

# Building and Developing Open Educational Resources to Enhance Training Quality at Hanoi University of Natural Resources and Environment

Pham Thi Thuy

Project Leader: Research on the current status of open educational resource usage in training activities at Hanoi University of Natural Resources and Environment

Host Organization: Hanoi University of Natural Resources and Environment

## Abstract:

Educational resources are fundamental tools that help the Library of Hanoi University of Natural Resources and Environment fulfill its function, asserting its importance to the existence and development of the institution. However, given the rapid changes in science and technology, user needs, and the urgent requirements for information and materials in the process of innovation and development at the university level, the Library of Hanoi University of Natural Resources and Environment must focus on renewing and developing educational resources, especially open educational resources (OER). Therefore, the current issue is that the Library of Hanoi University of Natural Resources and Environment must fully and accurately recognize the role of OER in the context of educational reform in general and higher education reform in particular. By analyzing the advantages and challenges in the development of OER, practical solutions are proposed to develop OER resources that meet the educational and training needs of the institution.

*Keywords: Open educational resources, training activities*

## 1. Introduction

Open educational resources (OER) are considered an effective resource for enhancing the quality of training and scientific research at universities. Vietnamese universities are in the process of reforming their curriculum, training content, and teaching methods, focusing on learner-centered approaches and emphasizing the development of competencies and skills for self-discovery of knowledge and lifelong learning. To innovate teaching methods where learners autonomously explore knowledge, a substantial and high-quality educational resource is required. However, in reality, Vietnamese universities are currently lacking in educational resources, particularly OER.

Based on the survey and statistical results of Internet usage and information technology of students from universities in Hanoi and surrounding areas, including Hanoi University of Natural Resources and Environment, a concerning reality is that students have very few channels to access the necessary resources for their studies and research. When asked, "How do you access study materials?" over 60% of students answered that they purchase textbooks from bookstores and only use that textbook to study, without any additional reference materials. 20% of students mentioned that they also refer to materials from the university library, and only 15% of students referred to online sources, despite the fact that the average time students spend on the Internet is over 4 hours a day.

On the other hand, the university and college system in Vietnam, including Hanoi University of Natural Resources and Environment, is gradually completing the transition to a credit-based learning system with the goal of "student-centered learning." The reality shows that the implementation of this system still faces many issues. Alongside giving students autonomy, the credit-based system also requires students to be proactive, responsible, and self-aware of their own learning, which is a point that many students still lack. This is one of the reasons why the effectiveness of teaching and learning has not achieved the desired results. Based on research and analysis of the current situation, the author proposes several solutions to

improve the effective use of OER to enhance the quality of training at Hanoi University of Natural Resources and Environment.

## **2. The role of open learning materials in improving the quality of training at Hanoi University of Natural Resources and Environment**

### **\*Some concepts**

#### **- Learning Materials**

Learning materials are understood as all materials serving the purposes of learning, research and teaching. Learning materials include: textbooks, lectures, monographs, scientific research results, newspapers, specialized journals, courses, theses, scientific conference proceedings, internship reports, practical and other specialized documents.

The advancement of science, technology and telecommunications has led to the birth of new forms of documents:

*Electronic document:* It is a form of presentation of documents in the form of a set of realities related to each other, corresponding to them, in a digital environment - according to the GOST R 52292 standard. The characteristic of electronic documents is that information is presented in electronic-digital form and can only be read with the help of technical means and compatible programs.

In Vietnam, the Law on Archives 2011 defines digital documents as follows:

*Digital document:* It is a news carrier in which information is created by the method of using digital signals formed in the course of operation of agencies, organizations and individuals.

#### **- Open Learning Materials**

According to UNESCO, open learning materials can be considered any educational material that is in the public domain or released under an open license, and anyone can legally copy, use, modify and share these materials. Open learning materials can be textbooks, curriculum frameworks, course outlines, lectures, essays, tests, project conclusions, videos and animations.

Open learning materials are mainly formed from 02 forms:

- Learning materials come from traditional forms that have been digitized and stored in electronic form.
- The source of learning materials that they have existed since its formation exists in digital form.

\* Open educational resources are open-licensed educational resources, which are learning materials that can be used for teaching, learning, and assessment without payment. They can be modified and redistributed without violating Copyright Laws.

### **\*The role of open learning materials in improving the quality of training at Hanoi University of Natural Resources and Environment**

*Firstly:* Developing quality open learning materials is one of the important conditions for creating a breakthrough in providing adequate, accurate and timely information for research, teaching and learning in the context of the global information explosion. Moreover, in order to meet practical requirements, the solution to build and develop open learning materials is a mandatory step, towards building a digital library, connecting between libraries, contributing to innovating the library's service methods; innovate teaching and learning methods, improve the capacity and quality of training of the school.

