Volume 1 Nomor 6 June 2024
E-ISSN: 3032-1298

https://economic.silkroad-science.com/index.php/IJBLPS

OPEN RESOURCES AS A SOLUTION FOR EDUCATIONAL CONTENT

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Article Info

Article history:
Received May 05, 2024
Revised May 20, 2024
Accepted May 25, 2024

Keywords:
Open educational resources,
Educational equity,
Digital access,
Learning outcomes,
Content engagement

ABSTRACT

In the digital age, the accessibility and quality of educational content are critical factors influencing learning outcomes and educational equity. Despite the proliferation of educational resources, significant disparities remain in access to high-quality, up-to-date, and culturally relevant materials. Limited research has systematically evaluated the impact of open educational resources (OER) on bridging these gaps and enhancing learning experiences across diverse educational contexts. This study aims to assess the effectiveness of OER in addressing educational inequities by examining their influence on content accessibility, engagement, and academic performance. The analysis reveals that OER significantly improve access to high-quality educational materials, increase learner engagement, and enhance academic outcomes compared to traditional resources.This research uniquely contributes to the literature by providing empirical evidence on the broad efficacy of OER across various educational levels and disciplines, highlighting their potential as a transformative tool for achieving educational equity. The findings suggest that the adoption and integration of OER can serve as a viable strategy for educational institutions aiming to democratize access to knowledge and reduce disparities in learning opportunities, ultimately supporting more equitable educational environments.

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INTRODUCTION

The development of information technologies gives an opportunity to develop new forms of their application in educational processes. It is impossible to imagine the learning without technology today and it is obviously that traditional methods are not interesting any more for both students and teachers. The most convenient form of teaching and learning is the use of electronic textbooks, that is, the use of software for teaching and determining the knowledge of students. The implementation of electronic textbooks can be viewed as a qualitatively new stage in the informatization of education.

An electronic textbook can be viewed as a product of intellectual capital. Intellectual capital consists of several parts: human, organizational and consumer capital [1]. Human capital is that part of intellectual capital that is directly related to a person, and at the company level to its workforce. It includes knowledge, practical skills, creativity of people, their moral values and work culture [2]. Based on the description and structure, the electronic textbook can be divided into three parts. Human capital is knowledge, it means everything that is collected in theoretical and practical content in an electronic textbook, it is the capital of the creator. Organizational capital is the hardware and software of the electronic textbook. Consumer capital, according to Kjell Nordström and Jonas Ridderstrale, is getting what you want «… real-time emotional and cultural needs of people, to extract the so-called "economies of soul" [1,3]. This means that in the process of education, students receiving knowledge through an electronic textbook should receive not only knowledge, but also cultural and emotional pleasure. For this, electronic textbooks should interest students as computer games. Since, playing computer games, they can sit for up to 5-6 hours, but learning from an electronic textbook, they do not study for more than 2-3 hours.

METHODS

A number of scientific studies have been conducted abroad and in the republic for the development of electronic textbooks, Internet search engines and open access sites.

S. Braunstein and M. J. Fontenot explored a movement in theory and practice through collaboration to transform the teaching of college and university students to use government documents in research [10]. R.Jhangiani studied the Web blog and Abandoned the "one-time task" in favor of open pedagogy He decided to use web resources [11]. D. Wiley, answered the question "What is open pedagogy" [12]. N.Udina (2015) created the structure of the electronic textbook Trial English [13]. H. Beetham, I. Falconer, L. McGill, A. Littlejohn, researched open practices biefing paper[14]. Many scientists have developed their own versions about electronic textbooks and open resources. Students Respond to High Textbook Costs and Demand Alternatives (E.Senack, 2014)[15].

RESULTS AND DISCUSSION

For legal education, it is advisable to use electronic textbooks online with the transition to the necessary sites or information systems during training. Electronic textbooks are created as a software tool, and the content in them becomes obsolete after a certain period of time. To prevent this from happening, the electronic textbook must have open content, and the information for the textbook must be available from websites and information systems. For the content of the electronic textbook, you need to select the resources corresponding to the curriculum.

Created electronic textbook by our team written in the C # language. During the studying process students can go to sites «E-sud», «Lex.uz» and «Norma.uz» because these sites are used as main information sources by our university students. Furthermore, this e-book is created in cooperation with the information system «E-sud» as a leading facilitator in the development of legal education and gives an opportunity to use its resources in learning process.

The transition to e-learning and its economic impact have been significant during the pandemic [8].

The structure of the electronic textbook has been changed. An electronic textbook integrated on legal search engines and open source sites.

