

## Article

# Romanian University Website Survey Regarding the Evaluation of Informational and Documentary Resources Provided to Students

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**Abstract:** The universities website has become an established tool, serving as an interface between an organization and its audience. For university websites, they act as portals for information and communication with students, facilitating educational and research objectives while promoting the institution's image. Based on this perspective, the authors conducted a strategic monitoring/documentation process, employing both quantitative and qualitative methodologies to analyze the vast textual content from the websites of 101 universities in Romania. Data collection occurred from January 2021 to March 2022. These websites were monitored and analyzed comparatively for quality based on Minerva EU principles, which serve as the analytical standard, utilizing predefined categories: identification, relevance, maintenance, accessibility, user orientation, responsiveness, multilingualism, and interoperability. Additionally, the study assesses whether the websites provide useful information for students' specific activities, including accessible informational and documentary resources within the university library's digital environment. The results indicate that state universities (54 in total, both civilian and military) are the most relevant. They continually enhance their websites to serve as a vital access point for specific informational resources, including administrative, educational, documentary, and cultural resources.

**Keywords:** Romanian universities; websites usability; evaluation; informational and documentary resources



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## 1. Introduction

### 1.1. The Context: Evolution and Changes in University Tasks

Universities, as a type of academic organization specialized in higher education, offer study and research programs in a variety of fields. Over time, they have evolved and consolidated as basic institutions of society, their prestige being due to their essential role of generating progress in society through higher education and research activities. Today, they have an important mission: prepare students for a constantly changing work environment that relies more and more on digital technology.

The premise from which this research started was that, along with all the changes at a social level, higher education institutions are also transforming, constantly adapting to meet new challenges and to preserve and strengthen their role in society. In this

context, university websites acquire an increased importance in terms of representing an institutional image and identity, the relationship with the public served, the achievement of specific communications, and, above all, through their role as an informational and communication portal meant to fulfill educational and research objectives.

The university environment can be defined as the totality of higher education institutions existing at the national level, together with the community environment in which each university operates through specific teaching, research, or practical activities. The academic environment is recognized as the main partner of society through its specific activities that determine community and social progress and, equally, the personal development of individuals who choose to complete their education through the specialized programs offered by higher education. In the literature, there are increasingly frequent studies that attest to the changes in the academic environment under new digital influences, such as the recent emergence of generative AI [1]. In the context of digital technologies, higher education institutions have become increasingly important in preparing students for a career in a digitized environment [2]. The mission of universities in the context of digital technologies can be defined as preparing students to be competent in the use and application of digital technologies in different fields [3]. This may include developing programming skills, understanding network technologies and information systems, and developing critical and analytical thinking to address complex technology issues [4]. A university's educational goals in the context of digital technologies may include preparing students to be able to develop and implement innovative technological solutions, understand and manage information security risks and vulnerabilities, and use technology in an ethical and responsible way [5].

The research mission of universities is highlighted by the assumption and promotion of fundamental and applied research in all fields of human knowledge, depending on the specifics of each university (fields of humanities, social sciences, exact sciences, and engineering). The need for research in the university environment is underlined by the perception of the socio-economic environment and society, in general, on the role of higher education institutions in social progress and improvement of the quality of life. The development of education and research in various educational systems contributes to the development of the professional environment in various fields [6]. Therefore, the quality of university education is directly proportional to the quality of the labor force on the labor market and the quality of the products and services offered to the community served. Thus, universities aim to make available to the students, during the university course, the theoretical knowledge and practical skills that will help them integrate into the competitive environment of the labor market. Equally, universities are institutions that, starting from their prestige gained in society, are concerned with the preservation, promotion, and transmission of human and social principles and values to society and to future generations.

Through its universities, the academic environment offers specialized research and education services based on authorized study programs at the bachelor, master, and doctoral level. To fulfill their social mission, universities rely on information and documentation resources appropriate to their specific activities, resources that can be created as a result of research and learning activities or acquired through university libraries or, more recently, in the form of databases in the case of digital resources.

Changing educational paradigms involve the adoption of new methods and technologies to improve the quality and efficiency of the learning process [7]. In recent years, there has been a significant increase in the reliance on specific educational applications and platforms to deliver instruction and training in an accessible and efficient way [8].

One of the most important trends is distance education, which involves teaching and learning online without the need for a physical presence in a shared location. This has become possible through the use of digital technology such as video conferencing software, learning management systems, and online learning resources [9].

E-learning is another method that has become very popular in recent years because it allows students to learn at their own pace and in their own time. This is possible through the use of online learning platforms, which provide access to online courses, learning materials, and other digital resources [10].

Virtual learning communities are also another emerging trend. These involve the formation of online learning groups where students can collaborate and communicate through social media and other applications [11]. However, excessive reliance on such applications and platforms can lead to problems such as technology addiction and a decreased ability to cope with face-to-face interaction with other people [12]. Therefore, it is important that education finds a balance between the use of digital technology and other traditional methods of learning [13,14]. However, one should be aware of the over-reliance on such technologies and encourage their use in a balanced and responsible manner.

In recent years, a significant evolution of the documentary typology has been observed due to the use of digital technology. Digital documents have, in their turn, an extremely diverse and heterogeneous typology as they assimilate, through digitization processes, any type of traditional document and add digitally born documents and documents without a traditional equivalent, all of which can exist in a multitude of specific formats [15,16]. University libraries, for their part, are redefining themselves and play a key role in terms of collecting, organizing, and accessing documents regardless of their type, with material or digital support [17]. University libraries also play an important role in encouraging the use of institutional repositories, which allow researchers and students to upload and access their research papers in an accessible and efficient way [18]. Databases are another important aspect of the new documentary typology. They allow access to a wide range of information and research resources, such as scientific journals, e-books, and other relevant materials. This allows researchers and students to quickly and efficiently find the information they need to conduct their research and learning activities [19].

### *1.2. University Website as an Informational and Documentary Resource*

The university website, since its appearance, has become an integrative access portal [19] to the university's learning and research resources, providing access to relevant information about all specific activity segments, including documentation resources: e.g., university library, databases, institutional digital repositories [20]. This allows students and researchers to access and use all the available resources in an efficient and coordinated manner [21].

The new documentary typology implies a significant evolution in terms of the way documents are collected, organized, and accessed. University libraries play a key role in document collection and access, and institutional databases and repositories provide access to a wide range of research and learning resources. The university website serves as an integrative portal for access to all these resources, allowing users to access and use all resources in an efficient and coordinated way [22]. Due to the development of the Internet and new information technologies, it becomes more and more difficult to assess the quality of a website.

### *1.3. Evaluation Principles of the MINERVA EU Project*

Evaluating websites is important given that their number is growing exponentially and that there are multiple sources of information for the same subject, and it is not possible

to assess the quality and relevance of the information provided for each one. The Minerva project [23] has supported, since 2002, the ministries of culture of the European countries united in the *Group of National Representatives* for the digitization of cultural and scientific heritage in the publication of digital cultural content on the Internet and in improving its quality. Following the analysis of the information needs of digital users and the typologies and characteristics of digital cultural resources, ten quality principles were formulated, elaborated by Working Group 5. They were originally intended for the evaluation of the websites of museums, libraries, archives, or other cultural institutions, but they can be applied, partially or fully, to any websites—including university websites.

For each principle, specific criteria were identified and defined to allow the assessment of the level of quality of a website.

Following the research carried out within the Minerva project, the following principles were defined, taken over in this study as analysis categories:

1. Identification: “a quality website should be easily identifiable, clearly presenting its objectives, as well as the body responsible for its management”;
2. Relevance: “a quality website should select and present relevant, valid content adapted to the target audience”;
3. Maintenance: “a quality website should have a clear maintenance and content update policy”;
4. Accessibility: “a quality website should be accessible to all users, regardless of the technology used; it should also be accessible to people with disabilities, in accordance with existing recommendations”;
5. User Orientation: “a quality website should be adapted to the needs of users, have an ergonomic interface, and take into account ratings and comments”. Compliance with this principle takes into account the interface, navigation, presentation, interactivity elements, and accessibility;
6. Reactivity: “a quality website should be reactive, allowing users to contact the website and receive a response to their message”;
7. Multilingualism: “a quality website should be multilingual, translating a minimum of content into at least two languages”;
8. Interoperability: “a quality website should observe the principle of interoperability in networks, allowing users to easily find informational content and services”. The interoperability of a website “expresses its ability to share information with other Internet websites and with different types of online applications”;
9. Respect for copyright: “a quality website should comply with all legal provisions related to intellectual property rights and regarding privacy and clearly specify the conditions of use of the website and its content”. This principle takes into account “the ethical and legal conditions for using the Internet, such as the protection of property rights over the contents published on the website, the protection of the property rights of the website as a whole against possible abuses committed by users, the protection of the website owner against possible disputes with the owners of the content published on the website, the protection of the privacy of users, etc.”;
10. Perennity: “a quality website should ensure its own durability, as well as that of its content in accordance with adapted strategies and standards”. This principle considers the long-term conservation of resources in the conditions of the rapid evolution of Internet technologies (see above).

## 2. Materials and Methods

The purpose of this research is to analyze the websites of Romanian universities in order to highlight the current state of the presence of universities in the online environment,

primarily from their perspective as an information and documentation tool for students. The goal was to evaluate, through the informational content of the websites, the digital products and services offered by the universities, and the information resources and educational documentation in relation to the educational process.

As a working method, the qualitative and quantitative textual content analysis method was used [24,25] by fully monitoring the web pages of the 54 Romanian state universities. The websites of private universities were also identified and checked, but we did not include them in the evaluation because many of them are unavailable or only briefly created. To achieve the main objective, an evaluation grid of university websites was created, thus analyzing aspects related to the structure of university websites, the quality of the content offered (information considered useful for the students, information and documentation resources available through the website, the university library in the digital environment) using a predefined grid according to the specific criteria and indicators of MINERVA EU with the exception of indicators such as reactivity, interoperability, and respect for copyright, because for these indicators, either there was not access to sufficient data, or they involved too specific technical data.

Primary data were obtained by collecting them from direct sources, i.e., the university website or, where appropriate, from the distinct websites of related faculties or libraries, and were represented using statistical methods and the graphical presentation of results using the Microsoft 365 Excel application.

Considering the number of websites investigated and the large volume of information contained, the monitoring and data collection period took place over 15 months, between January 2021 and March 2022.

#### *Monitoring: Universities Monitored*

According to the Ministry of National Education, the university infrastructure in Romania includes a total of 102 universities, of which 54 are state-funded higher education institutions (47 civil + 7 military) and 47 are private higher education institutions (38 accredited + 9 provisionally authorized). From preliminary research, it was observed that most private law universities did not have relevant websites in terms of information and documentation resources, and, in some cases, the website of the university and/or the university library does not work or even cannot be identified. Therefore, the decision was to monitor only the websites of the 54 state higher education institutions (47 civil + 7 military), which, in total, run 376 faculties. In the illustrative material at the end of the study, Appendix A, an exhaustive list of universities in Romania was made, with their names, the identification code in our text, the website, and the city where they are located.

As a working procedure, the accessibility of each university's website was checked from the point of view of the general content—faculties, study programs—but also from the point of view of the resources made available for students to the e-learning platform, publishing house, library, and scientific databases.

A university can use its webpage at a simple level, as a display board by publishing general presentation information (name, address, object of activity, most important achievements, contact details), or the website can become a referral portal to various and complex applications, which allow both interactivity and the publication of data, various information both for presentation and integration in different collections, databases, commercial applications, and, equally, a space for communication and work for the university community. From the perspective of educational resources, a complex university website can integrate the following: e-learning educational applications and AI applications as research assistants, virtual exhibitions, static or dynamic images, video, forms. Also, particularly important in an institutional presentation website is the structuring of the digital

content, the architecture and design of the website, the aesthetic elements, its dynamics and attractiveness, all of which contribute to building the brand identity of the institution. The content of a university’s website should represent that institution and meet technical and professional requirements, provide relevant and credible information, be easily identifiable, or, otherwise, meet the criteria specified for a quality website and be an information and interaction area available to any type of user, from the very uninitiated in Internet search to the expert (Figure 1).

