systematization, synthesis, and structured presentation of knowledge take on particular importance. One such tool is web-based encyclopedic resources, which combine the capabilities of digital tools with traditional approaches to presenting information in an encyclopedic manner.

For researchers, educators, and students, access to reliable, up-to-date, and systematized knowledge is essential, as is access to a unified conceptual and terminological framework in the field of education. At the same time, the modern educational landscape is characterized by a vast number of diverse information sources, which complicates the consistent use of terms, concepts, and ideas.

Web-based encyclopedic resources serve not only a reference function but also an integrative one, as they allow for the synthesis of knowledge from various sources, ensure its relevance, and maintain open access to information in the digital space. The development of online encyclopedias and wiki platforms demonstrates a shift from static reference resources to

dynamic systems of collective knowledge creation, in which mechanisms for community coordination, content management, and quality assurance play a crucial role (Mesgari et al., 2015; Ren et al., 2023).

International studies of digital encyclopedic systems emphasize that a key factor in their effectiveness is the combination of technological infrastructure with social mechanisms for coordinating contributors, moderating content, and managing knowledge (Jemielniak, 2014). Significant attention has also been devoted to researching the quality of content in online encyclopedias. A comparative analysis conducted by *Nature* suggested that the quality of articles in collaboratively created online encyclopedias may approach that of traditional encyclopedic publications. However, the results of this investigation have been the subject of scholarly debate, particularly regarding the methodology and interpretation of findings (Giles, 2005).

Research on open knowledge systems also focuses on mechanisms for author participation and user motivation to create content. The effectiveness of collective knowledge production depends largely on the organization of collaborative processes, the transparency of editing rules, and the maintenance of an active community (Forte & Bruckman, 2005; Anand et al., 2023). In the context of educational digital environments, wiki technologies are viewed as a tool for the collective creation and systematization of knowledge, contributing to the development of open educational resources and digital learning ecosystems (Parker & Chao, 2007). The development of digital encyclopedias is also viewed as a multi-stage process—from text-based resources to semantically oriented knowledge systems (Roncaglia, 2021)

Research by Ukrainian scholars examines various aspects of the creation and operation of web-based encyclopedic resources in the field of education. In particular, these works present the conceptual foundations for the creation of the Ukrainian Electronic Encyclopedia of Education (UEEE), defining its functional purpose and organizational principles of operation (Bykov et al., 2022; Pinchuk & Luparenko, 2023). Some studies are devoted to modeling the structure of encyclopedic articles, organizing navigation, and categorizing content in electronic encyclopedias (Luparenko, 2023).

Despite the existence of a significant body of research in the field of digital encyclopedic systems, the issue of developing content-filling strategies for web-based encyclopedic resources in the field of education remains relevant. In particular, there is a need to refine the classification of content organization models, identify their advantages and limitations, and analyze practical examples of the implementation of various content-filling strategies.

The relevance of this study stems from the contradiction between the educational sector's need for reliable and promptly updated encyclopedic content and the uneven quality of content across various web-based resources; as well as between the capabilities of open digital platforms and collaborative editing and the necessity of ensuring scholarly verification and editorial oversight.

The aim of the study is to analyze content-filling strategies for web-based encyclopedic resources in the field of education and to identify their characteristics, advantages, and limitations based on a comparative analysis of modern digital encyclopedic systems. The research questions are: What are the main models for organizing the process of populating web-based encyclopedic resources used in modern digital encyclopedic systems? What are the advantages and limitations of various strategies for populating web-based encyclopedic resources in the field of education?

RESEARCH METHODS

An analysis of academic sources was conducted to examine contemporary approaches to organizing web-based encyclopedic resources and content management models in digital encyclopedias. The comparative analysis method was used to study various content curation

models in modern online encyclopedias. The study analyzed a number of digital encyclopedic resources, including the ERIC Thesaurus, Glossary of Education Reform, EASNIE Glossary, Wikipedia, Scholarpedia, the Great Ukrainian Encyclopedia, as well as educational wiki projects and the Ukrainian Electronic Encyclopedia of Education. The method of systematization and generalization was applied to develop a classification of strategies for populating web-oriented encyclopedic resources.