3.1 Subject description:

Such a change in the structure of the e-textbook led to the appearance of a hybrid e-textbook. The e-textbook in hybrid form has the ability to work autonomously and at the same time use the information of the sites as content. When creating the content of the electronic textbook, the code for access to content on the Internet is written in the programming language C # as follows. Due to the availability of an electronic textbook for legal education, it is possible to access the website of national legal information retrieval systems and the national judicial system. The selected systems allow prospective lawyers to get acquainted with all normative documents and the procedure for applying to the courts. E-court allows you to use it as a virtual environment. The participation of students in an online open court session provides a realistic assessment.

“My.sud.uz” system is a kind of an alternative tool in improvement the practical skills of students and application of theoretical knowledge in the educational process. The module “Legal information technology” helps to improve knowledge of the information system on “E-sud” system. Furthermore, the online mode in the information system “E-sud” gives an opportunity to familiarize yourself with templates of appeals to economic courts, to present in online court sessions, and by playing the role of “judge’s secretary” in a virtual environment, you can develop practical skills. Participation of students in specific litigation in real time not only enhances their knowledge and quality of the course, but also ensures that the judges make the right decisions. Such lessons help to combine practice and theory, transparency both in education and in the courts.

The “E-sud.uz” information system can be used as an example of a virtual classroom and virtual laboratory, which facilitate legal education. For this, the

cooperation of systems is very important. This system serves as a supportive tool to enable students to become mature professionals ready for future work while studying. It was taught using an electronic textbook and a student mastery diagram was obtained.

Table 1. Students' ability to work in legal systems

Legal systems	Traditional group	Experiment group	Comparative analysis difference
Lex.uz	78%	82%	4%
stat.uz	81%	87%	8%
My.sud.uz	86%	94%	8%
e-notarius.uz	75%	76%	1%
advice.uz	71%	70%	-1%
davxizmat.uz	83%	85%	2%
Yurida.uz	72%	73%	1%

It was found that the speed of searching for the required normative documents from legal sources by e-textbook-trained groups was different from that of traditionally trained groups. The methods used to solve cases have also improved. The performance of students who were evaluated on the evaluation criteria formed before and after the experiment showed that the E-textbook system was effective (Table 1.). The result can be visualized through a diagram of students' ability to work in legal systems (Fig.1.).