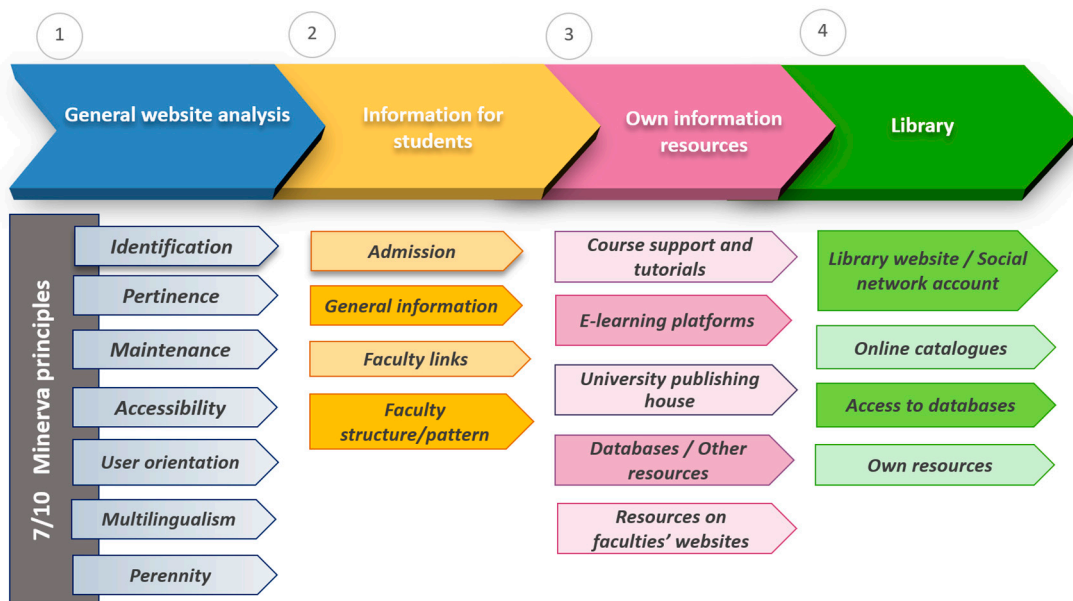


Figure 1. Website analysis grid.

### 3. Results

From the 10 Minerva principles, in this research there are presented the results of 7 principles relevant for the analysis of university websites. After a preliminary analysis of the data collected, the following principles were eliminated: the principle of reactivity, considering that it is not relevant enough for Romanian university websites, which are more presentation and educational websites; the principle of interoperability, since it is a technical criterion; and the principle of respect for copyright, difficult to appreciate in the elementary analysis of a university website. In presenting each individual quality principle, assessment and evaluation criteria were defined theoretically, and then data were graphically presented and interpreted.

#### 3.1. General Analysis of University Websites, According to the Specific Principles of Assessing the Quality Level of a Website

##### 1. Identification

From the total number of the universities, 96.37% meet the identification principle, the website name being explicit and displayed on the host page: they have a visual brand identity, and, in addition, some faculties have their own visual identity, such as USAB(U46) and UNAP(U50)—in the case of these universities, in addition to the identity elements of the university, in many situations, the visual brand identity of the faculty also appears. The principle of identification is not observed in situations where the name of the university is not displayed on the host page, the visual identity of the website is not clear, and the mission and objectives of the university or other clear elements that contribute to the unique and unambiguous identification both of the website and implicitly of the university are not specified.

Of the 54 university websites analyzed (Figure 2), 2 university websites only displayed the name on the home page, without visual identity. This is the case with USAB(U46) and UNAP(U50) (Figure 3).

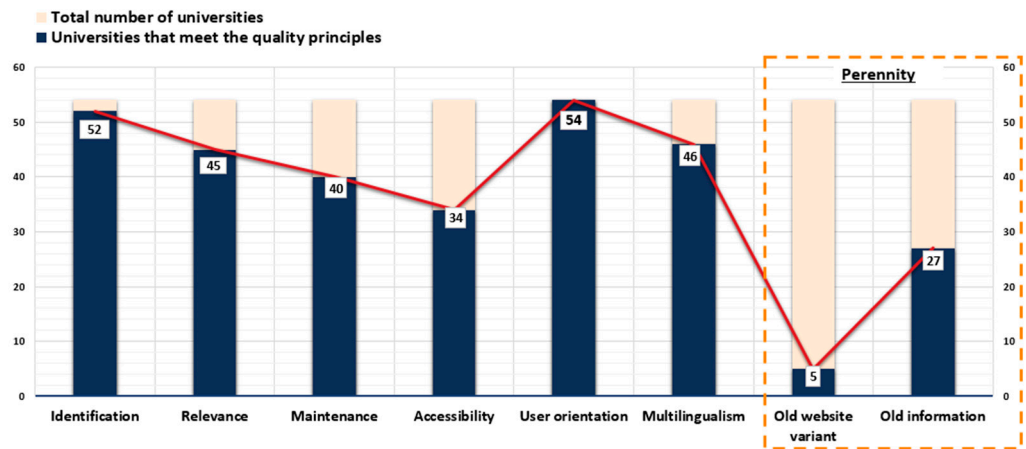


Figure 2. General analysis of the website.

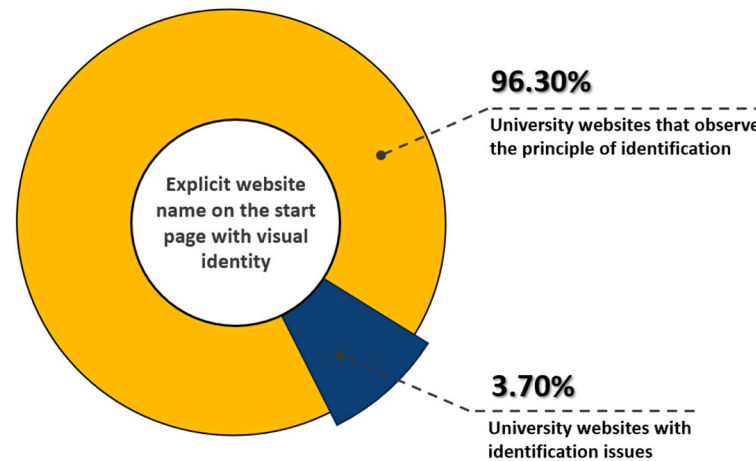


Figure 3. Graphic representation of the principle of identification.

## 2. Relevance

Among the 54 university websites analyzed, only 45 university websites, representing 83.33%, meet the principle of relevance. The information on the website is correct, and the internal and external links direct the user to the expected information. Nine of the state universities do not have websites that fully meet the relevance criterion. The principle of relevance is not observed in situations where the published information is not verified, is not accurate, and the resources are not properly documented and are not clearly identifiable, the needs of the users are not known, and the selection of contents does not reflect the needs of the target audience (Figure 4).

When the information on the university’s website differs from that on the faculty’s website, it is clear that the information is no longer relevant.

Among the universities that have problems, according to this principle, are the following:  
 USAMVB(U4): it presents small display problems in the announcements page; the font is too small;  
 UTCN(U17): it has some interference between the new and the old version of the website: in certain cases, when the information on the page is accessed, the old version of the website is reached; there are operational problems in the library page;

UMFGPI(U31): it is under construction (at the time of the research);  
 UPIT(U35): the information is difficult to identify in the submenu;  
 USV(U39): it has too much information on the first page, the website is crowded, the font used is too small;  
 UVT(U40): the host page is very loaded, the information is difficult to search and follow;  
 UCBTJ(U41): some links do not work: the one related to the publishing house, as well as the one of the student scientific magazine (<http://www.lsucb.ro/rst>, accessed on 23 July 2023);  
 UNVT(U47): the same information is displayed in different places on the website, and different contents create confusion;  
 AFAHC(U53): the information on the website is very crowded.

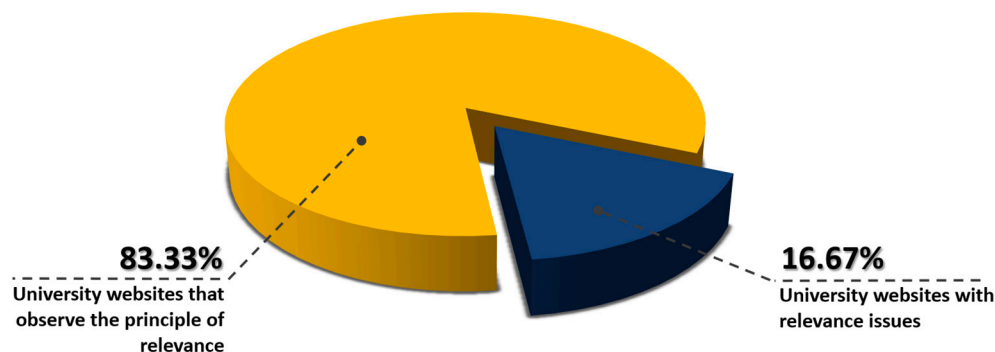


Figure 4. Graphical representation of the principle of relevance.

### 3. Maintenance

To consider that a website is properly maintained, all content is periodically reviewed and updated whenever necessary; revisions of the website, as well as of its presentation, should be provided; there should be a defined policy and a related procedure at the level of technical services to ensure the maintenance of the website.

Among the 54 university websites analyzed, only 40 university websites, representing 74.07%, have updated content. During the data collection period, it was observed that not all universities constantly update their content on the website. The analysis of the announcements and news sections was also considered (Figure 5).

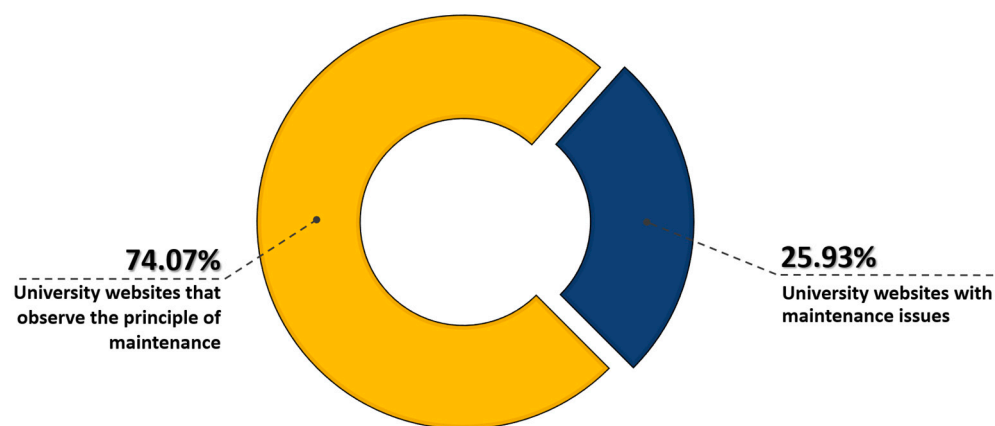


Figure 5. Graphic representation of the principle of maintenance.

The principle of maintenance is not observed in situations where informational resources with reference to past events are published and absolutely necessary current information is almost completely missing, the outdated content is not suppressed or archived, and it is not possible to identify the dynamics of the website in accordance with the actual activities of the university.

#### 4. Accessibility

Among the 54 university websites analyzed, only 34 of them observe the principle of accessibility, representing 62.96%. During the data collection period, it was observed that not all university websites were permanently accessible in their integrity. There were situations when the whole site was not accessible or only certain pages or applications (Figure 6).

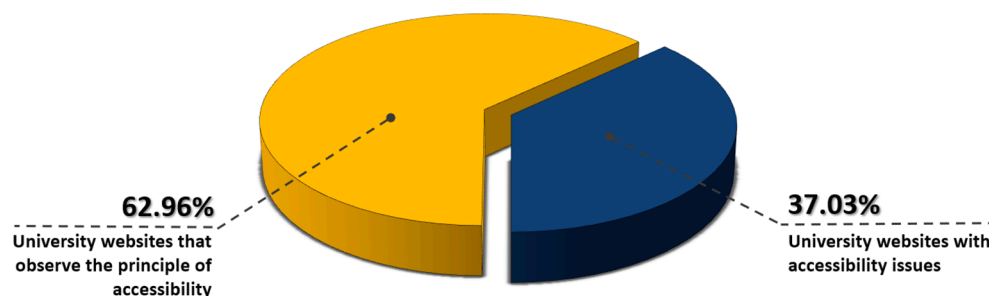


Figure 6. Graphic representation of the principle of accessibility.

The principle of accessibility is not observed in situations where, in the development of the graphic design of the website, visual and multimedia elements that affect its ergonomics are used excessively and redundantly, and the standards, procedures, and specific formats for publication and accessibility are not observed in accordance with the recommendations of the Web Consortium (W3C) [26].

