

# “Lexical Minimum of Media Scientist”: Reference Learning Edition as an Educational E-Resource

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## ABSTRACT

E-terminography – one of the current areas of development of the digital humanism is in the limelight of the paper. It reveals the concept of terminological learning e-dictionary as an electronic reference edition and the typology of such dictionaries with examples. Special attention is given to the relevance of creating reference (namely dictionary) e-learning edition that contribute to a better study of terms and concepts of a particular subject area in professional learning, in particular educational e-resources of the combined type. It theoretically substantiates and describes stages of creating educational e-resource “Lexical Minimum of Media Scientist” focused on studying the cycle of media disciplines, which combines multimedia (audio, video, animation) fragments with visual and monomedia ones – in particular via text (in pdf) and hypertext fragments, using different semiotic codes – verbal and nonverbal with the possibility of interaction.

## CCS CONCEPTS

• **Information systems** → **Multimedia information systems**.

## KEYWORDS

E-terminography, Reference e-learning edition, Terminological learning e-dictionary, Educational e-resources

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## 1 INTRODUCTION

Today e-lexicography (computer lexicography) being closely interacted with e-bibliography is one of the powerful directions in the development of digital humanities, which using digital technologies, radically changes the humanities knowledge and practice of its application. Such changes have already affected e-terminology

giving a powerful impetus to the creation of new types of industry dictionaries as terminological works of the new generation.

E-dictionary (or, in other terms, computer, automatic, machine dictionary) in contrast to the printed edition is one of the types of electronic edition by method of manufacture and purpose, in particular “electronic reference edition containing an ordered list of language units (words, phrases, terms, phrases, etc.) with information about their meaning, use, structure, origin, etc.” [11]. According to DSTU 3017:2015 “Information and documentation. Editions. Basic types. Terms and definitions conceptions” reference edition falls under the category of visual aid as “a graphic edition by the symbolic nature of information indirectly, the content of which is mainly an image intended for use in the learning process, practical and industrial activities. Note 1. The visual aid according to the purpose can be a learning, production-practical, reference edition” [4]. Therefore, the e-dictionary can either provide access to the necessary information in digital format (or electronic data format) using computer technology, or visualize it through images – photos, charts, diagrams, drawings and more. The very possibility of pictorial representation of information mainstreams one of its main purposes – application in the learning process.

Active use in educational practice of such a kind of visual aid as a visual training aid (training appliance), “the main content of which is the image illustrating the subject of the discipline” [4], encourages the creation and implementation of learning e-dictionary into the learning process. In the scientific literature, this type of dictionaries is defined by researchers on the basis of the concept of electronic reference edition, envisaged in the “Regulations on electronic educational resources” [11], in particular in the following interpretation:

“learning e-dictionary is an electronic reference edition of an ordered list of language units (words, phrases, terms), designed to teach a certain aspect of language or type of speech activity and focused on a specific level of users’ language competence” [8].

Our attention is drawn to learning e-dictionaries as an electronic reference edition that contribute to a better study of terms and concepts of a certain subject area in professionally oriented learning. These are terminological learning e-dictionaries.

The study uses the terminological and conceptual apparatus and definitions of basic concepts to denote different types of reference editions, which are developed in DSTU and other legal documents of Ukraine, as well as in the works of famous Ukrainian researchers given that the resource is intended for Ukrainian users. The purpose of the study is to show the place of the educational e-resource “Lexical Minimum of a Media Scientist” among the existing ones which

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correlate with reference e-publications, to describe its structure and specifics of creation.

The proposed study describes for the first time the creation of a unique multimedia educational e-resource (which has no analogue), on the platform of which students together with teachers will master various media practices – learn to repeat different types of media projects illustrating terms with media component.

## 2 TERMINOLOGICAL LEARNING E-DICTIONARIES: PROLEGOMENA TO TYPOLOGY

Terminological learning e-dictionaries contain terminology of a certain specialty or academic discipline and organically combine the functional purpose of different types of dictionaries:

- (1) Electronic “having much greater opportunities for use in the definition of various types of illustrations (drawings, diagrams, animations, soundtracks) compared to paper” [18].
- (2) Learning – short dictionaries/glossaries of narrow purpose, well-structured, simple, “to ensure the effectiveness of their use by pupils or students” [14].
- (3) Terminological, “providing information on concepts or terms from one or more specific subject areas” [2].

