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TRAINING PROGRAMS FOR THE DEVELOPMENT OF INFORMATION LITERACY AT THE SCIENTIFIC LIBRARY OF THE TECHNICAL UNIVERSITY OF MOLDOVA

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Abstract: In the current context of rapid technological development and widespread digital access, fostering a strong culture of information literacy is imperative for the academic and professional success of students and researchers. The Scientific Library of UTM plays a key role in this by offering training programs to develop information-seeking and resource management skills. Information literacy involves more than just the ability to locate information; it also encompasses the capacity to critically evaluate, interpret and use resources effectively for educational and research purposes.

This article analyses the training programs implemented by the Scientific Library of UTM, highlighting their importance in the contemporary educational and scientific environment, which is characterised by complex information flows and the need to efficiently use digital resources. Furthermore, it describes how these programs contribute to developing essential skills for success in research and higher education, and their impact on improving academic performance and enhancing collaborative capacities in a digital environment.

Keywords: Information literacy, scientific library, information skills, user training, educational programs.
JEL Classification: I23, I25, O33

1 Introduction

Academic libraries are important places where people can go to study and do research. Their role is more than just running and providing library services. They also play an active part in the educational process, especially in the digital age, where technology is changing teaching and learning in higher education around the world (Bennett, 2015). For many years, academic libraries have had a very important job: to support learning and teaching. But how these libraries do this is always changing. This is because of new technology, changes in the economy and society, and changes in the institutions that run these libraries (Corrall and Jolly, 2019).

Libraries are well known for helping people learn, but there is still a lot of discussion about what librarians actually do. This is because of traditional ideas about what a librarian does, but there are also new academic realities that mean librarians need to develop teaching skills and digital skills, as well as knowledge of information literacy. As a result, academic libraries are starting to see themselves as partners in education, helping to improve teaching and learning.

In recent years, academic libraries have also started to focus more on research and scholarly activity. This is because of developments in digital infrastructures, data management and open science. This means that librarians can support research by using new methods and coming up with new ideas. At the same time, improvements in information literacy, how you design learning materials, learning with your peers and open educational resources have led to new library practices. These new practices make it easier for people to get the support they need for their studies. Academic libraries continue to play a vital role in higher education by offering traditional information services as well as new and innovative ways to help students learn and do research (Corrall and Jolly, 2019).

A central element of this transformation is information literacy, which is defined as the ability to recognise the need for information and develop the necessary skills to locate, evaluate and use information resources effectively (Cunningham and Lanning, 2002). The American Library Association says that information literacy is "the ability to recognise the need for information and to develop the skills necessary to locate, evaluate, and use information resources effectively" (American Library Association, 2001). In practice, Doyle defines an information-literate person as someone who can accurately identify the need for information, formulate relevant questions, locate appropriate sources, develop effective search strategies, critically evaluate the obtained information, and coherently integrate it into their thinking and problem-solving processes (Doyle, 1994).

In the contemporary educational environment, the ability to navigate, evaluate and utilise a plethora of information resources in libraries is paramount. This aptitude, often termed "information literacy", is a critical skill that empowers students and researchers to competently traverse the vast expanse of knowledge. This encompasses not only the identification of pertinent information but also the application of higher-order cognitive abilities such as analysis, synthesis, evaluation and knowledge creation (Allen, 2008). These skills are imperative for academic success, lifelong learning and responsible participation in an information society (Liu, 2025).

2 Training programs on Information Literacy

The Scientific Library of the Technical University of Moldova has developed a wide range of programmes and activities. These are designed to help students and researchers learn how to find information. These programs are structured so that they meet the specific needs of different academic levels, ranging from first-year students to doctoral candidates and faculty members engaged in research. The way it is organised means that there are different educational activities, which are designed to suit the level of preparation and what each user needs:

- First-year students,
- Second- and third-year students,
- Master's level students,
- Doctoral students,
- Teaching and research staff.

Program for first-year students

At the beginning of their academic journey, the library organises a program called "Discover the library and its information resources". This program is designed to familiarise students with the library's services and resources, as well as methods of identifying, selecting and using

information. The program aims to help students integrate into the academic environment quickly and develop essential information-searching and management skills.

Through interactive and practical sessions, participants will:

- become familiar with the library's structure, services, book collections and available electronic resources;
- learn how to use the electronic catalogue, the electronic teaching library and the TUM institutional digital repository;
- acquire skills in identifying and selecting relevant online resources for their fields of study;
- apply academic documentation methods through examples and case studies.

This program enables students to develop the fundamental competencies necessary for building advanced information literacy skills.