RESEARCH RESULTS

The development of web-based encyclopedic resources necessitates the identification of effective approaches to organizing the process of content creation and updating. In the digital space, the development of encyclopedic resources involves not only the technical implementation of the platform but also the establishment of organizational mechanisms for preparing, editing, verifying, and updating information.

Within the scope of this study, the strategy for populating a web-based encyclopedic resource is understood as a set of organizational and technological approaches to the creation, editing, verification, and maintenance of content, which defines the roles of process participants, mechanisms for information quality control, and principles for updating encyclopedic materials.

An analysis of academic research on digital encyclopedias and wiki platforms indicates that the key factor in the functioning of such resources is the model for organizing the knowledge creation process and content management (Mesgari et al., 2015; Ren et al., 2023). Studies of online encyclopedias typically distinguish between models of centralized editorial control, open collective knowledge creation, and combined approaches that integrate community participation with expert content verification (Jemielniak, 2014; Anand et al., 2023).

Based on a synthesis of the results of the analysis of scientific sources and the operational practices of modern digital encyclopedic resources, this study identifies three main strategies for populating web-based encyclopedic resources:

- expert-editorial,
- community-based,
- hybrid.

The expert-editorial strategy involves the creation and editing of content by specialists in the relevant field, followed by editorial review of the materials. This model is typical of academic and specialized encyclopedic resources, where the priority is ensuring academic accuracy, standardizing terminology, and maintaining the quality of information.

The community-based strategy is founded on the principles of collective knowledge creation, where the resource is populated by a broad community of users. In such systems, content quality is maintained through editing guidelines, moderation mechanisms, and technical version control tools.

The hybrid strategy combines elements of open user participation with mechanisms for expert or editorial review of content. In modern digital encyclopedic systems, the hybrid model can be implemented through various mechanisms that combine expert and collective knowledge creation. The main forms of such hybridization include:

- *expert peer review*, where materials are reviewed or approved by specialists in the relevant field of knowledge;
- *expanded authorship*, which allows for the involvement of new authors provided their professional competence is verified;
- *a moderated/managed community***,** within which content is created by users but undergoes editorial or administrative review.

The use of various hybridization mechanisms makes it possible to combine the advantages of open knowledge creation models with the need to ensure the reliability and stability of encyclopedic content.

A generalized model of content-creation strategies for web-based encyclopedic resources is presented in Fig. 1.