The peculiarities in compiling and using such dictionaries in the learning process is the object of study of learning lexicography. This field is where many researchers work today, in particular Balalaeva [8], Perebeynoss [14], Poluektova [15]. However, most researchers are studying the creation of bilingual / multilingual learning dictionaries aimed at studying of a foreign language. As for the study and analysis of learning e-terminography, it is mainly works on the creation terminological databases, including learning materials as well (for example, Terminologue – web-based platform with open access as a tool for building, managing and publishing termbases) or e-dictionaries on the Moodle platform within various e-learning courses (recent research is lacking). Poluektova [15] believe that “terminological learning dictionaries should meet such characteristics as: conciseness, dedication to a particular topic of study, simplicity of structure and systematic presentation of material in order to ensure the effectiveness of their use not only by scientists and teachers, but also by students who have not yet gained experience of using dictionaries” [15].

Terminological learning e-dictionaries also fall under the category of reference e-learning edition, but intended “for use as an additional reference material when compiling abstracts, performing (...) learning tasks” [7]. Such an edition, according to Aleksiev [7], “is not connected with a specific course, program, didactic scheme, and may contain information of educational, scientific and applied nature, in particular, that goes beyond the curriculum. (...) A prerequisite is the availability of tools for quick information search: from simple search by various characteristics or context to complex systems based on artificial intelligence” [7]. However, there are many editions that reflect the content of the course or discipline.

Terminological learning e-dictionaries are quite heterogeneous, first of all, given the typology of electronic publications, which is not only developed in DSTU 7157:2010 “Information and documentation. Editions electronic. Basic types and imprint” [1], but also found in the scientific works of a large amount of researchers,

including Ohar [12], Pushkar et al. [16], Vul [21], Zhenchenko [24]. Extrapolating the developed typologies to our research object, it is worth noting that among all learning (by purpose) electronic (by information media) reference (including dictionary) editions, where terms are given in the required order for the user. We distinguish the following ones:

- On a functional basis – terminological dictionaries (by volume – short or minimum dictionaries), terminological encyclopedias.
- By subject area – multidisciplinary, branch and narrow-branch dictionaries / encyclopedias.
- By scope (Pushkar et al. [16]) – information retrieval systems, presentation publications.
- By the method of semantization of terms – explanatory, translational, explanatory-translational, thematic dictionary editions, encyclopaedic, illustrative editions.
- By the consumer audience (addressee) – editions intended for children of different ages, pupils, students of higher education institutions, foreign specialists who master the profession in another language and accordingly study terminology in this language for using it in professional practice, in production, etc.
- By informational nature – printed text (symbolic), graphic, sound (audio), combined editions.
- By format / structure of the publication (Pushkar et al. [16], Vul [21]) – homogeneous (e.g. in pdf), monomedia, multimedia / audiovisual (with audio clips, with animations, with digital video), hypertext, hypermedia (hypertext and multimedia).
- When printed equivalent is available (Zhenchenko [24]), or by a printing criterion (Pushkar et al. [16]) – original layouts (editorial electronic versions of editions), derived from printed editions, electronic analogues, electronic copies of printed editions, independent electronic editions as a type of multimedia projects (multimedia applications, presentations – linear, interactive), etc.
- By technology of use / distribution (Pushkar et al. [16], Zhenchenko [24]) – local (offline), network (online), combined use, or electronic resources of combined distribution.
- By the nature of interaction with the user (Pushkar et al. [16], Sinkevych and Pliushchai [18]) – determined, non-determined (interactive) editions (resources), which “differ in many aspects and parameters: quality, purpose, equipment, technological environment of operation, levels of structuring of input and output interfaces, types and preferences of end users, access inputs, illustrative environment”, etc. [18].

Of course, the development of a thorough typology of terminological learning e-dictionaries as reference editions requires a separate study, which involves their detailed analysis. At present, we offer only one of the possible classification options and give only a few selective examples. For example:

- “50 termes del món digital” [3] – monomedia terminological learning e-dictionary as a visual aid in pdf format containing

static creolized text, short in volume, narrow-branch interpretive and translation type, is an independent electronic edition that have no printed analogue.