Table 1 illustrates the evolution of the program "Discover the library and its information resources", which was delivered by the library between 2022 and 2024 to students at the start of the academic year. The data highlight a steady and significant increase in the main indicators. For example, the number of activities nearly tripled, increasing from 63 in 2022 to 182 in 2024. Similarly, the number of academic hours more than doubled from 63.5 in 2022 to 189 in 2024, indicating an expansion in both content and program duration. The number of participants also increased steadily, rising from 1.685 in 2022 to 3.145 in 2024, demonstrating growing student interest and the tangible impact of these activities.

Table 1. Evolution of the program "Discover the library and its information resources", 2022–2024

Year	Activity	Academic hour	Participants
2022	63	63,5	1 685
2023	96	88	2 270
2024	182	189	3 145

Source: own work

This evolution demonstrates that the program is becoming increasingly effective in integrating students into the academic environment by offering support in using information resources and developing documentation skills. While information literacy classes are not part of the university curriculum, the steady increase in activity and participation highlights the importance and necessity of these sessions for the student community.

Program for second- and third-year students

Following the introductory stage, second- and third-year students follow an advanced program designed to develop skills in searching for, using and managing scientific information. This course aims to teach users how to use the scientific databases subscribed to by the TUM Scientific Library (Springer, Research4Life, ASTM, Compass Complete, IOP Publishing, etc.) and develop the competencies required to access, use and efficiently manage the available electronic resources. For students in this category, the emphasis is placed on:

- developing skills in formulating precise and complex search queries (Boolean operators, advanced filters, keywords);
- selecting and filtering relevant results for seminar papers, projects, or essays;
- organizing and integrating selected information into academic projects and research papers;
- applying criteria for the critical evaluation of sources;
- strengthening academic writing skills in accordance with citation standards and information ethics;
- using software tools (e.g., Zotero) for the efficient management of resources.

Thus, the program for second- and third-year students consolidates the foundation acquired during the first year and ensures the transition to a higher level of informational autonomy, preparing students for the advanced stages of their studies.

The program „Supporting TUM Graduates"

Every year in February and March, the TUM Scientific Library runs the program „Supporting TUM Graduates", which aims to assist students with preparing their bachelor's and master's theses. Designed as a series of informational and educational activities, the program provides graduates with specialised support in the form of access to resources, training sessions and personalised consultancy. Participants benefit from:

training sessions on the effective use of information resources – specialized and multidisciplinary international databases, TUM's electronic library, digital repositories, and electronic catalogues;

developing competencies in identifying, selecting, and evaluating information, in accordance with academic ethics standards;

training in the correct application of citation styles and the preparation of standardized bibliographic references;

counselling on plagiarism prevention and adherence to academic integrity norms.

In addition to practical training activities, the program includes thematic and informational exhibitions showcasing newly acquired books, as well as presentations of methodological and bibliographic publications developed by the library, such as standards, guides for preparing bibliographic references, bibliographies, bio-bibliographies, and recommended reading lists.

With the support of the deans of all university faculties and in close coordination with teaching staff, the library organises information literacy lessons. Additionally, lessons, interventions and presentations are conducted as part of course sessions for specific subjects, such as Scientific Research Methodology, Experimental Techniques, and Academic Writing, at the request of professors.

The InfoDoctorandus program

This program offers a wide range of information, training and consultancy activities for doctoral students, providing the necessary support throughout the entire research process. The program addresses the essential needs of early-career researchers by facilitating access to relevant information, developing documentation skills and ensuring adherence to ethical and academic standards.

The program's core objectives are as follows:

- facilitating the information-gathering and documentation process for doctoral students in order to produce high-quality research work;
- developing skills in identifying, selecting, evaluating, and efficiently using information within the context of planned research;
- fostering the ability to present bibliographic references used in scientific works according to international standards;
- preventing plagiarism and promoting ethical research behaviour;
- informing doctoral students about normative and procedural frameworks, including the requirements of the National Council for Accreditation and Attestation (CNAA), as well as other regulations related to the presentation of scientific work.
- Within the program, doctoral students receive information and practical training on:
- using available information resources to identify relevant literature (electronic catalogues, institutional digital repositories, international scientific databases, etc.);
- accessing publications that are unavailable in the library collections or have restricted access;
- compiling thematic bibliographies relevant to their research topics;

- correctly formatting bibliographic references and citations according to academic standards;
- using ZOTERO software for efficient source management and organization of bibliographic references;
- obtaining personalized consultations tailored to the individual needs of each doctoral student.

The program is designed in a flexible and interactive manner, including:

- specialized training sessions conducted by librarians and experts in scientific information;
- interactive information sessions to familiarize students with resources and research tools;
- practical exercises allowing doctoral students to practice using databases, bibliographic tools, and reference management software;
- individual consultations and personalized support to address specific challenges encountered during the research process.