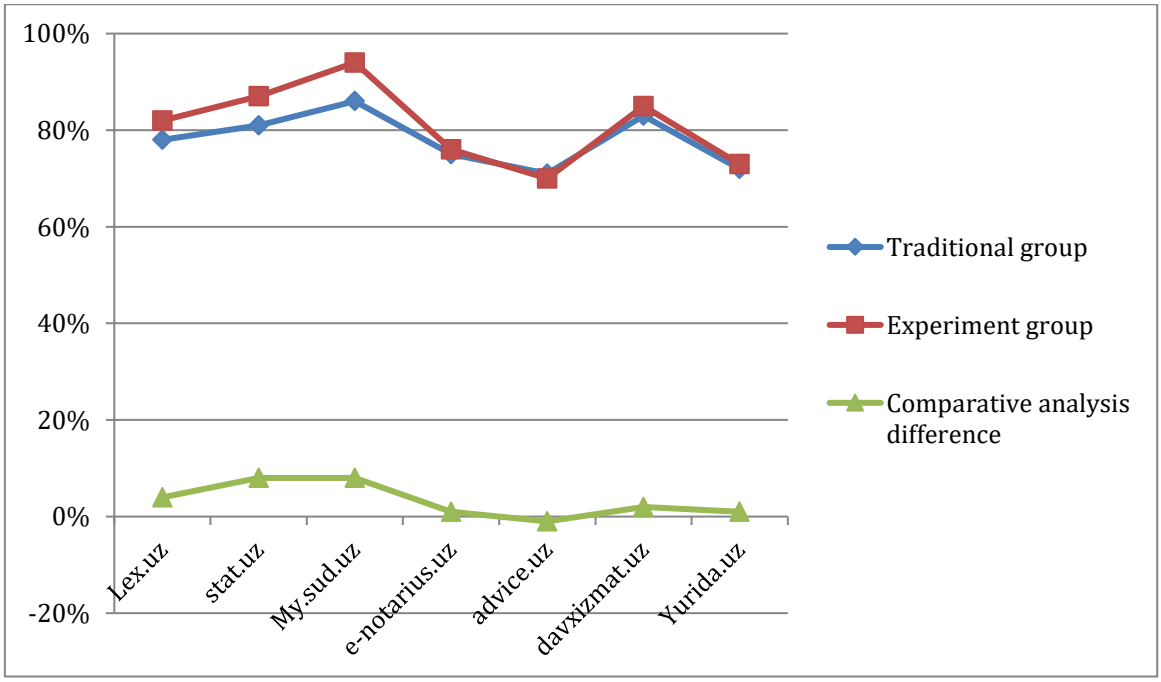

Fig.1. Students' ability to work in legal systems

3.2 Resource for statistics

The contemporary landscape witnesses a global recognition of the Open Data Institute's certification, extending to more than 155 thousand sites and portals worldwide [15]. Notably, only three sites globally hold the esteemed Platinum-level Certification, with one distinguished platform being the official website of the statistical agency under the President of the Republic of Uzbekistan, stat.uz [16]. Furthermore, a total of nine sites worldwide have achieved the Gold Level Certification, including the Open Data Portal of the Republic of Uzbekistan, data.gov.uz. These accomplishments serve as tangible evidence of the extensive reforms undertaken to foster transparency and openness within our country. The Open Data certification, an initiative of the Open Data Institute, constitutes a freely accessible online tool designed to assess and acknowledge the sustainable publication of high-quality open data.

Defined as a specific type of machine-readable format unencumbered by legal restrictions, open data stands exempt from copyright, patent, and other constraint mechanisms, excluding state secrets and information intended for service use [10]. The contemporary significance of open data lies in its facilitation of various creations by programmers, such as mobile applications, software, and websites.

Inevitably intertwined with the dynamics of the modern labor market and evolving information-sharing paradigms, the veracity of information on the Open Data Portal contributes to the establishment of an open data pedagogical system. With 159 organizations, 8,959 datasets, and 17,585 Web Services, the portal continues to serve as a valuable repository, offering real-world information across educational domains [9]. This repository plays a crucial role in the comprehensive training of competitive specialists.

The official website of the statistical agency under the President of the Republic of Uzbekistan, stat.uz, particularly in its section on violations of the open data item, presents comprehensive data encompassing all regions and types of crimes.

The incorporation of complete, accurate, and realistic information into the educational process aligns with educational objectives. Utilizing legal information as content on the portal, open to students for topics like statistical analysis of legal information, facilitates visualization and comparative analysis, fostering a deeper understanding of the data and providing insights into the original situation. A detailed presentation of the stages of visualization and analysis from stat.uz is incorporated into the lessons, as outlined in Table 2.

The Open Data Portal offers a gateway to a vast repository of information within government organizations and documents, nurturing essential research skills. Its adaptability across different topics and durations further enhances students' search skills, providing valuable experience in working with state documents and various document types. This iterative process fortifies critical thinking, evaluation, and analytical skills, equipping students with the ability to synthesize information from various documents and create analytical frameworks based on common topics. Further, we aspire to furnish an

illustrative example of open-source data analysis for informed decision-making in legal practice. **Example of open-source data analysis Table 2.**

Table 2: Registered crimes by the region

Hududlar kesimida jami ro'yxatga olingan jinoyatlar soni
egistered crimes in all lines of services by region

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Qoraqalpog'iston Respublikasi	3312	3233	3182	3189	3425	3164	3107	3042	3456	2861	1968	1870	2092
Andijon	5665	5563	5716	5710	5683	5676	5643	5640	5678	4507	3494	3361	4618
Buxoro	4248	4369	4349	4199	4251	4237	4400	4364	4356	4204	2972	2720	3570
Jizzax	2485	2569	2462	2436	2434	2424	2616	2612	2585	2348	1878	1836	1775
Qashqadaryo	4984	5407	5535	5522	5577	5762	5746	5836	5864	4493	2918	2804	3508
Navoiy	3373	3362	3357	3355	3419	3408	3400	3394	3386	3083	2067	1857	1943
Namangan	4941	5744	5686	5628	5571	5564	5546	5540	5528	4605	3498	3320	4235
Samarqand	7763	7747	7739	7579	7548	7511	7487	7484	7735	7691	5215	5016	5307
Surxondaryo	3267	3945	3941	3922	3935	4095	4089	4081	4072	3106	2322	2280	3176
Sirdaryo	2711	2705	2925	4098	3960	3915	3815	3868	3385	2591	1295	1261	1681
Toshkent	9870	9833	9725	9717	9707	9693	9681	9666	9651	8320	6240	5816	7261
Farg'ona	9044	9032	8985	8954	9539	9516	9506	9498	9483	8126	5362	5079	10952
Xorazm	3858	3861	3489	3453	3522	3769	3763	3760	3754	2909	1771	1734	2698
Toshkent sh.	20578	20114	21061	20720	19961	19301	18617	17233	16877	14030	7148	6718	8657
TJXTB	1908	1904	1898	2135	2128	2117	1944	1928	1602	818	863	417	608
O'zbekiston Respublikasi	88007	89388	90050	90617	90660	90152	89360	87946	87412	73692	49011	46089	62081

Source: stat.uz

Visualization and comparative analysis of the schedule for the number of registered crimes by the regions between 2008 and 2022 is presented from the open data presented in the section on offenses listed on the site (Fig. 2).