- “E-Learning Glossary” (compiled by Kaplan-Leiserson [9]) – text homogeneous monomedia terminological learning e-dictionary in PDF, short in volume, narrow-branch explanatory type, which is an independent electronic edition that has no printed analogue.
- “Medialinguistics. Dictionary of terms and concepts” (compiled by Shevchenko et al. [17]) – text homogeneous terminological e-dictionary as a textbook for university students in PDF, narrow explanatory type, which is an electronic analogue of the printed dictionary of terms and concepts.
- “Diccionaris en línia” on the web page of the e-resource TERMCAT – a collection of multidisciplinary learning terminological online dictionaries, short in volume, interpretive and translation, deterministic, hypertext [19].
- “Productes multimedia” on the on the web page of the e-resource TERMCAT – a collection of basic terms and concepts of various fields of knowledge in the format of learning terminological online dictionaries as multimedia products, deterministic, hypermedia [20].

### 3 “LEXICAL MINIMUM OF MEDIA SCIENTIST” AS AN EDUCATIONAL E-RESOURCE

#### 3.1 Typological Status of the Resource

Many [terminological learning] e-dictionaries as reference editions of a combined type fall into the category of educational e-resources (EER), which are “important means of learning on digital media of any type or the ones placed in information and telecommunication systems reproduced by electronic means used in the educational process” [11]. They can be independent or part of the main EER. The “Regulations on electronic educational resources” [11] states that the e-dictionary being a kind of organizational and auxiliary EER shall either be published independently or be part of basic EER.

The proposed study provides a description of the structure and main stages of creation of one of these electronic educational resources – “Lexical Minimum of Media Scientist”. One of its modules is a glossary-minimum of media studies terms with a media component. Depending on the volume in lexicography there are large, medium, small and very small dictionaries. The volume of terminological dictionaries depends on dictionary subject orientation, purpose and function. The purpose of learning dictionaries is to give a minimum or a limited number of the most common lexical items. The volume of such a dictionary, according to various lexicographers, can vary from 100 units to 30 thousand. The optimal number is considered to be 1 thousand lexical units.

The experience in compiling dictionaries in media studies has already existed in lexicographic practice, in particular “Keywords for Media Studies” [13]. This dictionary falls into the category of lexical minimum, “present sixty-five keywords, reflected upon by leading scholars tasked to show how their meanings, histories, and usage intersect with and inform problems and debates in media and society” [13]. This dictionary is created by analogy of the “Keywords: A Vocabulary of Culture and Society” by Williams [22].

It presents, in a broad context, discussions and a chronology of ideas about important, according to the authors, objects of media research, although there are almost no terms in the register with a media component (only one is New Media).

Unlike previous dictionaries, the “Lexical Minimum of Media Scientist” contains 100 terms with a media component (for example: media communication, media anthropology, media criticism, media art, media law, media comparative studies, etc.). On the e-resource, each term, in addition to its visualization (in different formats), will also represent a scientific article in which this term operates as a keyword.

English-language, Ukrainian-language, Russian-language, Polish-language sources – glossaries, dictionaries, journal articles, monographs, conference proceedings and other materials that define or interpret terms with a media component were the material for compiling the dictionary. This is a consolidated dictionary of definitions-quotations of the explanatory type. According to the typology of e-editions, in particular learning terminological e-dictionaries, which we proposed above, this dictionary can be characterized as follows:

- On a functional basis and practical purpose it is a dictionary-minimum learning type, the main task of which is to teach students in collaboration with teachers to create practically different media products: videos to illustrate deadlines, podcasts, create an e-library of media dictionaries and research papers media studies issues, etc.
- By subject area – branch dictionary (branch of knowledge “media studies”).
- By scope – contains fragments of information search system and presentational publication.
- By the method of semantization of terms – dictionary edition of explanatory type with translation elements.
- By the consumer audience (addressee) – intended for students and teachers of higher education institutions, who study various media practices.
- By informational nature – combined (polycode, which uses different semiotic codes – verbal and nonverbal).
- By format / structure of the publication – hypermedia (combines hypertext and multimedia, represented by audio, video, animation fragments together with fragments of scientific publications). Such e-dictionaries can also be qualified as a kind of media texts, which, according to Yatsymirska and Dragan [23], “have universal features: word, sound, visibility (movies, photos, videos)”, among which the actual internet-texts are distinguished thus giving grounds to “link the concepts of multimedia and hypertext”, where “hypertext is a combination of language text with the computer’s ability to interactively branch or dynamically reproduce nonlinear text that can not be printed on a sheet of paper in the usual way” [23].
- When printed equivalent is available / by a printing criterion – an independent electronic edition as one of the types of multimedia project with fragments of linear presentations and interactivity.
- By technology of use / distribution – combined use.
- By the nature of interaction with the user – determined with an element of interactivity.