3 Open Science for Researchers Program

This initiative is dedicated to supporting the academic community in strengthening the visibility of, and increasing the impact of, scientific outcomes. Designed as a framework for training, consultancy and practical support, it provides researchers with the necessary tools and competencies for integration into the international open science landscape.

The program includes individual consultation sessions aimed at addressing the specific needs of each researcher, as well as practical, interactive workshops. Topics covered include:

Creating and developing professional profiles on international platforms (Google Scholar, ResearchGate, Scopus Author ID, Web of Science ResearcherID, etc.), which facilitate visibility and scientific collaborations;

Integrating and updating publications within academic profiles, ensuring an accurate and comprehensive representation of research outcomes;

ORCiD links unique researcher identifiers. This helps to make it clear who the authors are in the international research environment;

Managing citations and monitoring the impact of science correctly by using databases and tools that measure scientific activity;

Using bibliometric responsibly and accurately. It is also important to emphasise understanding of their limitations and to avoid misinterpretations when evaluating scientific performance.

This program helps researchers get the advanced information and digital skills needed in the era of open science. At the same time, the programme encourages openness and honesty in research, which helps to share scientific results around the world and makes the institution more well-known for its academic work.

To make it easy for people to find out about training programmes, courses and activities, the TUM Scientific Library shares information about them on its website. Students and researchers can find out more about each programme and use an online form to book a course or a personalised consultation. Training activities are carried out based on what the users want and need. This can be done in person, online, or a mix of both. This makes sure that there is as much flexibility as possible and that it can be used in different academic situations.

The Scientific Library's website provides users with access to a range of guides and educational resources that are designed to support the development of information and digital literacy skills. These include guides on creating and managing professional profiles on Google Scholar and ORCiD, using the Zotero reference management tool, and critically evaluating information and applying various citation styles. Furthermore, there are materials available to assist with the documentation and composition of academic papers.

Users' information literacy is further enriched and made more engaging through the integration of innovative elements designed to meet current learning, research and socialisation needs.

These include microlearning (short, gamified lessons) accessible via the library platform; interactive digital guides on proper citation, source management and using Zotero reference software; information literacy quizzes (e.g. identifying fake news vs. real news and credible sources); mentoring programs – advanced users support beginners.

The central idea is to transition from a passive information model to one of active and creative participation, in which users are encouraged to think critically and collaborate in the creation of knowledge.

4 Conclusions

The training programs conducted by the Scientific Library of the Technical University of Moldova have demonstrated a significant impact on the development of information literacy among students and researchers. Participants in these programs have developed essential competencies in identifying, selecting, evaluating, and using information resources, both in academic activities and research. Through interactive sessions, practical training, and personalized consultancy, users have acquired advanced skills in information management, the use of scientific databases and digital tools, as well as in applying ethical and academic standards in academic writing.

The benefits of these programs are evident in the increased information autonomy of students and researchers, the improvement of the quality of academic and scientific work, and the strengthened capacity to collaborate effectively in a digitalized environment. Additionally, the programs have contributed to the development of digital competencies and academic visibility skills, which are essential in the context of open research and scientific performance evaluation.

However, the implementation of these programs has also encountered challenges, such as adapting to the diverse needs of users, limitations in digital infrastructure, and the need for better monitoring of their impact on academic performance. These aspects provide opportunities for the continuous adjustment and improvement of the programs.

The Scientific Library of the Technical University of Moldova aims to consolidate and expand its training programs to meet the increasingly diverse requirements of students and researchers. The future will see development in a number of different areas. Firstly, the aim is to add more areas to the site by adding modules dedicated to scientific publishing, identifying dishonest journals, and research data management, in order to respond more effectively to the needs of users across different academic sectors.

Secondly, we will focus on new teaching methods, such as interactive platforms, webinars, video tutorials, and digital resources that can be accessed remotely. This will make the programmes more flexible and available to all participants.

We will also be able to see how well the programme is working by looking at things like how much the people taking part have learned, how often they use the digital tools, how good their school work is, and how happy they are. These indicators will allow us to keep track of the impact of the programme and make changes to make the most of it.

Furthermore, a key part of the development strategy is to work more closely with academic institutions and international libraries. This will help us to share good practices, access educational resources and take part in international training projects. This will help make sure that training programs meet global standards and make the library's activities more visible and well-known in the world.

The Scientific Library has a clear plan to make sure its training programmes stay relevant. It also wants to use these programmes to help TUM students and researchers improve their

information, digital and research skills. This will show how important the library is to modern education and research.

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