#### 5. User Orientation

After analyzing the university websites, the possibilities offered by them to a user to get in touch online with all the university offices, as well as the possibilities of interactivity via email, social networks, and contact forms were verified. The principle of user orientation is not observed in situations where users are not offered opportunities to intervene, through relevant and documented opinions, in the development of the website’s structure and in the formulation of their own information and documentation needs (Figure 7).

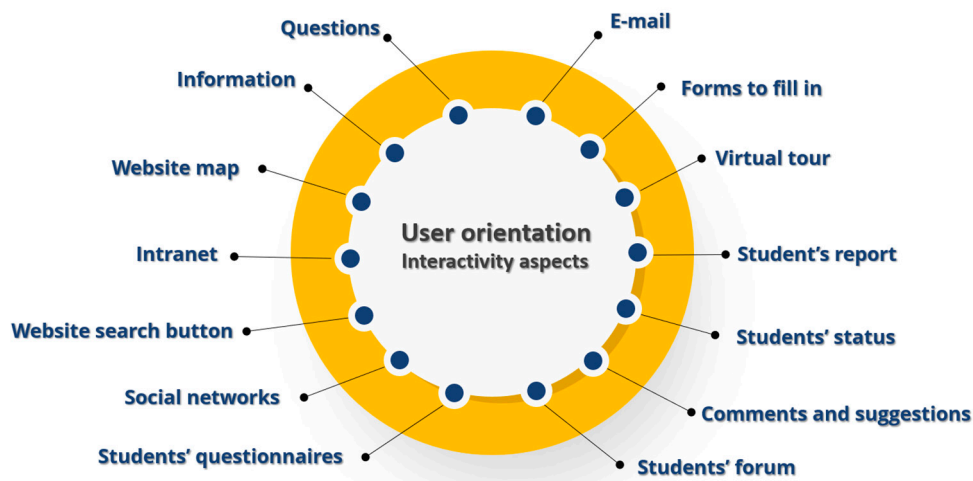


Figure 7. Graphic representation of the user orientation principle.

#### 6. Multilingualism

In order to appreciate the multilingualism of a website, it was checked if the following criteria are met: certain content of the website should be available in several languages; the name of the website and its presentation should be accessible in as many languages

as possible; the main function of the website (finding information, navigation) should be available in several languages (Figure 8).

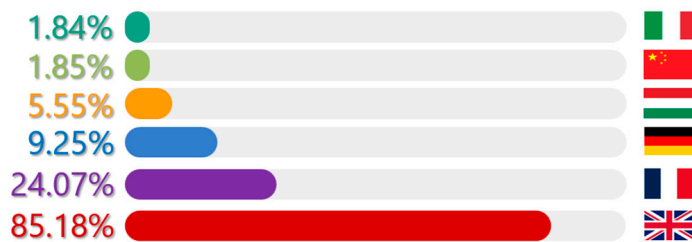


Figure 8. Graphic representation of multilingualism.

The principle of multilingualism is not observed in situations where representations in at least one other language than the official one are not identified, at least partially, at the level of structuring the menu and when presenting the basic content.

Among the 54 university websites analyzed, 47 (representing 87.04%) university websites have content translated into at least one language. Among the university websites with content translated into more than two international languages are UTCN(U17), UB-BCN(U19), UMC(U24), UC(U25), UDG(U27), and UAIC(U30) (Figure 9).

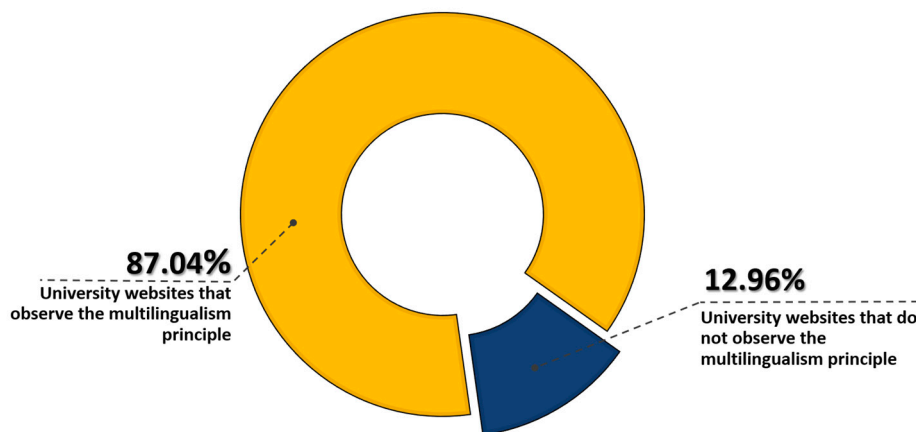


Figure 9. Graphic representation of the principle of multilingualism.

### 7. Perennity

To consider that a website is perennial, it should be checked if it meets the following criteria: there are medium and long-term preservation policies, strategies, and procedures; there is an archive of documents older than 3 years; if they have the old version of the website, it should be reported; the website should use standard file formats. The principle of perennity is not observed in situations where it is not possible to identify archived non-current content on the website, considered relevant for the university and its users.

From the analysis of the websites of the state universities, only 27 websites (representing 50%) fulfill the principle of permanence as they archive on the website the content considered relevant, and 5 of them even have the old version of the website (Figure 10).

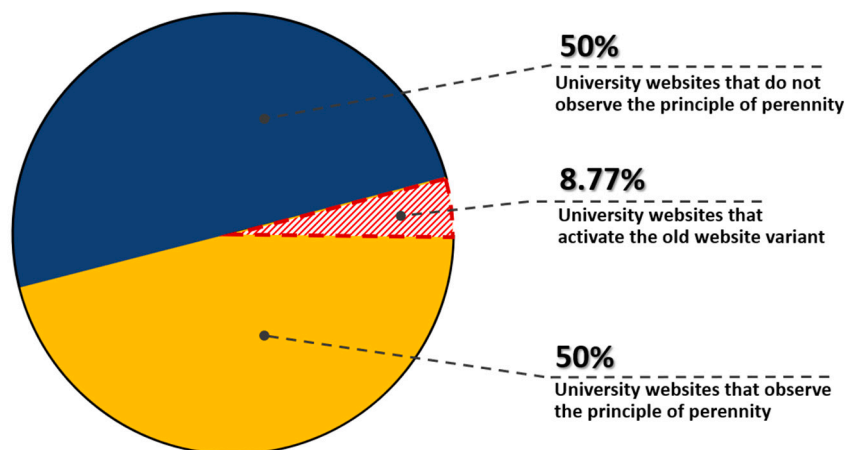


Figure 10. Graphic representation of the principle of perennity.

### 8. Useful Information for the Students

The student pathway was tracked on all websites from the point of view of information resources, from admission to graduation. It was found that the best structured information is related to admission. For this reason, a separate information sub-chapter for admission has been included. A sub-chapter with general information for students has also been included. University websites were analyzed, and, where possible, faculty websites were also analyzed.

The most frequent information for students on the university websites is that regarding timetable, contact details, secretarial programs, virtual tours, exam scheduling, tuition fee payment deadlines, events organized by the university, the completion of bachelor, master, and PhD studies, and the structure of the academic year (Figure 11).

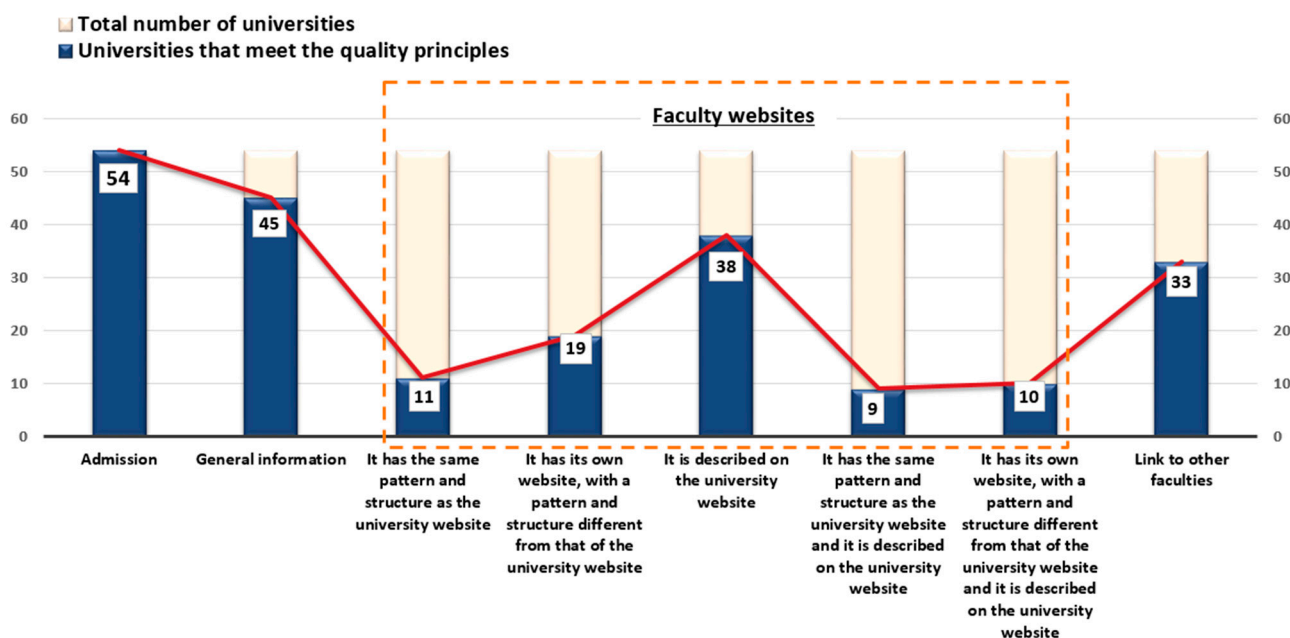


Figure 11. Graphic representation of information for students.

From the analysis of the websites of the 54 university websites, 45 (representing 83.33%) websites provide information in dedicated areas for students.

Other important information for students is that regarding exam grades that can be published on the UMS platform (the electronic student management system UMS (University Management System) is currently used by all universities in Romania (example:

<https://studentweb.uvt.ro/ums/saml/SSO>, accessed on 18 December 2024); students can verify through this platform their personal data and student status, through institutional authentication), student practice, scholarships, student organizations, student guides, internships, dormitories, and downloading courses in electronic format. Each university website develops, in its own way, forms of presenting information for students.

Faculty websites, like university websites, integrate general presentation content, their own information resources, and educational resources such as databases and e-learning applications.

Based on the data collected from the university websites analyzed, following the existence of the faculties' own websites and the relationship with the website of the tutelary university, the following situations regarding the relationship between the college and the university from an online point of view were observed: either they have their own website (having the same or a different pattern and structure from the university website), or they are described on the university website without having a separate website (Figure 12).

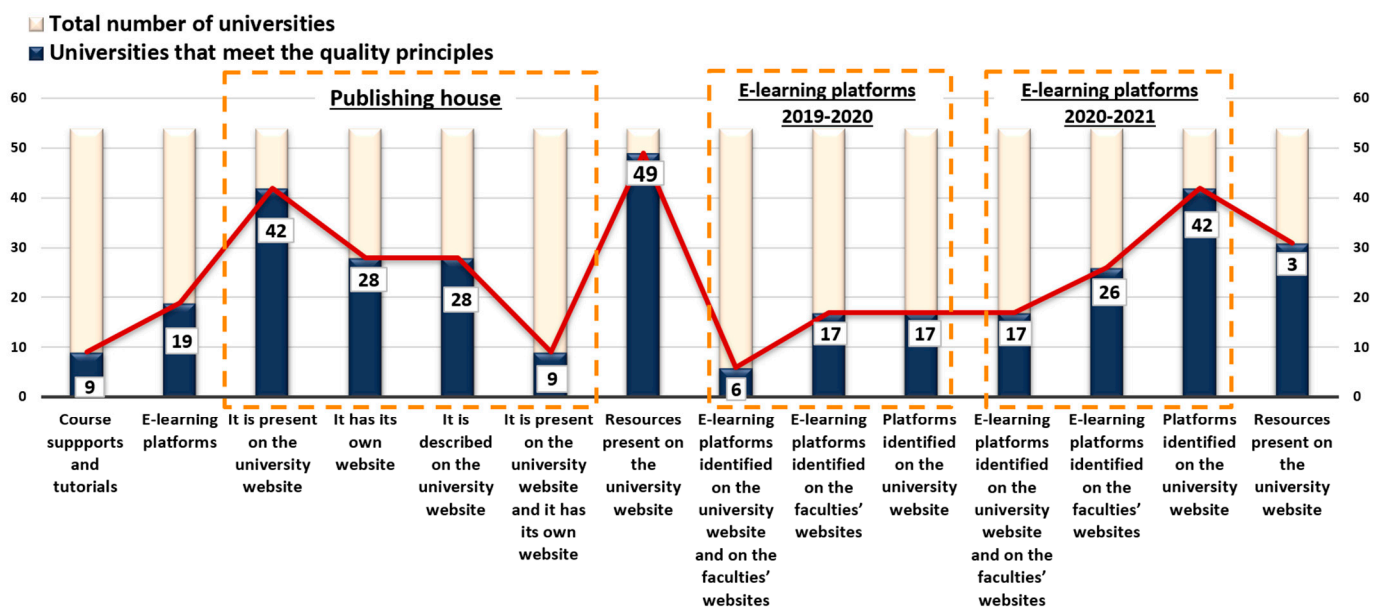


Figure 12. Graphic representation of the user orientation principle form different point of view.