*Second:* The development of traditional learning materials has been facing certain difficulties related to: finance, space, time, search, sharing,... Therefore, the development of open learning materials will help the Hanoi University of Natural Resources and Environment Library fundamentally overcome the above difficulties, and at the same time enhance the ability to access information/documents accurately, fully and promptly for news users.

*Thirdly,* open learning materials create access according to many different signs, allowing many users to access at the same time without being limited by space, time, geographical location, so it is very convenient and creates equality for officials. lecturers and students exploit and use information.

*Fourth,* the teaching and learning process is the process of interaction between teachers and learners in exploiting and discovering knowledge and creating new scientific values. Therefore, open learning materials will help this process achieve higher efficiency through multi-dimensional feedback channels; Teachers and learners can participate in forums, academic exchanges, share information, experiences, etc.

*Fifth,* university quality accreditation stipulates: The university's library has a full range of books, textbooks, and references in Vietnamese and foreign languages to meet the requirements of officials, lecturers and learners. There is an electronic library connected to the network, serving teaching, learning

and scientific research effectively. Therefore, the solution to develop open learning materials helps Hanoi University of Natural Resources and Environment meet the requirements of higher education quality accreditation.

Providing complete, accurate, timely information, ensuring both quantity and quality, not being dominated by space, time and regardless of the object of use is the goal and also the quality assessment criterion of Hanoi University of Natural Resources and Environment in the face of the current requirements of higher education innovation. Therefore, the development of open learning materials must be properly recognized, evaluated and invested, contributing to improving the quality of education of the university, creating a positive change in the reform and innovation of higher education in general.

### **3. Foundations for building and developing open learning materials to improve the quality of training at Hanoi University of Natural Resources and Environment**

#### ***\*Information/materials at Hanoi University of Natural Resources and Environment Library***

The library has a full range of learning materials (compulsory materials) including textbooks, documents, reference books (hard/soft copies to ensure intellectual property regulations), etc. Suitable to support training and research activities:

##### *Traditional Documents*

- Currently, the School Library has 18,382 printed materials (textbooks, books and references),
- Over 100 magazines specializing in natural resources and environment
- Over 2000 results of specialized scientific and technological research tasks/topics
- Thesis, dissertation, graduation thesis, scientific research results of staff, lecturers, students and trainees.

##### *Modern documentation*

- The library currently has over 60 000 digital documents
- The library has 05 databases of free theses and dissertations in the world:

*The DART-Europe E-thesis Portal* accesses up to 1.3 million open access theses and dissertations from 580 universities in 29 European countries.

*Global ETD* has more than 6 million electronic dissertations and dissertations in the archive.

*ProQuest Thesis and Dissertations Global* has more than 60,000 open access thesis titles.

*Open Access Theses and Dissertation* currently has more than 6 million dissertations and dissertations from more than 1,100 colleges, universities and research institutes.

*EBSCO Open Dissertations* currently has more than 1.5 million dissertations and dissertations from 320 universities.

\* Ability to access external information: Computer systems and computer networks allow users to access, exploit, and use information/materials contained in the library. In addition, Internet connection helps users have conditions to exploit and use information/documents on the network, allowing users to connect to information resources of libraries of other universities.

#### ***\*Information technology infrastructure and technical equipment***

The University Library is fully equipped with professional software and modern equipment to meet the needs of readers and professional work, including:

- The library has 100 high-configuration computers, serving electronic lookup,
- The library is equipped with 10 professional machines, 09 servers
- The library installs a system of network equipment software ILibMe 8.0 library management integrated with traditional library management and electronic library, web portal to help readers look up documents remotely (printed and digital),
- The library is equipped with 01 multi-purpose photocopier, 02 printers, 04 automatic borrow-return machines, 04 barcode readers, 04 inventory machines, 04 RFID librarian stations, 01 magnetic port and 02 modern digitizers.

#### ***\*Human Resources***

- The Center for Library and Information Technology consists of 01 director, 02 deputy directors and officials and employees.

- The Director of the Center shall be responsible to the Principal for the assigned tasks and take responsibility before law for all activities of the Center, formulate working regulations and administer the Center's activities.

- The Deputy Director shall assist the Director, take responsibility before the Director and the law for the field assigned by the Director.

- Officials and employees in the Center: perform tasks as assigned by the Director and take responsibility before the Director and the law for the assigned tasks.

**\*Advantages and disadvantages in building and developing open learning materials**

*Advantageous:*

- The school and the library are both aware of and properly appreciate the importance of open learning materials for the process of development and innovation, improving the quality of higher education today.

- The library has applied scientific and technological achievements (software, network system, computer system,...), modern machinery and equipment,... This is the basic means for libraries to be able to carry out the process of building and developing open learning materials.

- Traditional and digital resources (theses, theses, lecture outlines, textbooks, lectures, scientific research results,...) are very rich, this is an abundant source of materials from which open learning resources can be built in accordance with the needs of use.