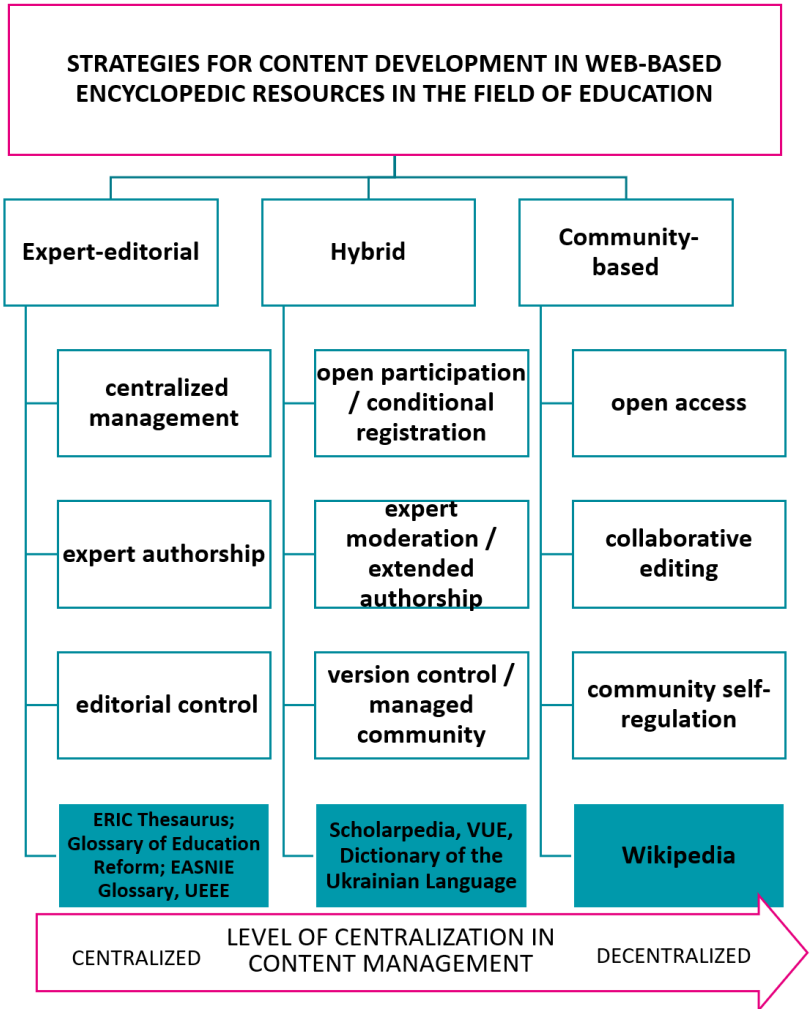

Fig. 1. A Generalized Model of Content Development Strategies for Web-Based Encyclopedic Resources
(Source: summarized by the author based on an analysis of web-based encyclopedic resources)

In addition to the model of content creation, web-based encyclopedic resources may differ in terms of their scope of distribution and subject specialization. In terms of scope, such resources are best categorized as international, national, and local (institutional). International resources are aimed at the global scientific community and reach a wide range of users, whereas national encyclopedic projects focus on systematizing knowledge within a single country. Local resources are typically created within individual educational or scientific institutions and serve educational, research, and representational functions.

In addition, encyclopedic resources may differ in subject specialization. In this context, we can distinguish between general encyclopedias covering a wide range of fields of knowledge, specialized encyclopedic resources devoted to specific scientific disciplines, as well as terminological or reference resources focused on systematizing specialized conceptual frameworks.

Given the diversity of web-based encyclopedic resources, it is useful to summarize their characteristics according to several criteria. Within the scope of this study, a number of modern digital encyclopedic systems were analyzed, which differ in content strategy, scope of operation, and subject specialization. To systematize the results of the analysis, a generalized description of web-based encyclopedic resources was developed, as presented in Table 1.

Table 1

Characteristics of Web-based encyclopedic resources by content strategy, scope, and specialization

Resource	**Resource type**	**Scope**	**Content strategy**	**Content organization features**
ERIC Thesaurus	terminology resource	international	expert-editorial	controlled vocabulary in education; hierarchical structure of concepts; editorial standardization
Glossary of Education Reform	industry glossary	international	expert-editorial	editorially curated definitions; centralized content management; focus on accessibility
EASNIE Glossary	terminology resource	international	expert-editorial	expert-developed content in inclusive education; standardized terminology
Wikipedia	general encyclopedia	international	community-based	open collaborative editing; version control; discussion pages; community moderation
Scholarpedia	online scientific encyclopedia	international	hybrid (expert peer review)	expert-authored articles; peer review process; curator-based content validation
Great Ukrainian Encyclopedia	general encyclopedia	national	hybrid (expanded authorship)	controlled author participation; editorial review; structured submission process
“Dictionary of the Ukrainian Language” (Grinchenko University wiki project)	terminology resource	local	hybrid (managed community)	student-generated content; instructor moderation; educational integration
Ukrainian Electronic Encyclopedia of Education (UEEE)	industry encyclopedia	national	expert-editorial	expert-authored content; editorial control; semantic structuring (Semantic MediaWiki)

(Source: summarized by the author based on an analysis of web-based encyclopedic resources)

An important feature of the organization of web-based encyclopedic resources is the model of participation in content creation. An analysis of modern digital encyclopedic systems shows that the process of compiling encyclopedic materials may involve various user groups that perform different functions in the preparation, editing, and verification of information. Depending on the model of organizing content processes in web-based encyclopedias, several main categories of participants can be identified: authors, editors, expert reviewers, moderators, and resource users. Authors directly create the content of encyclopedic articles or individual content fragments. Editors perform editorial processing of materials, ensuring their structural consistency and compliance with the resource's requirements. Expert reviewers perform the function of scientific verification of materials, which is particularly characteristic of specialized encyclopedic resources.

In open or collaborative encyclopedia platforms, moderators and administrators also play a significant role by overseeing the editing process, tracking changes to articles, and ensuring compliance with the platform's rules. In addition, in many digital encyclopedias, users can contribute to improving the content by suggesting edits, commenting, or clarifying information.