It is important that, on the university website, there is a direct link to the faculty website and not just a mention of the faculty. From the analysis of the websites of the 54 universities, 33 (representing 61.11%) websites have a separate link to their faculties.

### 3.2. Universities' Own Information Resources

Following this criterion for the analysis of the university websites, it was checked whether there are free access course materials and tutorials, both on the websites of the faculties and on the e-learning platforms.

From the analysis carried out, it was noticed that out of the 54 analyzed websites, only 19 (representing 35.19%) offer course supports and tutorials through e-learning platforms and 9 (representing 16.67%) on faculty websites.

#### 9. E-Learning Platforms

Universities provide distance education through specific platforms. In this analysis, the goal was to identify university websites that offer e-learning platforms. Two situations were observed in this research:

- Before the pandemic and in the first half of 2020 (corresponding to the academic year 2019–2020), the situation was according to Figures 13 and 14:

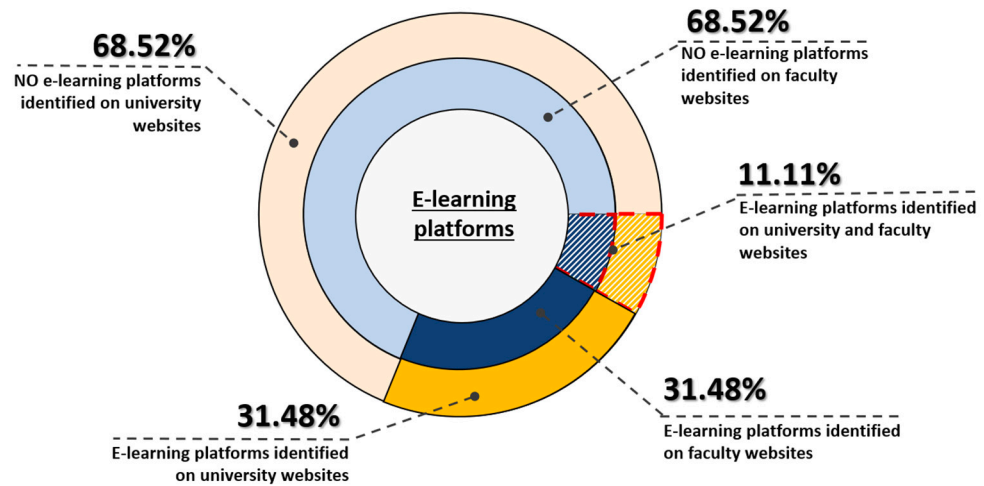


Figure 13. Graphic representation of e-learning platforms (academic year 2019–2022).

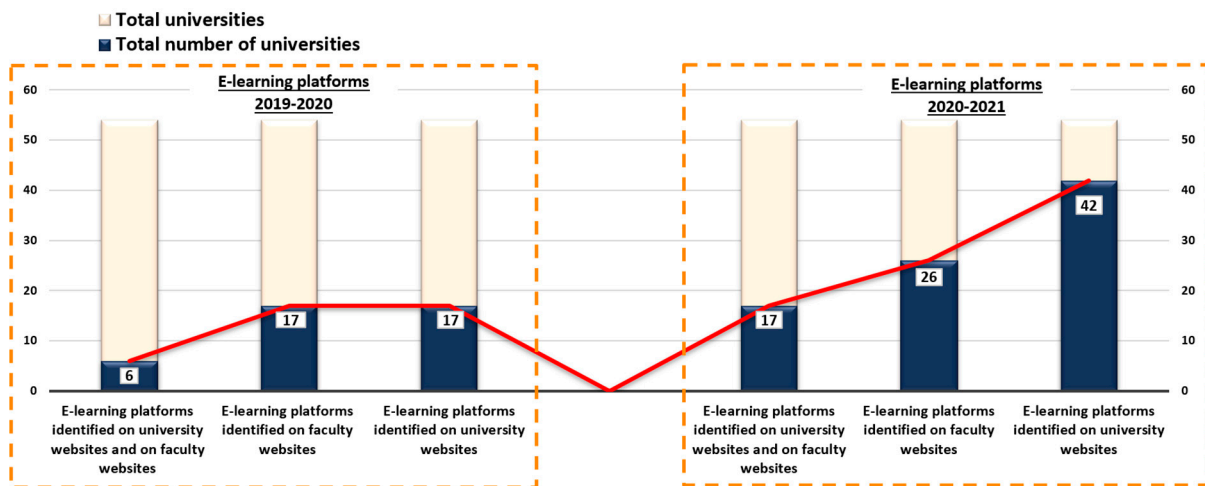


Figure 14. Graphic representation of e-learning platforms.

From the analysis carried out on the websites of the 54 universities, it was noticed that 17 (representing 31.48%) e-learning platforms were identified on the university websites and the same percentage of platforms from the faculty websites. Among the platforms identified on both university and faculty websites, 24 (representing 44.44%) use the Moodle software package, being the most popular for the university environment.

There is the situation where six (representing 11.11%) of the e-learning platforms are found both on the websites of the universities and on the websites of the faculties, such as UPB (<https://cluster.grid.pub.ro/index.php/cursuri-upb-home>, accessed on 23 July 2023), ASE (<https://online.ase.ro/>, accessed on 23 July 2023), UAI (<https://uab.ro/>, accessed on 23 July 2023), UTBV (<https://www.unitbv.ro/> accessed on 23 July 2023), UBBCN (<http://cursuri.elearning.ubbcluj.ro/>, accessed on 23 July 2023), and UNVT (<https://elearning.e-uvt.ro/#>, accessed on 23 July 2023).

- During the pandemic period, when it was mandatory to carry out distance and online didactic activities, universities took care to develop dedicated or open-source e-learning platforms, e.g., the academic year 2020–2021 (Figures 14 and 15).

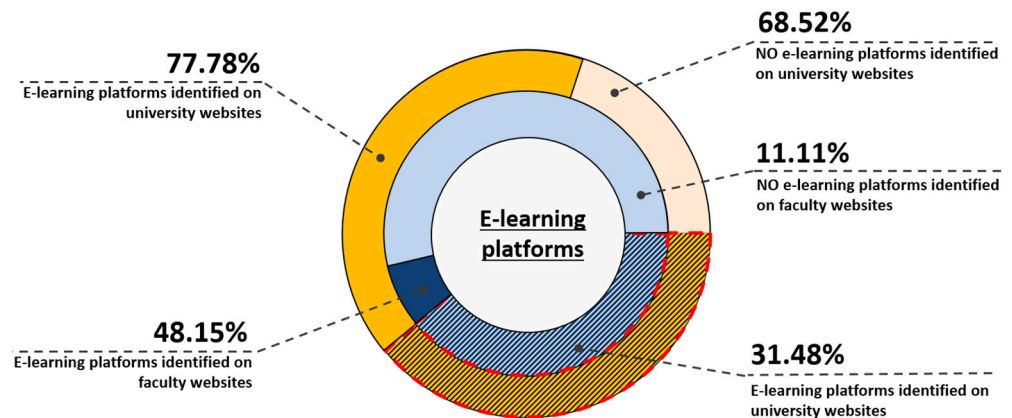


Figure 15. Graphic representation of e-learning platforms (academic year 2020–2021).

The e-learning platforms implemented on the websites of universities and faculties offer various courses, announcements, discussion fora, useful guides, and virtual secretariats, as well as other categories of resources. Only students and teachers have access to them (they are not available to the general public).

#### 10. Publishing Houses

The presence of publishing houses is indicated on most of the websites of the analyzed universities; some of them have only an overview on the website page and a link to the publishing house’s website, or their presence is only indicated, and a link directly to the publishing house’s website is provided.

From the analysis carried out, it was observed that, of the 54 universities, on 42 university websites (representing 77.78%), the publishing house is mentioned, while 12 (representing 22.22%) do not mention the publishing house at all. In the case of reporting the publishing house on the website, the following situations occur: on 28 university websites (representing 51.85%), the publishing house is described on the website and, on the same number of university websites, the publishing house is described on the university website but has its own website.

Publishing house own resources that can be found on the university website are periodicals, collections, specialized volumes, annals, doctoral theses, and various publications (Figure 16).

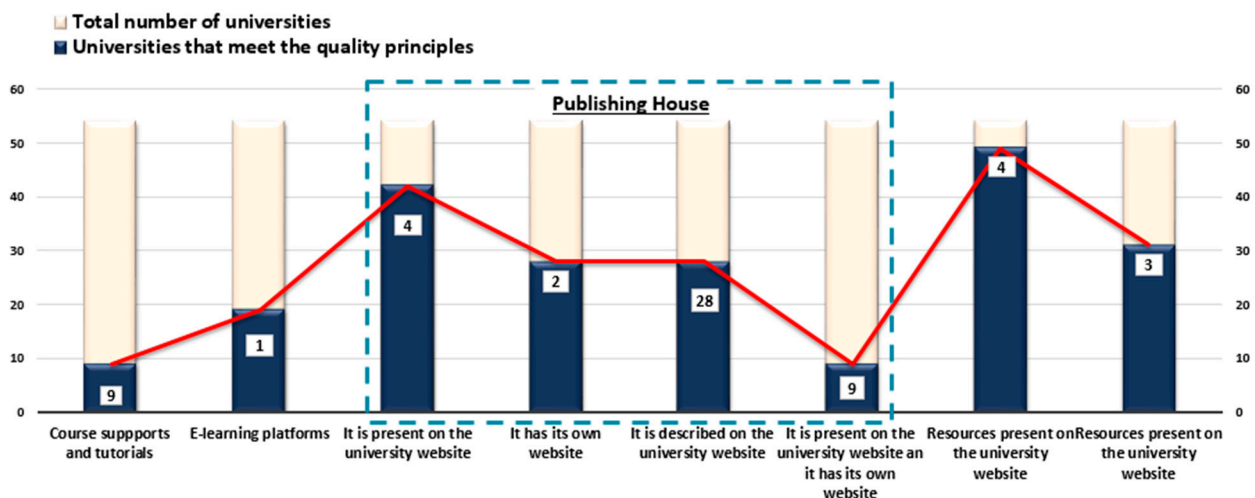
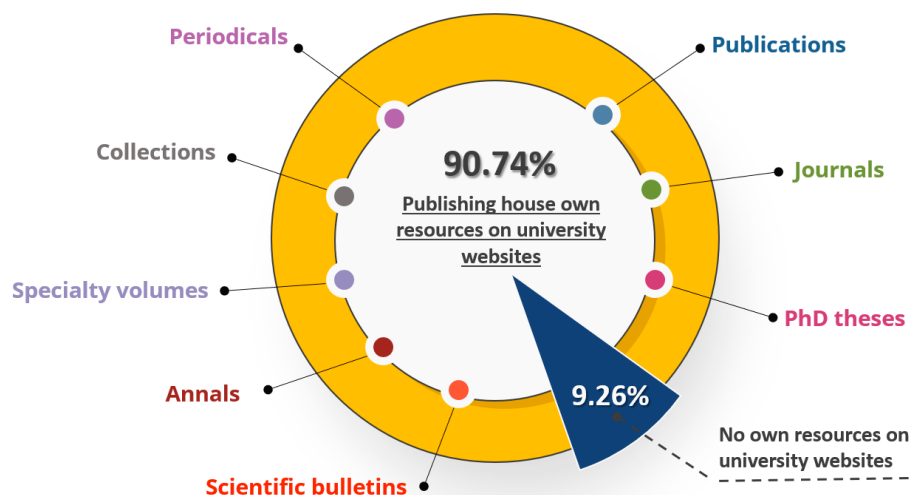


Figure 16. Graphic representation of university publishing houses.