- The library has applied advanced professional standards (DDC, AACR2, MACR21, DUBLINCORE,...), creating favorable conditions for the construction and development and sharing of open learning resources.

- A contingent of cadres with solid professional qualifications, enthusiasm for the profession, eager to learn and dynamically absorb advanced scientific and technological achievements.

*\* Difficult*

+ Objective

- State management agencies have not yet developed and promulgated legal documents as a basis for developing open learning materials in higher education institutions.

- Functional agencies and relevant ministries and branches have not had close coordination, unity and created favorable conditions for the development of open learning materials for research and learning.

+ Subjective

- The library has not yet developed a strategy and plan for the development of open learning materials in each specific period and period.

- Funds used for the construction and development of open learning materials are still limited. While in fact, to develop open learning materials, it is necessary to have financial investment to digitize materials, buy open learning materials, and purchase equipment,...

- The equipment used for the automation of information and library activities in general and the development of digital learning materials in particular is not synchronized, the work efficiency is low, there are no magnetic ports, magnetic bars, and modern scanners,...

**4 Some proposed solutions for Developing Open Educational Resources to Enhance Their Effective Use in Training Activities at Hanoi University of Natural Resources and Environment**

**For the Information - Library Sector and Related Ministries:**

The Information - Library sector needs to recognize and correctly assess the importance of open educational resources (OER) in socio-economic development in general and in enhancing the quality of higher education in particular. From there, strategies and plans should be developed for building and expanding OER to meet practical needs.

There must be close coordination between the Information - Library sector and related ministries, such as the Ministry of Education and Training, the Ministry of Finance, the Ministry of Science and Technology, the Ministry of Information and Communications, the Ministry of Culture, Sports and Tourism, etc., to establish a legal framework as a basis for the construction and development of OER in universities nationwide.

Educational institutions need to collaborate and reach consensus on building mechanisms, policies, and establishing relationships to exchange and share OER on a mutually beneficial basis, contributing to enriching the common resource pool, thereby creating a strong synergy and driving the development of a knowledge-based economy.

**For Hanoi University of Natural Resources and Environment:**

The university needs to make appropriate investments in finance, technology, and human resources to build, develop, organize, manage, and provide OER.

The issue of building and developing OER should be clearly reflected in the library's development policies and strategies and should be concretized through short-term and long-term action plans.

First, to build OER, the library should focus on digitizing the existing materials in the library. Priority should be given to digitizing materials with high information value, widely used by many, and those that serve the university's key training programs.

Collaborate with other university libraries to jointly purchase and share full-text databases of various types of materials to save costs and best serve educational and training efforts.

Collaborate in building, sharing, and exchanging OER with the libraries of major universities with similar training disciplines, such as Vietnam National University, Hanoi; National Economics University; University of Commerce, etc.

Priority should be given, and every condition should be created for staff to participate in professional development courses, especially those focusing on knowledge and skills for building and developing OER.

## **5. Conclusion**

The library of Hanoi University of Natural Resources and Environment is always placed in a vital position—being the heart of the university, contributing significantly to enhancing the quality of education. Therefore, to fulfill its assigned tasks, especially in the era of the knowledge economy, providing comprehensive, accurate, timely, and quality information/materials is particularly important. Developing OER is considered the optimal solution for the library to achieve this goal.

In addition to the efforts of the library staff, it is essential to have the support, investment, and facilitation from all levels, sectors, organizations, and individuals for the development of information and library activities in general and the development of OER in particular. Although there are many challenges in the initial stages of building a modern and convenient OER, we are united and determined to pursue a noble goal for society, for current and future generations to benefit.

## **Acknowledgments:**

This article was conducted under the research support of the project "Research on the current status of using open learning materials in training activities at Hanoi University of Natural Resources and Environment". Project code 13.01.24.F.11 chaired by Hanoi University of Natural Resources and Environment.

## **References**

1. Resolution No. 29-NQ/TW on fundamental and comprehensive innovation in education and training.
2. Decision No. 65/2007/QĐ-BGDĐT Issuing "Regulations on standards for evaluating the quality of university education."
3. Nguyen Huy Chuong (2015), Open Educational Resources and the Development of Digital Resources in University Libraries in Vietnam, Information - Library Center, Vietnam National University, Hanoi.
4. Do Van Hung (2015), Overview of Open Educational Resources and Identifying Factors Affecting the Development and Sharing of OER in Vietnamese Universities, Faculty of Information - Library, University of Social Sciences and Humanities, VNU Hanoi.
5. Trinh Quang Khai, Nguyen Thi Thu Huong (2015), Overview of Education and Open Educational Resources, Proceedings of the National Scientific Conference: The Open Education System in the Context of Educational Autonomy and International Integration.
6. Le Trung Nghia (2015), Overview of Open Educational Resources and Predicting a Future Scenario for Vietnam's Education, National Center for Research and Development on Open Technology, Ministry of Science and Technology.