In other words, the model of participation in the creation of encyclopedic content can range from a narrow circle of experts to a broad community of users. It is precisely the balance of participants' roles in the content creation process that largely determines the strategy for populating the encyclopedic resource and the mechanisms for ensuring the quality of information.

Feedback mechanisms play an important role in modern digital encyclopedic systems. On open wiki platforms, particularly Wikipedia, article discussions take place on dedicated talk pages, where users can propose changes, discuss sources of information, and agree on article content. Such mechanisms are a key element of collaborative content management and help build consensus among community members (Mesgari et al., 2015; Jemielniak, 2014). In scholarly encyclopedias, such as Scholarpedia, feedback is primarily implemented through peer review, where experts' comments and remarks are used to improve the content of encyclopedia articles (Anand et al., 2023).

To further substantiate the identified strategies for content development of web-based encyclopedic resources, it is appropriate to examine specific examples of their implementation in contemporary digital encyclopedic systems. The analysis of selected resources allows for a deeper understanding of the organizational models of content creation, the roles of participants, and the mechanisms for ensuring information quality in different types of encyclopedic environments.

To conduct a more detailed analysis of content-creation strategies for web-based encyclopedic resources, a number of digital encyclopedic systems were examined, differing in their content organization models, operational scale, and subject specialization (Ren et al., 2023). As a representative example of a collaborative content-filling strategy, it is worth considering Wikipedia—the largest web-based encyclopedia, which operates on the principles of open, collective knowledge creation (Jemielniak, 2014; Mesgari et al., 2015; Wikipedia, n.d.). The resource is implemented on the MediaWiki platform and allows a wide range of users to edit content, ensuring rapid updates and a substantial volume of encyclopedic material. The resource's structure includes encyclopedic articles, a category system, internal links, and discussion pages, which play an important role in the process of coordinating article content (Anand et al., 2023). At the same time, content quality is maintained through community guidelines, moderation mechanisms, and version control. Despite the resource's universal nature, Wikipedia serves as an example of a collaborative content creation model, although its use for standardizing terminology in specialized fields is limited. (https://www.wikipedia.org). Wikipedia reflects a shift in the understanding of expertise, where knowledge is shaped through the interaction of professional and non-professional contributors, a phenomenon described as

the "amateur-expert" model (Sweet, 2015). Wikipedia, also, can be viewed as a large-scale knowledge base within the Web of Data, where semantic links between resources enable the integration and retrieval of information across different information systems (Matinfar, 2020).

A hybrid content strategy is implemented in resources that combine open user participation with mechanisms for expert or editorial review. Such resources include Scholarpedia (Scholarpedia, n.d.), where articles are created with the participation of experts and undergo a peer-review process (Anand et al., 2023), as well as the Great Ukrainian Encyclopedia, which allows for the involvement of new authors provided their professional competence is verified (Great Ukrainian Encyclopedia, n.d.). Such systems implement various hybridization mechanisms, including expert peer review and extended authorship, which allow for combining the advantages of open knowledge creation models with the assurance of their scientific reliability. (http://www.scholarpedia.org; https://vue.gov.ua).

A separate group consists of local web-based encyclopedic resources with an educational and research focus, including the wiki project "Dictionary of the Ukrainian Language" at Grinchenko University (Morze, Varchenko-Trotsenko, 2017), which represents a hybrid model. Such resources combine educational and scientific functions, as their content is created by students during educational activities under the guidance of instructors. They implement a community-based content creation model with elements of pedagogical moderation and can be viewed as a tool for developing digital competencies. (https://wiki.kubg.edu.ua). In the educational process, such resources can be used as a tool for active learning and organizing student projects, which helps foster digital literacy, collaboration, and communication (Morze, Varchenko-Trotsenko, & Smyrnova-Trybulska, 2015).

The expert editorial content strategy is supported by specialized and terminological resources, including the ERIC Thesaurus and the Glossary of Education Reform. The ERIC Thesaurus is a controlled vocabulary of terms in the field of education used to index scholarly publications in the ERIC database and ensure the standardization of terminology (ERIC, n.d.). The Glossary of Education Reform is an editorially managed online resource that provides definitions of key educational terms and is aimed at a broad audience (Great Schools Partnership, n.d.) . Such resources are characterized by a centralized content creation process, which ensures high reliability and consistency of terminology but limits the speed of content updates (Ren et al., 2023) (https://eric.ed.gov; https://www.edglossary.org). In educational practice, such resources serve to standardize terminology and can be used as reference tools to ensure consistency in the conceptual framework of teaching and research.