From the analysis carried out, it is observed that out of the 54 universities, 49 universities (representing 90.74%) offer their own resources on the university website. The publishing house own resources offered by the universities on the website are heterogeneous and are presented non-uniformly, the student thus encountering “journals”, “scientific magazines”, “periodical publications” as being from a different typology when, in fact, they all belong to the generic typology of series. Also, in many cases they are presented with the generic name “publications”, without specifying what type of document they represent. Some of these resources are just flagged, but there are also full-text resources.

There are university websites (9.26%) that do not offer any kind of resources, such as UAUIM(U3), UTCN(U17), UAD(U22), UMGPI(U31), and UEM(U37) (Figure 17).



**Figure 17.** Graphical representations of the publishing house own resources on the websites of the universities.

## 11. University Library

University libraries are the main source of information for educational activities, providing access to specialized information products and services in accordance with university specializations. University library websites are, or should be, access portals to information and documentation resources made available to students. In this research, the goal was to look at how the university library is mentioned on university websites, if it has its own website, and the resources made available to users. In this analysis of university libraries, the libraries of 54 universities were considered, including the four central university libraries. In practice, the Central University Library in Timisoara serves the West University of Timisoara; the Cluj Central University Library is considered the library of the Babeş-Bolyai University, the Iasi Central University Library serves the “Alexandru Ioan Cuza” University, and the “Carol I” Bucharest Central University Library serves the University of Bucharest (Figure 18).

The most common product offered by libraries online is the catalogue (OPAC). Through it, libraries provide access to the information and collections they hold. Most of the analyzed university libraries have their electronic catalogue accessible via the web. Of the 54 university libraries that are present online, through their own website or a page on the university website, 43 have an online catalogue. This represents 79.63% of the total number of libraries analyzed (Figure 19).

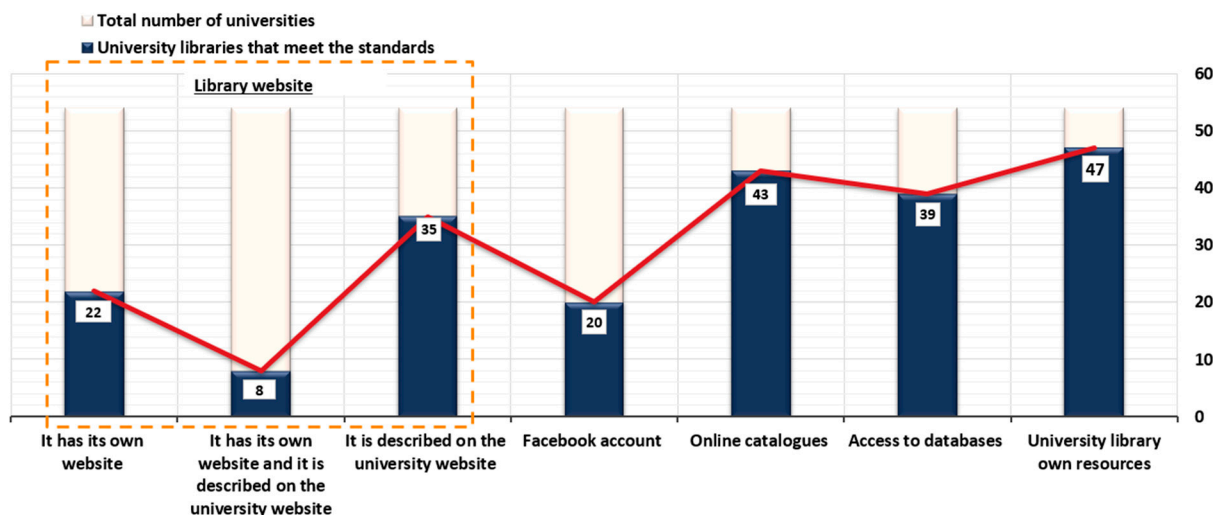


Figure 18. Graphic representation of university libraries.

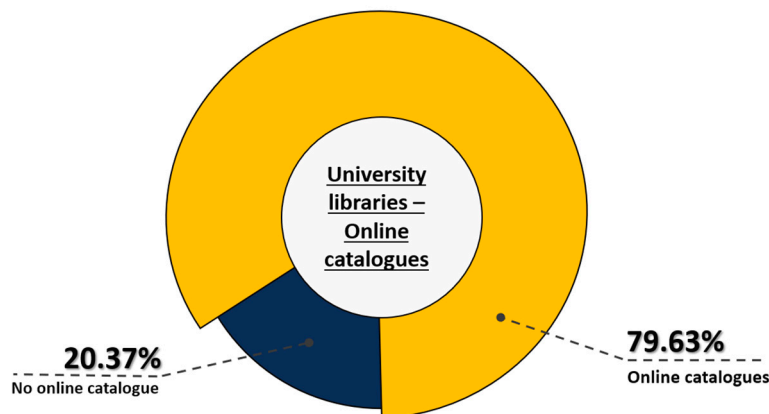


Figure 19. Graphic representation of OPAC of university libraries.

The most complete and representative online open access (OPAC) library catalogues belong to the four central university libraries in Romania—BCU “Lucian Blaga” from Cluj-Napoca, BCU “Mihai Eminescu” from Iași, BCU “Carol I” from Bucharest, and BCU “Eugen Todoran” from Timișoara. There is also a collective national platform, RoLiNeSt, which allows simultaneous searching in Romanian library catalogues.

It is very important for universities and university libraries to provide access to scientific information available in databases. From the data analysis of the 54 university websites, it appears that 39 university libraries (representing 72.22%) offer access to databases through the ANELIS platform [27].

Among the websites analyzed, there are 15 libraries (representing 27.78%) that do not offer access to databases: UTCB(U2), UNAB(U9), UNATC(U10), UNEFS(U11), UTCN(U17), AMGD(U21), UAD(U22), UMC(U24), UEM(U37), UCBTJ(U41), UAT(U44), ANIMB(U51), APAIC(U52), AFAHC(U53), and AFTNBS(U55) (Figure 20).

In addition to brokered access to purchased resources, university libraries can also offer specialized products and services made at the institutional level. From this category of own resources, the most important are the library catalogue (presented above), bibliographies, periodicals, guides, tutorials, guides, and bibliographies for courses. There are situations in which the university uses the library and the library website to provide access to its own resources such as university courses, master and doctoral theses, and reports of research activities. Access to current digital resources, under copyright protection, is usually performed in the library premises, from the institution’s computers.

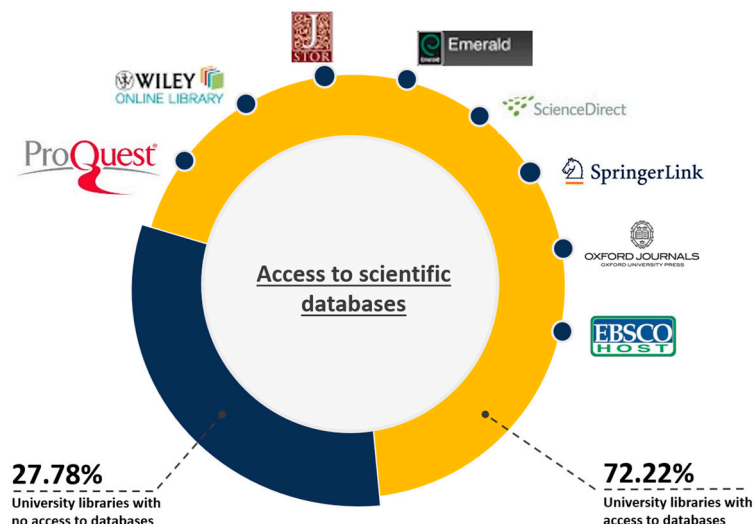


Figure 20. Graphic representation of access to bibliographic databases.

From the analysis of the 54 university library websites, only 47 libraries offer online resources, i.e., 87.04% (Figure 21).

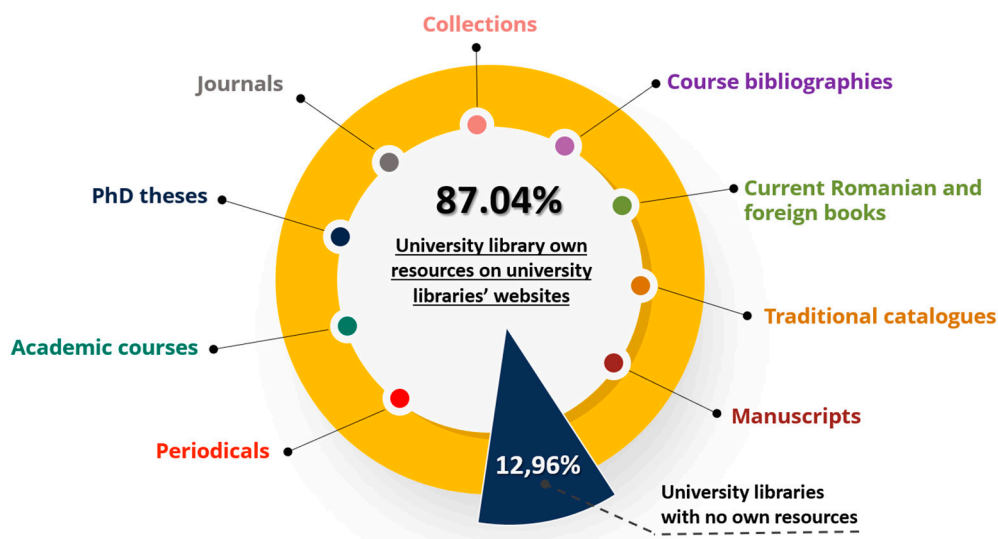


Figure 21. Graphic representation of the university library’s own resources.

It is important to point out in the case of university libraries that they have their own resources, such as digital collections and institutional repositories.

The “Eugen Todoran” Central University Library in Timișoara has two digital collections: the Memory Library which, starting from 2017, publishes at least one document per month from the fields of local or regional history and culture, and the Banatica Fund, accessible from the library’s online catalogue, which includes documents digitized from the institution’s special collections [28].

Another library in Timișoara, the Politehnica University Timisoara Library, offers user and password-controlled access to documents produced at the university level (summaries of doctoral theses, official industrial property bulletins, the *Romanian Industrial Property Magazine*, and Dspace resources) [29].

The other university libraries that have developed digital collections starting from their own documents in the institution’s repositories are as follows: the Library of the University of Architecture and Urbanism has digitized *Architecture Magazine* from the years 1906–1944; the “Carol Davila” UMF Library in Bucharest has created a digital corpus of

documents with bibliographic value [30]; the Library of the University of Agricultural Sciences and Veterinary Medicine in Bucharest mentions, on a special web page, the bibliographic descriptions of some specialized documents, as well as having another page that presents doctoral theses in the field that can be accessed online at the table of contents and summary level [31]; and the “Lucian Blaga” University Library in Sibiu has a special page that displays documents in digital format from the library and the university (books, doctoral theses, periodicals, studies and scientific research, literary works of contemporary authors from Sibiu) [32].

There are representative institutional digital depositories at UTB(U16) and UDG(U27).

#### 4. Discussion

The educational process at the university level essentially consists of putting the student in contact with the teacher and learning resources in an effort to acquire theoretical knowledge and practical skills specific to the professions corresponding to bachelor or master degree specializations.

In this paper, the general topic is the characteristics of the Romanian university environment, strictly from the perspective of the information, utility, and documentation resources offered to students and from the perspective of the way in which they use data from the websites of universities. It should be mentioned that, from this point of view, the relevant state universities (civilian and military) were concerned with the development of their own websites in which the institutional identity is visible but which also serve as the main point of access to the most diverse information resources available to students (documentary resources, administrative and secretarial resources, cultural resources, etc.). More precisely, this study presents the results of the monitoring and analysis of the offer of information resources provided to students by Romanian state universities through their institutional websites. As shown in the methodology, the goal was to assess both the quality of the website according to European quality principles (cf. MINERVA) and the offer of educational resources accessible from the websites of universities and/or faculties, such as general information useful to students regarding existing specializations.

In recent decades, the spectacular evolution of information technology has allowed quick and easy access to adequate, relevant, and up-to-date information resources. The characteristic of the current period is the extraordinary development, especially from a quantitative point of view, of resources in digital format. However, universities are concerned with ensuring a balance in the offer of learning resources in printed and digital formats, even if there is a tendency to use digital resources more than resources on traditional supports.

Information resources represented by digital documents are majorly changing the documentary world, imposing new demands, restrictions, and research and information tools.