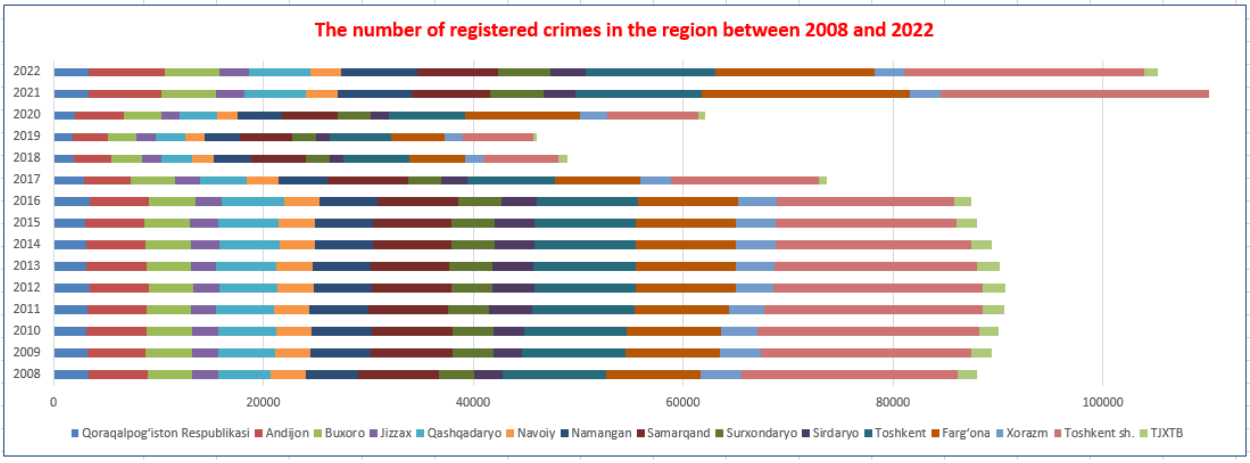

Fig. 2. Number of crimes by regions for the period of 2008-2022

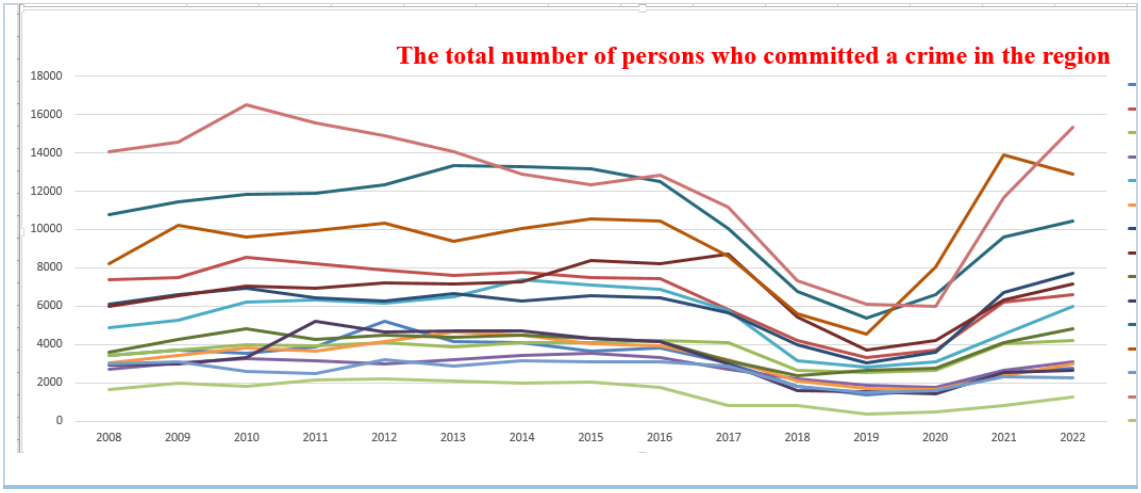

Fig. 3. The total number of persons who committed a crime in the region

Open data analysis:

General trends: The data in the diagram covers the period from 2008 to 2022, allowing to track the trends in change in the number of persons who committed a crime over a 15-year period, in general (Figure 2) and by territories (Figure 1). There is a significant difference in the cross-section of regions and the number of criminal cases by year.