The Ukrainian Electronic Encyclopedia of Education holds a special place among the analyzed resources, serving as an example of a national-level, web-based encyclopedic resource in the field. Unlike open wiki systems, the UEEE implements an expert-editorial content strategy, which involves the creation of content by education specialists and its editorial processing (Bykov et al., 2022; Luparenko, 2023, Bykov & Luparenko, 2023). The use of the MediaWiki platform in combination with the Semantic MediaWiki extension enables the semantic structuring of knowledge, the establishment of logical connections between concepts, and the maintenance of the encyclopedic system's integrity (Luparenko, 2023). (https://eduglos.iitta.gov.ua).

Conceptually, the UEE is implemented as a web-based automated information system that combines two interrelated components: a content-oriented component (which reflects the encyclopedia's subject area and includes a collection of encyclopedia articles, categories, terms) and a process-technological component (the functional structure of the system, which supports the technological processes of creating, editing, organizing, and updating content with the participation of various user categories). The encyclopedia's content is presented in the form of scientific and educational articles that explain concepts, terms, and categories in

pedagogy and psychology. The content is created and maintained by researchers, which enhances the reliability of the information (Bykov, Luparenko, & Iatsyshyn, 2023).

The technological foundation of UEEE is the Semantic MediaWiki platform, which significantly expands its functionality. Unlike traditional wiki engines, which primarily handle unstructured text content linked only by hyperlinks and categories, semantic wikis formalize knowledge through the use of properties, categories, and relationships between concepts. This allows encyclopedic content to be presented not only as text for reading but also as structured data suitable for searching, summarization, and analytical processing (Falda, Atzori, & Corbetta, 2023). This transforms the encyclopedia from a traditional reference resource into a dynamic information and analytical system.

Functionally, UEEE provides access to encyclopedic content via a web interface, supports category-based search, metadata management, and the organization of collaborative user activities. Thus, the resource serves not only as a means of preserving knowledge but also as a tool for its development in the context of the digital transformation of science and the implementation of open science principles (Bykov, Luparenko, & Iatsyshyn, 2023).

A separate area of development for web-based encyclopedic resources involves the use of artificial intelligence tools to support content creation and updating processes. In modern digital systems, artificial intelligence can be used to automatically generate article drafts, structure information, perform semantic classification of materials, and search for sources. At the same time, in most scientific and educational encyclopedias, such tools are used as auxiliary, while the final preparation and verification of materials is carried out by experts or the resource's editors. Thus, artificial intelligence is viewed not as a separate strategy for populating encyclopedic resources, but as a technological tool to support existing content organization models.

Experimental encyclopedic systems are also emerging, in which a significant portion of the content is generated using artificial intelligence technologies, particularly large language models (xAI, 2025). Such approaches demonstrate the possibility of automatically scaling encyclopedic knowledge bases, but at the same time raise questions regarding the reliability of information, the transparency of sources, and the need for expert verification of content (Bender et al., 2021; Ji et al., 2023).

CONCLUSIONS AND PROSPECTS FOR FURTHER RESEARCH

This article analyzes strategies for populating web-based encyclopedic resources in the field of education and identifies their key organizational and technological features. Based on a synthesis of research findings and an analysis of modern digital encyclopedic systems, three main content-filling strategies are identified: expert-editorial, community-based, and hybrid, the differences between which are primarily determined by the model of content process organization, the roles of participants, and mechanisms for ensuring information quality.

The expert-editorial strategy is most effective for specialized encyclopedic resources focused on developing a standardized conceptual and terminological framework, whereas the community model ensures rapid content updates and scalability. Hybrid approaches allow for combining the advantages of openness and expert verification, which explains their widespread use in modern digital encyclopedic systems.

The study also demonstrated the value of examining content-filling strategies in relation to characteristics such as the scale of the resource, subject specialization, and the model of user participation in content creation. This has enabled the development of a more comprehensive understanding of the organization of web-based encyclopedic resources as complex digital knowledge systems.