The use of digital resources in the university environment highlights the fact that, in the digital space, there is a variety of documentary typologies (articles, publications, and serials up to databases, services, and complex applications); digital resources are used more and more frequently to the detriment of traditional resources; and the effective use of such types of information and documentation resources requires documentation skills and abilities and the use of specific programs and web applications. Insufficient knowledge of the typologies that involve the creation and use of these digital resources can become a barrier in learning and research activities.

A great advantage for higher education institutions is the use of specialized platforms for online meetings in the education process, which offer a multitude of facilities and digital communication tools. At the same time, they are offered free of charge by the developers to support the education system during this pandemic period.

Documentary resources made available by universities to their public can be divided into two broad categories: resources that the university acquires and then brokers access to students, professors and researchers; and the university's own resources (documentary resources resulting from research activities) used as primary sources of information and documentation in educational and research activities. Taking into account this primary classification, the library, institutional repositories, databases, and e-learning platforms can be appreciated as sources or information structures used by students for their didactic activities.

The university library is the student's main interface with access to documentation resources, both in print and digital format. In order to help students, university libraries assume both the role of a source of information and documentation by making available to them the resources appropriate to their information needs, as well as the tools necessary to find information (e.g., catalogues, bibliographies, reference services), and the role of instructor in the use of information (e.g., user training sessions, guides, tutorials, assistance in finding information).

The resources made available by the libraries are, for the most part, purchased resources, subsequently processed by the library staff and signaled in products and retrieval services such as catalogues, bibliographies, guides, and methodologies. The library can also be an author, the creator of its own information resources that it makes available to users. It should be noted that current university libraries carry out their activities and perform specific information services and create products on two levels: in the traditional plan or model, starting from documents on printed media and addressed primarily to users who come to the premises of the library; and in a digital plan or model, making digital products and services available remotely through websites. Since much of the documentary offer of university libraries is based on digital products such as databases and websites, at the level of the basic activities of the institution there is a significant change, in the sense that the focus is shifting from library activities specific to traditional collections to library activities specific to digital resources, and librarians are concerned with acquiring digital skills that they, in turn, try to transfer to users, who thus achieve training in the retrieval and use of digital information.

The information and documentation structures in the university environment, specialized in capitalizing on and promoting their own educational and research resources, are the institutional repositories. The role of institutional repositories is to ensure the appropriate archiving of scientific production carried out at the level of a university and to provide access to it, mainly to its own university community (students, teaching staff, researchers) but also to other university communities in collaborative relationships, cooperation with the institution developing the institutional repository, or even free Internet access for part of the content.

Institutional repositories are products of information technology that ensure the increase in the impact and promotion of teaching and research activities within a university or research institution, through the management and dissemination of digital scientific documents. The main objective of institutional repositories is to provide open access to scientific results from an institution: in the case of universities, they can also be used for teaching purposes and as a digital repository of educational materials.

Institutional repositories allow the visibility and impact of research to be increased, attracting new members of the academic and student communities. They also consider ensuring the long-term preservation of academic and didactic materials and, in some cases, the digitization and conversion of existing materials. It is important to implement an institutional repository in a university, to increase the visibility and citation of scientific works created by community members, to provide free and unified access to research and

teaching materials, and to ensure the preservation of digital documents created at the institution level [33].

Regarding the number of institutional repositories and the amount of documents contained, the contrast is obvious between developed and developing countries. The causes can be the amount of scientific production existing in each university, the preference to publish in databases with a higher visibility than repositories, the research investments, and the staff specialization.

In the Romanian university area, institutional repositories are in a rather small number compared to the total number of universities (22 institutional repositories in the academic environment compared to 95 universities specified on the website of the Ministry of Education) [34]. As stated in Annex no. 2, 25 institutional repositories are identified in 22 institutions (19 in the academic environment and 6 in medical centers, publishing houses, and research centers), but not all are functional and not all have a significant content.

The situation of the 25 identified institutional digital repositories is as follows:

- Fourteen digital repositories are identified in the DuraSpace register, of which only seven are functional;
- Seven functional digital repositories are identified in the OpenDOAR register;
- Seventeen digital repositories are identified in the ROAR register, of which only eleven are functional;
- Three digital repositories (RESTITUTIO from the Central Library of the Carol I University, the Digital Library from the “Astra” Sibiu County Library, and the UPT Library from the Central Library of the Politehnica University of Timisoara) are not registered in any international register.

The most popular and used digital products in the university environment are databases. They offer digital resources organized and structured according to predetermined rules and a unitary informational content easily accessible from a distance. Scientific databases are of a varied typology, from all scientific fields, and their developers and providers of information services and products are concerned with providing a series of tools to help users find and evaluate information resources.

Romanian universities benefit from the advantages offered by the Anelis PLUS project platform, which allows them to associate in order to advantageously purchase databases from specialized suppliers. Each university in the Anelis consortium purchases databases according to its areas of specialization and a number of access licenses relative to the number of enrolled students.

Along with learning resources found in libraries, institutional repositories, and databases, e-learning platforms developed or acquired by universities are particularly important. The pandemic has revealed the situation of such platforms that allow distance teaching activity. The involvement of higher education institutions in finding the necessary solutions for remote activities, in a very short time, showed that not all universities could keep up with the available technologies.

The offer of educational resources and services to students by the university during the pandemic period was very limited, and the communication process regarding the development of university activities was deficient.

Universities use the website as the main tool of information; of institutional promotion; of recruiting potential students by providing various types of information on existing majors; and of communicating with students through course information, timetables, curricula, and other online activities. Also, university websites are used as a means and instrument of information and documentation for educational and research activities by making available digital educational resources and platforms that allow distance teaching activity.

During the period in which the websites of Romanian universities were monitored, i.e., December 2021–March 2022, rather modest dynamics in terms of the informational content (updates especially in the area of platforms used for distance education)—and even changes in the number of websites—were noticed.

Beyond the partial conclusions drawn at the level of the general presentation of the results, a series of general assessments regarding the quality of Romanian university websites from the perspective of their informational offer and their functionality can be made.

A first observation would be related to the websites of private universities (where these websites exist) which are of poor quality, without functionality for students, and without the offer of online digital resources (in most cases).

Synthesizing all the aspects related to the analysis of the current state of Romanian university websites in the digital environment, of the web services offered by them to their users, from the perspective of information and documentation resources, the following assessments can be formulated [35].

#### 4.1. Positive Aspects

- Universities' concern to be present in the online environment and to have a well-defined digital institutional identity;
- Universities' concern to make available digital resources appropriate to their specializations and to create a digital learning and research environment;
- University websites include basic information for students: timetable, contact details, secretariat programs, virtual tours, educational plans, exam schedules, events organized by the university, structure of the academic year, tuition fees;
- All websites provide users with interactivity aspects such as newsletters, forms to fill in, social networks, questionnaires, student fora, e-mail, typed forms, student cards (UMS);
- Some of the resources on the university websites are also available on the faculty websites;
- Databases and other online resources can be found on most university websites (most users access databases through the ANELIS consortium: e.g., EBSCO, Proquest, Springerlink, Oxford Journals);
- The content of the websites is updated;
- Libraries offer documents dedicated to distance education such as books, brochures, serial publications, and reference works; however, in order to be truly accessed by distance learning students, they will have to diversify and increase the offer of products and services in a digital format through digitizing collections and documents held. Most libraries offer remote access to online catalogues.

#### 4.2. Vulnerabilities

- University websites are not designed, developed, and maintained, in many situations, observing the principles of quality and functionality regarding the design of websites and the structuring of digital content according to the literature;
- A great vulnerability for universities is the fact that they do not keep and archive their website information with permanent value. Much of the information accumulated from their current activity (which would traditionally constitute much of their archive) disappears;
- Multilingualism remains at the level of the university's general presentation. The structure of the website remains unchanged in the foreign language version. Functional aspects in another language are in a very low percentage;

- Special attention is paid by universities to general information on admission much more than information for students on the completion of studies;
- In many situations, there are problems with the functionality of the website: accessibility of information, very loaded websites, display problems, the information scrolls endlessly, links to certain resources are non-functional; for example, the website of the “Gr. T. Popa” University of Medicine and Pharmacy in Iași was reported to be under reconstruction during the first period of data collection. It is not recommended for a university to have a website under reconstruction for so long (almost a year) and not offer another alternative such as the old version of the website;
- It can be observed that the number of faculties that have the same structure and template as the university website is quite small, only 11 universities (20.37%). A vulnerability of university websites is that, in many cases, faculties develop their own website structure and deviate from the university website structure;
- There are very few professional e-learning platforms; most of the monitored universities use free applications, but the pandemic crisis period made their number increase; the most used learning platform or course management system is Moodle (2023);
- University libraries are mentioned on university websites, but very few of them have their own website that would allow them to promote their information products and services; most libraries have a page on the university website, but their description is minimal and the offer of information resources is limited; even their own collections are not entirely on public display; from the analysis of the university websites, a major existing discrepancy was observed between the websites of the four central university libraries and the other forms of online presence of the other libraries of higher education institutions;
- Just like libraries and university publishing houses, they are presented non-unitarily, and assessments cannot be made regarding the value and accessibility of publications;
- In the case of university websites that should have the role of a learning resource, it was found that they fulfill their purpose to a small extent. Their own learning resources are hardly visible. Course materials and tutorials are very few on the faculty websites. Students cannot access the information or have difficulty finding it. Deficiencies can be corrected if universities design their own websites, taking into account the norms and rules imposed by ICT theories and practices.

In order to improve the quality of the website and communication with its users, below is a minimal set of measures that would make the online interaction of the university with its users more efficient:

- The websites of the faculties/universities should be permanently updated and checked daily from the point of view of security;
- All the information and documentation resources present on the website should be organized in a single section to facilitate finding them;
- All the websites of the faculties should adopt the same unitary structure of presentation of information and be in agreement with the presentation website of the university;
- A chat or online reference section should be introduced, where the user can receive an answer in the shortest possible time from a specialized person;
- The websites of the faculties/universities should introduce a section with frequent questions;
- The institution’s website should also be adapted for Android/iOS systems, so that it can be used on a phone/tablet.

### 4.3. Recommendations

To meet all the requirements and needs regarding the online presence of the institution and the offer of information resources needed by the academic community, the following characteristics should be met:

From the point of view of the quality principles taken into account for the interpretation of the collected data, namely the MINERVA principles [23]:

- It should be easily identifiable. The name of the university and/or faculty should be clear and visible on the host page. The website should contain the name of the website, specifying its mission and objectives, the name of the institution, and essential information that guarantees a better user experience and higher enrollment rates;
- It should have its own visual identity, design features, and graphics;
- It should have a relevant content (all resources should be correctly identifiable, with the existence of a menu and search function, guiding the user through external and internal links to the information sought); it should check the content of the website periodically and update it whenever necessary;
- It should have the content of the website translated at least into another international language, and the content variants in the two languages should be identical;
- It should have the old version of the website, as well as older information of interest to users, archived;
- It should be interactive to make available to its users various applications that allow them to interact with each other (students, teachers, administrative staff) or to react to the informational content of the website (express opinions, ask questions, request information, use specific applications).
- From the point of view of technical conditions:
- It should be adapted for any type of system so that it can be accessed from any device (tablet, smartphone, or computer);
- It should meet compatibility and accessibility requirements in accordance with the specifications of the World Wide Web Consortium (W3C), the recommendations of the Web Accessibility Initiative (WAI), and the Web Content Accessibility Guidelines (WCAG 2.0);
- It should be compatible with all current internet browsers (Firefox, Chrome, Opera, Edge), to be able to correctly display the website's content.

In terms of structure:

- It should have a simple, personalized, and up-to-date design;
- It should have website pages with the same unitary format;
- It should have a clear and explicit menu, allowing easy navigation and the finding of information quickly; the display time and switching from one page to another should not take longer than necessary;
- It should have a top navigation bar with a low profile and a coherent appearance found on all the pages of the website to help users orient themselves in the informational content;
- It should have pages with the same writing and technical editing style as the rest of the website pages;
- It should have titles on each page standing out by color or font size and consistent with the other pages on the website;
- It should have a "Help" section with access to a page with information necessary to use the content and applications on the website;
- It should have a "Website Map" section to help users understand the structure of the website so that they can orient themselves in finding the information of interest;

- It should have, if a page or the entire website is under construction, an alternative website or old version of the website that should be uploaded.