Province-wide changes: If we analyze the data by region, there are clear differences in the number of persons who committed criminal cases by region. For example, in the city of Tashkent (Tashkent), the most criminal cases were recorded over the years, followed by Namangan, Andijan and Fergana regions.

Fig. 4. The total number of persons who committed crimes on the scale of the Republic of Uzbekistan

Temporary (variable) changes (trends): In some areas, it can be observed that there are significant fluctuations in the number of criminal cases over the years. For example, if the Republic of Karakalpakstan observed a downward trend from 2008 to 2018, it can be noticed that it will increase in the following years.

Significant changes: In certain regions, significant changes in the number of criminal cases are observed in certain years. For example, Syrdarya experienced a sharp increase in 2011 and Fergana in 2022.

The number of criminal cases in Tashkent region and Tashkent City is constantly high, and in Tashkent City there was a significant increase in 2010.

The city of Tashkent also has a significant decline in 2020.

General observations: The general trend is to observe an increase in the number of criminal cases both on the scale of the general Republic and territories in the period up to 2016, peaking in 2010-2012, followed by a general decline during 2017-2020. The last two years in a number of regions, such as Namangan, Tashkent, Fergana regions and the Republic of Karakalpakstan, in 2021-22, there has been an increase in criminal cases compared to the previous year.

Conclusions and recommendations based on analysis of data

In order to better understand the trends described in the diagram analysis and graph, it will be advisable to identify the reasons for the changes that took place between 2017 and 2020. Identifying the social, economic, political factors and, if necessary, changes in legislation that have caused the number of people who have committed a crime to decline over these years can serve to prevent and reduce the number of crime on a national scale.

3.2.1 Advantages of Using Open Databases for Skill Development

In the ever-evolving digital landscape, leveraging open databases proves to be a strategic and advantageous approach for skill development. The utilization of open databases offers a myriad of benefits, empowering individuals to enhance their digital competencies. Some key advantages include:

- **Real-world Application:** Open databases provide a platform for individuals to engage with authentic, real-world data, allowing them to apply theoretical knowledge in practical scenarios. This hands-on experience is invaluable for skill development.
- **Diverse Learning Opportunities:** Open databases cover a vast array of topics and disciplines, offering learners the opportunity to explore diverse subjects and gain a comprehensive understanding of various domains, thereby broadening their skill set.
- **Collaborative Learning:** Open databases often foster collaboration and teamwork, allowing individuals to work collectively on projects. This collaborative environment not only enhances technical skills but also nurtures interpersonal and communication skills.
- **Continuous Learning:** The dynamic nature of open databases ensures that learners stay abreast of the latest developments and trends in their respective

fields, promoting continuous learning and adaptability—a crucial aspect in the fast-paced digital landscape.

3.2.2 Integration of Open Databases in Educational Curricula

The integration of open databases into formal education systems represents a progressive step toward equipping students with essential digital competencies. By incorporating open databases into the curriculum, educational institutions can bridge the gap between theoretical knowledge and practical application. This integration allows students to develop crucial skills in data analysis, interpretation, and utilization that are highly relevant in the modern professional landscape.

While the incorporation of open databases in curricula offers numerous advantages, it is not without challenges. Educational institutions may face hurdles such as access issues, technological constraints, and the need for specialized training for educators. However, these challenges are outweighed by the opportunities they present, including enhanced student engagement, improved critical thinking, and the alignment of education with real-world industry demands.

CONCLUSION

In conclusion, the electronic textbook makes it possible to simplify the learning of law students [7] by using hyperlinks to information sources, for example, switch to the national database of legislation of the Republic of Uzbekistan “Lex.uz”. From this site, the student can download or familiarize himself with the regulatory documents. In Uzbekistan there are several sites and information systems that can be used as educational resources like e-notarius.uz, davxizmat.uz and advice.uz, and through these electronic portals, it is possible to increase the interactivity and practicality of legal education. These systems should be integrated not only into electronic textbooks, but also into the educational process management system “Electronic University” [5] which is creating at the university. Thus, intellectual capital in education can provide real-time emotional and cultural needs for educators.

Problems in the field of higher education, the creation of modern electronic textbooks or content are not limited to educational issues. This problem is more dependent on rapid technological progress and the need to develop core competencies in today's students and rapidly outdated textbooks. Today, it is not necessary to create textbooks that will become obsolete in a year, you need to be able to use web content during the lesson. Using web resources, content, we develop students' technical, technological, analytical, practical skills and the ability to think critically. To do this, it is necessary to create a pedagogical environment that takes into account the necessary components of modern education.

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