Prospects for further research include refining criteria for evaluating the quality of encyclopedic content, developing models for organizing content processes in specialized digital

resources, and exploring the potential for integrating artificial intelligence tools to support the creation, updating, and verification of encyclopedic materials.

Competing Interests

There are no potential professional, academic, or personal circumstances that could influence the study results or their interpretation.

Declaration on Generative AI

The author confirms that generative artificial intelligence tools were used solely as supportive instruments for text editing, structuring, and refining formulations. All ideas, research results, interpretations, and conclusions are the author's own. The author takes full responsibility for the content of the article, the accuracy of the data, and the proper use of sources.

REFERENCES

Mesgari, M., Okoli, C., Mehdi, M., Nielsen, F. Å., & Lanamäki, A. (2015). The sum of all human knowledge: A systematic review of scholarly research on Wikipedia. *Journal of the Association for Information Science and Technology, 66*(2), 219-245. https://doi.org/10.1002/asi.23172

Ren, Y., Zhang, H., & Kraut, R. (2023). *Collaboration and coordination in online knowledge communities*. https://dl.acm.org/doi/full/10.1145/3617369

Jemielniak, D. (2014). *Common knowledge? An ethnography of Wikipedia*. MIT Press.

Giles, J. (2005). Internet encyclopaedias go head to head. *Nature*, 438, 900-901. https://doi.org/10.1038/438900a

Forte, A., & Bruckman, A. (2005). *Becoming Wikipedian: Transformation of participation in a collaborative online encyclopedia*. https://dl.acm.org/doi/10.1145/1099203.1099205

Anand, S., et al. (2023). *A game-theoretic analysis of Wikipedia's peer production: The interplay between community's governance and contributors' interactions*. https://pmc.ncbi.nlm.nih.gov/articles/PMC10150990/

Parker, K., & Chao, J. (2007). *Wiki as a teaching tool*. Interdisciplinary Journal of Knowledge and Learning Objects, 3, 57-72.

Roncaglia, G. (2021). Encyclopedias and encyclopedism in the era of the Web. *JLIS.it, 12*(3), 69-90. https://doi.org/10.4403/jlis.it-12757

Bykov, V., Burov, O., Luparenko, L., Pinchuk, O., & Iatsyshyn, A. (2022). *The concept of the Ukrainian electronic encyclopedia of education*. https://lib.iitta.gov.ua/id/eprint/732825/

Pinchuk, O., & Luparenko, L. (2023). Web-oriented encyclopedic edition as a tool for dissemination of verified knowledge in the field of education. Educational Technology Quarterly. https://acnsci.org/journal/index.php/etq/article/view/582

Luparenko, L. (2023). *Modeling the structure of the Ukrainian electronic encyclopedia of education*. https://periodica.nadpsu.edu.ua/index.php/pedzbirnyk/article/view/1429

Morze, N., & Varchenko-Trotsenko, L. (2017). *Wiki technologies as a means of forming digital competencies*. https://elibrary.kubg.edu.ua/id/eprint/22868/

Morze, N., Varchenko-Trotsenko, L., & Smyrnova-Trybulska, E. (2015). Ways of formation of effective students' collaboration skills based upon the usage of WBT. International Journal of Web Based Communities. https://doi.org/10.1504/IJWBC.2015.067085

ERIC (n.d.). ERIC Thesaurus. Retrieved March 07, 2026, from https://eric.ed.gov/

Great Schools Partnership. (n.d.). Glossary of Education Reform. Retrieved March 07, 2026, from https://www.edglossary.org/

Bykov, V., & Luparenko, L. (2023). Software and functional aspects of creation and support of Ukrainian online encyclopaedic resources. *Information Technologies and Learning Tools, 95*(3), 162-182. https://doi.org/10.33407/itlt.v95i3.5331

Bykov, V., Luparenko, L., & Iatsyshyn, A. (2023). Ukrainian electronic encyclopedia of education: Methodological foundations and implementation features. *Institute of Information Technologies and Learning Tools of NAES of Ukraine.* https://lib.iitta.gov.ua/id/eprint/748032/

Falda, M., Atzori, M., & Corbetta, M. (2023). Semantic wikis as flexible database interfaces for biomedical applications. *Scientific Reports, 13*(1), 1095. https://doi.org/10.1038/s41598-023-27743-9