In terms of content:

- The information and documentation resources present on the website should be organized in a single section to make it easier for users to search;
- The information on the website should be distributed and structured in several forms (the main navigation menu, possibly a second navigation bar, sidebar, footer, and several navigation elements on the page);
- It should use as diverse a content as possible (videos to film various events held in the university or college, interviews with students about their experience on campus, a video tour of classrooms, other activities);
- It should have visible links to the websites of the faculties;
- There should be the same unitary structure on all the websites of the faculties;
- It should have an information search box in the website (“Search”) for quickly finding topics of interest in the web pages of the website;
- It should allow feedback after testing from users, so that they can send comments and suggestions related to the use of the website;
- It should have links to information resources (publications, courses, guides, forms, timetables) to be checked and updated permanently;
- It should provide guides and tutorials for training on the use of databases, e-learning platforms, and other applications on the website;
- It should describe the library and publishing house, with information about them, a description, and links to the resources offered.

## 5. Conclusions

The academic environment and its social mission are being redefined; a number of important aspects in the field of Romanian education and teaching have changed, especially after the COVID-19 crisis, including the following:

- Importance of digital technologies in education: the adoption of digital technologies in the education process, such as distance learning and the use of online teaching platforms, has accelerated [36]. These technologies have enabled the continuation of the education process during the pandemic period, and, if continued, they can bring long-term benefits to education;
- Disparities in access to education: the pandemic has highlighted significant differences in access to education between socio-economic and geographic groups. Students from poor families or rural areas had less access to digital technologies and learning resources, which affected their ability to attend classes and learn [37];
- Need for flexibility in the education system: education systems should be more flexible and adaptable to crisis situations. It is important that educational institutions are prepared to cope with rapid changes and provide varied learning options for pupils and students [38];
- Important role of teachers and their continuous training: teachers are essential in the education process, and it is important to be prepared to use digital technologies and adapt the education process to the needs of students [37]. The continuous training and development of teachers is essential to improve the quality of education and to cope with the rapid changes in the field of education.

University-level training cannot be conceived today without adequate digital learning and research resources. A university can consider that it fulfills its mission towards the community if it develops strategies and adapts measures that allow educational activity at

the highest possible qualitative level, access to information and documentation resources on traditional supports through the library and, above all, on digital supports, and creating an appropriate university and community context in which students, teachers, employers, and alumni can be found.

The university website is the main source of useful information for students, and, therefore, universities should be concerned with developing quality websites observing the principles of the representation of information in the digital environment.

The period of the COVID-19 pandemic crisis highlighted the importance of remote access to information resources, as well as the importance of ensuring communication and interactions between students, teachers, and administrative staff. Implicitly, the authors highlight the role of the university's website as a source of information for the academic community. Following the monitoring of university websites, some concrete measures to improve this information and communication resource emerged.

First of all, it has been observed that, when a university carries out distance educational activities, whether it proposes these through its institutional development strategy, or is forced into them in a situation of force majeure such as the pandemic situation, the university website becomes the main information and communication resource that the institution makes available to its users. Therefore, a quality university website that meets both the needs of the institution and the needs of the community served should ensure the ICT infrastructure for the possibility of distance communication and, implicitly, the possibility of the development of distance education; it should also ensure a generous offer of information and documentation resources in the form of databases and resources offered by libraries but also as its own resources created at the university level.

Universities should ensure continuity in the development of didactic activities, by making available several educational resources, platforms, and institutional repositories necessary to carry out their specific activities. The tendency to appreciate the quality of the educational offer of a university according to the digital collaborative environment that it makes available to the academic community in the form of the general ICT infrastructure, the e-learning and communication platforms used, and the information and digital format documentation resources is becoming more and more evident.

The analysis carried out following the monitoring of university websites in Romania shows, first of all, their heterogeneity as different representations of digital content, the non-unitary structure of the university representation in relation to the presentation at the faculty level, and non-compliance with quality principles regarding websites, which makes that information, in many situations, difficult to identify on the website; if users do not have interaction tools at their disposal, accessibility cannot be achieved in optimal parameters. From the point of view of digital information and documentation resources, the university website is or should be the main source of access and information; new documentation typologies and new practices for information are required [39,40].

From the analysis carried out, it is clear that, even if they contain information resources intended for students, in many cases they are presented inadequately or confusingly: there are situations where there are contradictions between the information mentioned at the university level and the information maintained at the faculty level; the library and the publishing house are difficult to find on the university website; and the own resources made at the faculty or university level are few. Many universities have not yet realized the important role that the website has in supporting educational and research activities, as well as in promoting the institution in the community environment.

This type of monitoring will be resumed over a period of five years, in order to observe the dynamics of the process of adapting and improving the quality of Romanian university websites.

The observations and conclusions drawn from this study could be useful to students and members of academic communities in their current didactic and/or research activities, and the monitoring model can be taken and applied to the evaluation of any type of website in academic environments from different countries.

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## Appendix A. List of Romanian Universities: Names, Acronyms (Abbreviations), Identification Code in the Work, Web Addresses, City

Nr. Crt.	University Name	Acronym	Code	Web Address (Accessed on 17 July 2023)	City
State civil higher education institution					
1	UNIVERSITY POLYTECHNICA OF BUCHAREST	UPB	U1	<a href="http://www.upb.ro">www.upb.ro</a>	Bucharest
2	TECHNICAL UNIVERSITY OF CIVIL ENGINEERING BUCHAREST	UTCB	U2	<a href="http://www.utcb.ro">www.utcb.ro</a>	Bucharest
3	“ION MINCU” UNIVERSITY OF ARCHITECTURE AND URBANISM FROM BUCHAREST	UAUIM	U3	<a href="http://www.uauim.ro">www.uauim.ro</a>	Bucharest
4	UNIVERSITY OF AGRONOMIC SCIENCES AND VETERINARY MEDICINE IN BUCHAREST	USAMVB	U4	<a href="http://www.usamv.ro">www.usamv.ro</a>	Bucharest
5	UNIVERSITY OF BUCHAREST	UNIBUC	U5	<a href="http://www.unibuc.ro">www.unibuc.ro</a>	Bucharest
6	“CAROL DAVILA” UNIVERSITY OF MEDICINE AND PHARMACY FROM BUCHAREST	UMFCD	U6	<a href="https://umfcd.ro">https://umfcd.ro</a>	Bucharest
7	ACADEMY OF ECONOMIC STUDIES FROM BUCHAREST	ASE	U7	<a href="http://www.ase.ro">www.ase.ro</a>	Bucharest
8	NATIONAL UNIVERSITY OF MUSIC FROM BUCHAREST	UNMB	U8	<a href="http://www.unmb.ro">www.unmb.ro</a>	Bucharest
9	NATIONAL UNIVERSITY OF ARTS FROM BUCHAREST	UNAB	U9	<a href="http://www.unarte.org">www.unarte.org</a>	Bucharest
10	“ILCARAGIALE” NATIONAL UNIVERSITY OF THEATER AND CINEMA ARTS IN BUCHAREST	UNATC	U10	<a href="http://www.unatc.ro">www.unatc.ro</a>	Bucharest
11	NATIONAL UNIVERSITY OF PHYSICAL EDUCATION AND SPORT IN BUCHAREST	UNEFES	U11	<a href="http://www.unefes.ro">www.unefes.ro</a>	Bucharest
12	NATIONAL SCHOOL OF POLITICAL AND ADMINISTRATIVE STUDIES FROM BUCHAREST	SNSPA	U12	<a href="http://www.snspe.ro">www.snspe.ro</a>	Bucharest
13	“1 DECEMBER 1918” UNIVERSITY OF ALBA IULIA	UAI	U13	<a href="http://www.uab.ro">www.uab.ro</a>	Alba Iulia
14	“AUREL VLAICU” UNIVERSITY FROM ARAD	UAV	U14	<a href="http://www.uav.ro">www.uav.ro</a>	Arad
15	“VASILE ALECSANDRI” UNIVERSITY FROM BACAU	UB	U15	<a href="http://www.ub.ro">www.ub.ro</a>	Bacău
16	TRANSYLVANIA UNIVERSITY FROM BRASOV	UTB	U16	<a href="http://www.unibv.ro">www.unibv.ro</a>	Braşov
17	TECHNICAL UNIVERSITY OF CLUJ-NAPOCA	UTCN	U17	<a href="http://www.utcluj.ro">www.utcluj.ro</a>	Cluj-Napoca
18	CLUJ-NAPOCA UNIVERSITY OF AGRICULTURAL SCIENCES AND VETERINARY MEDICINE	USAMVCN	U18	<a href="http://www.usamvcluj.ro">www.usamvcluj.ro</a>	Cluj-Napoca
19	“BABEŞ-BOLYAI” UNIVERSITY FROM CLUJ-NAPOCA	UBBCN	U19	<a href="http://www.ubbcluj.ro">www.ubbcluj.ro</a>	Cluj-Napoca
20	“IULIU HAŢEGANU” UNIVERSITY OF MEDICINE AND PHARMACY FROM CLUJ-NAPOCA	UMFCN	U20	<a href="http://www.umfcluj.ro">www.umfcluj.ro</a>	Cluj-Napoca