Wikipedia. (n.d.). Retrieved March 07, 2026, from https://www.wikipedia.org/

Sweet, C. (2015). Wikipedia's success and the rise of the amateur-expert. In Information Resources Management Association (Ed.), Open source technology: Concepts, methodologies, tools, and applications (pp. 1318-1342). IGI Global. https://doi.org/10.4018/978-1-4666-7230-7.ch064

Matinfar, F. (2020). Linking web resources in web of data to encyclopedic knowledge base. *Open Computer Science, 10*(1), 357-368. https://doi.org/10.1515/comp-2020-0102

Great Ukrainian Encyclopedia. (n.d.). Retrieved March 07, 2026, from https://vue.gov.ua/

Scholarpedia. (n.d.). Retrieved March 07, 2026, from http://www.scholarpedia.org/

Wiki of Borys Grinchenko Kyiv Metropolitan University. (n.d.). Slovnyk ukrainskoi movy. Retrieved March 07, 2026, from https://wiki.kubg.edu.ua/

xAI. (2025). Grok AI system. Retrieved March 07, 2026, from https://grok.x.ai

Bender, E., Gebru, T., McMillan-Major, A., & Shmitchell, S. (2021). On the dangers of stochastic parrots: Can language models be too big? Proceedings of the 2021 ACM Conference on Fairness, Accountability, and Transparency. https://doi.org/10.1145/3442188.3445922

Ji, Z., Lee, N., Frieske, R., Yu, T., Su, D., Xu, Y., Ishii, E., Bang, Y., Madotto, A., & Fung, P. (2023). Survey of hallucination in natural language generation. https://arxiv.org/abs/2202.03629

Ukrainian Electronic Encyclopedia of Education. (n.d.). Retrieved March 07, 2026, from https://eduglos.iitta.gov.ua/

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СТРАТЕГІЇ НАПОВНЕННЯ ВЕБОРІЄНТОВАНИХ ЕНЦИКЛОПЕДИЧНИХ РЕСУРСІВ У СФЕРІ ОСВІТИ

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Анотація. У статті досліджено стратегії наповнення веборієнтованих енциклопедичних ресурсів у галузі освіти. Актуальність дослідження зумовлена зростанням ролі цифрових енциклопедичних систем у структуризації знань, забезпеченні доступу до верифікованої інформації та формуванні єдиного понятєво-термінологічного апарату освітньої галузі. В умовах розвитку відкритих цифрових платформ і колективного створення знань особливої ваги набуває питання організації процесів створення, оновлення та контролю якості

енциклопедичного контенту. Метою дослідження є аналіз сучасних стратегій наповнення веборієнтованих енциклопедичних ресурсів та визначення їх організаційних і технологічних особливостей у цифрових освітніх системах. У дослідженні використано методи аналізу наукових джерел, порівняльного аналізу цифрових енциклопедичних ресурсів та узагальнення підходів до організації контент-процесів. У результаті дослідження виокремлено три основні стратегії наповнення веборієнтованих енциклопедичних ресурсів: експертно-редакційну, спільнотну та гібридну, відмінностями яких визначаються моделлю організації контенту, ролями учасників та механізмами забезпечення якості інформації. Обґрунтовано, що експертно-редакційна стратегія є найбільш ефективною для галузевих ресурсів, орієнтованих на стандартизацію термінології, тоді як спільнотна модель забезпечує масштабованість і оперативне оновлення контенту. Гібридні підходи дозволяють поєднати відкритість участі користувачів із механізмами експертної верифікації. Наукова новизна дослідження полягає у систематизації стратегій наповнення веборієнтованих енциклопедичних ресурсів та їх розгляді у взаємозв'язку з масштабом функціонування, предметною спеціалізацією та моделлю участі користувачів. Практичне значення результатів полягає у можливості їх використання для вдосконалення організаційних і технологічних підходів до створення та розвитку цифрових енциклопедичних ресурсів у сфері освіти. Перспективи подальших досліджень пов'язані з розробленням моделей оцінювання якості енциклопедичного контенту та інтеграцією інструментів штучного інтелекту у процеси створення, оновлення та верифікації знань.

Ключові слова: веборієнтовані енциклопедії; цифрові енциклопедичні ресурси; стратегії наповнення контенту; експертно-редакційна модель; гібридна модель; спільнотна модель