Nr. Crt.	University Name	Acronym	Code	Web Adress (Accessed on 17 July 2023)	City
21	"GHEORGHE DIMA" ACADEMY OF MUSIC FROM CLUJ-NAPOCA	AMGD	U21	<a href="http://www.amgd.ro">www.amgd.ro</a>	Cluj-Napoca
22	UNIVERSITY OF ART AND DESIGN IN CLUJ-NAPOCA	UAD	U22	<a href="http://www.uad.ro">www.uad.ro</a>	Cluj-Napoca
23	"OVIDIUS" UNIVERSITY IN CONSTANTA	UOC	U23	<a href="http://www.univ-ovidius.ro">www.univ-ovidius.ro</a>	Constanța
24	MARITIME UNIVERSITY OF CONSTANTA	UMC	U24	<a href="https://cmu-edu.eu/">https://cmu-edu.eu/</a>	Constanța
25	THE UNIVERSITY OF CRAIOVA	UC	U25	<a href="https://www.ucv.ro">https://www.ucv.ro</a>	Craiova
26	UNIVERSITY OF MEDICINE AND PHARMACY OF CRAIOVA	UMFC	U26	<a href="http://www.umfcv.ro">www.umfcv.ro</a>	Craiova
27	"LOWER DANUBE" UNIVERSITY FROM GALAȚI	UDG	U27	<a href="http://www.ugal.ro">www.ugal.ro</a>	Galați
28	"GHEORGHE ASACHI" TECHNICAL UNIVERSITY FROM IAȘI	UTGAG	U28	<a href="http://www.tuiasi.ro">www.tuiasi.ro</a>	Iași
29	"ION IONESCU DE LA BRAD" UNIVERSITY OF AGRICULTURAL SCIENCES AND VETERINARY MEDICINE FROM IASI	UAIASI	U29	<a href="http://www.uaiasi.ro">www.uaiasi.ro</a>	Iași
30	"ALEXANDRU IOAN CUZA" UNIVERSITY FROM IASI	UAIC	U30	<a href="http://www.uaic.ro">www.uaic.ro</a>	Iași
31	"GRIGORE T. POPA" UNIVERSITY OF MEDICINE AND PHARMACY FROM IASI	UMFGPI	U31	<a href="http://www.umfiasi.ro">www.umfiasi.ro</a>	Iași
32	"GEORGE ENESCU" NATIONAL UNIVERSITY OF ARTS FROM IAȘI	UAGEI	U32	<a href="http://www.arteiasi.ro">www.arteiasi.ro</a>	Iași
33	THE UNIVERSITY OF ORADEA	UO	U33	<a href="http://www.uoradea.ro">www.uoradea.ro</a>	Oradea
34	UNIVERSITY OF PETROSANI	UP	U34	<a href="http://www.upet.ro">www.upet.ro</a>	Petroșani
35	UNIVERSITY OF PITEȘTI	UPIT	U35	<a href="http://www.upit.ro">www.upit.ro</a>	Pitești
36	UNIVERSITY OF PETROLEUM AND GAS FROM PLOIESTI	UPGP	U36	<a href="http://www.upg-ploiesti.ro">www.upg-ploiesti.ro</a>	Ploiești
37	"EFTIMIE MURGU" UNIVERSITY FROM REȘIȚA	UEM	U37	<a href="http://www.uem.ro">www.uem.ro</a>	Reșița
38	"LUCIAN BLAGA" UNIVERSITY FROM SIBIU	ULBS	U38	<a href="http://www.ulbsibiu.ro">www.ulbsibiu.ro</a>	Sibiu
39	ȘTEFAN CEL MARE" UNIVERSITY FROM SUCEAVA	USV	U39	<a href="http://www.usv.ro">www.usv.ro</a>	Suceava
40	"VALAHIA" UNIVERSITY FROM TÂRGOVIȘTE	UVT	U40	<a href="http://www.valahia.ro">www.valahia.ro</a>	Târgoviște
41	"CONSTANTIN BRANCUȘI" UNIVERSITY FROM TÂRGU JIU	UCBTJ	U41	<a href="http://www.utgjiu.ro">www.utgjiu.ro</a>	Târgu Jiu
42	"PETRU MAIOR" UNIVERSITY FROM TÂRGU MUREȘ UNIVERSITY OF MEDICINE AND PHARMACY "GEORGE EMIL PALADE" FROM TARGU MUREȘ *	UPM UMFTM	U42 U43	<a href="http://www.upm.ro">www.upm.ro</a> <a href="http://www.umftgm.ro">www.umftgm.ro</a>	Târgu Mureș
43	UNIVERSITY OF ARTS FROM TÂRGU MUREȘ	UAT	U44	<a href="http://www.uat.ro">www.uat.ro</a>	Târgu-Mureș
44	TIMISOARA POLYTECHNIC UNIVERSITY	UPT	U45	<a href="http://www.upt.ro">www.upt.ro</a>	Timișoara
45	UNIVERSITY OF AGRICULTURAL SCIENCES AND VETERINARY MEDICINE OF BANAT "KING MIHAI I OF ROMANIA" FROM TIMIȘOARA	USAB	U46	<a href="http://www.usab-tm.ro">www.usab-tm.ro</a>	Timișoara
46	WEST UNIVERSITY OF TIMIȘOARA	UVT	U47	<a href="http://www.uvt.ro">www.uvt.ro</a>	Timișoara
47	"VICTOR BABEȘ" UNIVERSITY OF MEDICINE AND PHARMACY FROM TIMIȘOARA	UMFT	U48	<a href="http://www.umft.ro">www.umft.ro</a>	Timișoara
State higher education institutions with a military profile					
1	MILITARY TECHNICAL ACADEMY FROM BUCHAREST	MTA	U49	<a href="http://www.mta.ro">www.mta.ro</a>	Bucharest
2	"CAROL I" NATIONAL DEFENSE UNIVERSITY IN BUCHAREST	UNAP	U50	<a href="http://www.unap.ro">www.unap.ro</a>	Bucharest
3	NATIONAL ACADEMY OF INFORMATION "MIHAI VITEAZUL" FROM BUCHAREST	ANIMB	U51	<a href="http://www.animv.ro">www.animv.ro</a>	Bucharest
4	"ALEXANDRU IOAN CUZA" POLICE ACADEMY FROM BUCHAREST	APAIC	U52	<a href="http://www.academiadepolitie.ro">www.academiadepolitie.ro</a>	Bucharest
5	"HENRI COANDĂ" AIR FORCE ACADEMY IN BRAȘOV	AFAHC	U53	<a href="http://www.afahc.ro">www.afahc.ro</a>	Brașov
6	"MIRCEA THE OLD" NAVAL ACADEMY FROM CONSTANTA	ANMB	U54	<a href="http://www.anmb.ro">www.anmb.ro</a>	Constanța
7	"NICOLAE BĂLCESCU" LAND FORCES ACADEMY FROM SIBIU	AFTNBS	U55	<a href="https://www.armyacademy.ro/engleza/">https://www.armyacademy.ro/engleza/</a>	Sibiu
Privately accredited higher education institutions					
1	"DIMITRIE CANTEMIR" CHRISTIAN UNIVERSITY FROM BUCHAREST		U56	<a href="http://www.ucdc.ro">www.ucdc.ro</a>	Bucharest
2	"TITU MAIORESCU" UNIVERSITY FROM BUCHAREST		U57	<a href="http://www.utm.ro">www.utm.ro</a>	Bucharest
3	"NICOLAE TITULESCU" UNIVERSITY FROM BUCHAREST		U58	<a href="http://www.univnt.ro">www.univnt.ro</a>	Bucharest
4	ROMANIAN-AMERICAN UNIVERSITY IN BUCHAREST		U59	<a href="http://www.rau.ro">www.rau.ro</a>	Bucharest
5	"HYPERION" UNIVERSITY IN BUCHAREST		U60	<a href="http://www.hyperion.ro">www.hyperion.ro</a>	Bucharest

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6	"SPIRU HARET" UNIVERSITY FROM BUCHAREST		U61	<a href="http://www.spiruharet.ro">www.spiruharet.ro</a>	Bucharest
7	BIOTERRA UNIVERSITY OF BUCHAREST		U62	<a href="http://www.bioterra.ro">www.bioterra.ro</a>	Bucharest
8	ECOLOGICAL UNIVERSITY OF BUCHAREST		U63	<a href="http://www.ueb.ro">www.ueb.ro</a>	Bucharest
9	ROMANIAN UNIVERSITY OF SCIENCES AND ARTS "GHEORGHE CRISTEA" IN BUCHAREST		U64	Pagină indisponibilă	Bucharest
10	ATHENAEUM UNIVERSITY OF BUCHAREST		U65	<a href="http://www.nou.univath.ro">www.nou.univath.ro</a>	Bucharest
11	ARTIFEX UNIVERSITY OF BUCHAREST		U66	<a href="http://www.artifex.org.ro">www.artifex.org.ro</a>	Bucharest
12	FINANCIAL-BANKING UNIVERSITY OF BUCHAREST—Specializations/Programs of undergraduate studies in the structure of the higher education institution have been in liquidation starting with the academic year 2014–2015		U67	Pagină indisponibilă	Bucharest
13	"VASILE GOLDIȘ" WEST UNIVERSITY OF ARAD		U68	<a href="http://www.uvvg.ro">www.uvvg.ro</a>	Arad
14	"GEORGE BACOVIA" UNIVERSITY FROM BACĂU		U69	<a href="http://www.ugb.ro">www.ugb.ro</a>	Bacău
15	"GEORGE BARIȚIU" UNIVERSITY OF BRAȘOV		U70	Pagină indisponibilă	Brașov
16	UNIVERSITATEA "BOGDAN VODĂ" DIN CLUJ-NAPOCA		U71	<a href="http://www.ubv.ro">www.ubv.ro</a>	Cluj-Napoca
17	UNIVERSITATEA "AVRAM IANCU" DIN CLUJ-NAPOCA		U72	Pagină indisponibilă	Cluj-Napoca
18	UNIVERSITATEA "SAPIENTIA" DIN CLUJ-NAPOCA		U73	<a href="http://www.sapientia.ro">www.sapientia.ro</a>	Cluj-Napoca
19	DANUBIUS UNIVERSITY FROM GALAȚI		U74	<a href="http://www.univ-danubius.ro">www.univ-danubius.ro</a>	Galați
20	"ANDREI ȘAGUNA" UNIVERSITY FROM CONSTANTA		U75	<a href="http://www.andreisaguna.ro">www.andreisaguna.ro</a>	Constanța
21	"MIHAIL KOGĂLNICEANU" UNIVERSITY FROM IAȘI—Specializations/Bachelor degree programs within the structure of the higher education institution entered into liquidation starting from the academic year 2014–2015.		U76	<a href="http://www.umk.ro">www.umk.ro</a>	Iași
22	"PETRE ANDREI" UNIVERSITY FROM IAȘI		U77	<a href="http://www.upa.ro">www.upa.ro</a>	Iași
23	APOLLONIA UNIVERSITY FROM IAȘI		U78	<a href="http://www.univapollonia.ro">www.univapollonia.ro</a>	Iași
24	"DRĂGAN" EUROPEAN UNIVERSITY FROM LUGOJ		U79	<a href="http://www.universitateaeuropeanadragan.ro">www.universitateaeuropeanadragan.ro</a>	Lugoj
25	AGORA UNIVERSITY IN ORADEA		U80	<a href="http://www.univagora.ro">www.univagora.ro</a>	Oradea
26	"EMANUEL" UNIVERSITY FROM ORADEA		U81	<a href="http://www.emanuel.ro">www.emanuel.ro</a>	Oradea
27	PARTIUM CHRISTIAN UNIVERSITY OF ORADEA		U82	<a href="http://www.partium.ro">www.partium.ro</a>	Oradea
28	UNIVERSITY "CONSTANTIN BRÂNCOVEANU" FROM PITEȘTI		U83	<a href="http://www.univcb.ro">www.univcb.ro</a>	Pitești
29	"ROMANIAN-GERMAN" UNIVERSITY IN SIBIU		U84	<a href="http://www.roger-univ.ro">www.roger-univ.ro</a>	Sibiu
30	"DIMITRIE CANTEMIR" UNIVERSITY FROM TARGU MUREȘ		U85	<a href="http://www.cantemir.ro">www.cantemir.ro</a>	Târgu Mureș
31	"MIHAI EMINESCU" UNIVERSITY OF TIMISOARA		U86	unavailable website	Timișoara
32	TIBISCUS UNIVERSITY FROM TIMISOARA		U87	<a href="http://www.tibiscus.ro">www.tibiscus.ro</a>	Timișoara
33	PROTESTANT THEOLOGICAL INSTITUTE OF CLUJ-NAPOCA		U88	<a href="http://www.proteo.cj.edu.ro">www.proteo.cj.edu.ro</a>	Cluj-Napoca
34	ROMAN CATHOLIC THEOLOGICAL INSTITUTE OF BUCHAREST		U89	<a href="http://arcb.ro/website/social-educatie/educatie/invatamant-superior-si-cercetare/institutul-teologic-romano-catolic-din-bucuresti/">http://arcb.ro/website/social-educatie/educatie/invatamant-superior-si-cercetare/institutul-teologic-romano-catolic-din-bucuresti/</a>	Bucharest
35	BUCHAREST INSTITUTE OF BUSINESS ADMINISTRATION		U90	<a href="http://www.asebuss.ro">www.asebuss.ro</a>	Bucharest
36	BAPTIST THEOLOGICAL INSTITUTE OF BUCURESTI		U91	<a href="http://www.itb.ro">www.itb.ro</a>	Bucharest
37	PENTECOSTAL THEOLOGICAL INSTITUTE OF BUCHAREST		U92	<a href="http://www.itpbucuresti.ro">www.itpbucuresti.ro</a>	Bucharest
38	ADVENTIST THEOLOGICAL INSTITUTE OF CERNICA—ILFOV		U93	<a href="http://www.institutadventist.ro">www.institutadventist.ro</a>	Bucharest
Private higher education institutions authorized to operate provisionally					
1	"ȘTEFAN LUPAȘCU" FOUNDATION—INSTITUTE OF EUROPEAN STUDIES IN IAȘI		U94	Pagină indisponibilă	Iași
2	ROMAN CATHOLIC FRANCISCAN THEOLOGICAL INSTITUTE FROM ROMANIA		U95	<a href="https://itrcf.ro/">https://itrcf.ro/</a>	Roman

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3	“COMMERCIAL ACADEMY” FOUNDATION FROM SATU MARE		U96	<a href="http://www.academiacomerciala.ro">www.academiacomerciala.ro</a>	Satu Mare
4	“ALMA MATER” UNIVERSITY FOUNDATION—“ALMA MATER” UNIVERSITY IN SIBIU		U97	<a href="http://www.uamsibiu.ro">www.uamsibiu.ro</a>	Sibiu
5	“IOAN SLAVICI” FOUNDATION FOR CULTURE AND EDUCATION—“IOAN SLAVICI” UNIVERSITY FROM TIMISOARA		U98	<a href="http://www.islavici.ro">www.islavici.ro</a>	Timișoara
6	“GAUDEAMUS” FOUNDATION—“TOMIS” UNIVERSITY IN CONSTANTA		U99	Pagină indisponibilă	Constanța
7	CHRISTIAN THEOLOGICAL INSTITUTE ACCORDING TO THE GOSPEL “TIMOTHEUS” IN BUCHAREST		U100	<a href="http://www.timotheus.ro">www.timotheus.ro</a>	Bucharest
8	LUMINA FOUNDATION—EDUCATIONAL INSTITUTIONS—UNIVERSITY OF SOUTH EAST EUROPE—LUMINA		U101	<a href="http://www.lumina.org/ro">www.lumina.org/ro</a>	Bucharest
9	SUPERIOR NORMAL SCHOOL—BUCHAREST (S.N.S.B.)—only organizes master’s/postgraduate studies		U102	<a href="http://www.imar.ro/~snsb/">http://www.imar.ro/~snsb/</a>	Bucharest

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