### 3.2 Defining the Purpose and Objectives of Creating an E-Resource as a Research Project

“Lexical Minimum of Media Scientist” is an interdisciplinary research project (01.02.2021–01.12.2024). It involves the implementation of such objectives:

- (1) To analyze and generalize the European experience of creating e-dictionaries, terminological and lexicographic databases, to compare it with the practice of compiling such e-resources in Ukraine.
- (2) To formulate theoretical grounds and design the method of conclusion of hypermedia consolidated e-dictionaries of definitive type with a possibility of information search of terms.
- (3) To form terminological, knowledge (format of scientific works) and lexicographic databases for e-resource for educational purposes.
- (4) To choose a video series, photo illustrations for each of the register terms, thus creating video and / or animated videos and presentations for visualization of register units.
- (5) To adapt the version of the e-resource for the visually impaired persons.
- (6) To promote e-resource at the international and national levels in the format of presentation of scientific reports at conferences.

### 3.3 Designing an e-resource as an application

**3.3.1 The general principle of construction.** The educational e-resource “Lexical Minimum of Media Scientist” is based on the principle of Representative State Transfer (REST) – an approach to the architecture of network protocols providing access to information resources, including the Hyper Text Transfer Protocol (HTTP) in computer networks. Using this architecture has the following advantages: reliability, performance, scalability, transparency of the interaction system, portability of components, ease of change, the ability to evolve. According to the requirements of the REST architecture, the system must be divided into client and server parts, with each of them being able to be developed independently. The server part uses the Firebase Realtime Database [5], which is synchronized with the Google Sheets spreadsheet.

Using Google Sheets (figure 1) makes it easy for dictionary compilers to work. The row of the table corresponds to one term, the columns – to different fields of description of the corresponding term, in particular: “Term”, “Etymology of term”, “Equivalent in another language”, “Synonym or reference to another term”, “Dictionary meaning”, “Contextual meaning”, “Source”.

If the same term has several definitions selected from different sources, all fields are filled in the first line (if relevant information is available), in the next line the field “Term” remains empty, and other fields are filled with other definitions.

All terms are grouped by the first letter and located on separate sheets of the table for convenience.

The advantage of Google Sheets is the connection to the cloud, which will not allow you to lose data. Cloud storage itself allows you to store any necessary files that require regular access from various locations and devices.

Another important feature is the ability to edit via co-authoring regime. For example, you can allow different users to make corrections to previously created text. This functionality is great for projects that involve a large number of participants, which has significant advantages over sending regular files by e-mail and transferring data from files to a spreadsheet.

**3.3.2 Synchronizing the Firebase Realtime Database with the Google Sheets spreadsheet.** The created table is automatically synchronized with the Firebase Realtime database in real time and serves as a service part giving API developers the ability to synchronize application data between clients and store it in the Firebase cloud. The principles of synchronization of the spreadsheet and Firebase Realtime database are described in detail in [10]. They are only adapted for the creation of the resource “Lexical Minimum of Media Scientist”.

Step 1–2. Registration of a new project in the Firebase (figure 2, left) and creation of the Realtime Database, which provides for the definition of security rules for data (figure 2, right). The rules can be changed later e.g. adding access to record data for registered customers.

Step 3. Creating a Google Sheets to describe the terms. The first row of the table is the field name of the JSON object in the database. The second line is the full names of the fields in Ukrainian, convenient for the compilers of the dictionary. The “id” field is filled in automatically using the formula “=INDIRECT(‘R[-1]C’;0)+1”, which is applied to each line and allows you to insert or delete lines without violating the numbering of terms.

Step 4–5. Using the script editor (figure 3) add code that converts data from the table to JSON format according to the appropriate scheme and passes it to the database. Using the command “Launch – Launch function” (Initialize) synchronizes the table and database.

The terms from the table appear in the database (figure 4). The field names correspond to the names of the top row of the table.

Step 6. Firebase Realtime database provides an API for using applications developed on different platforms, including Android and iOS web applications. The REST API uses an event log with a server being an interface for creating HTTP connections to receive messages from the server. To do this, select the command “Project settings” and add a new project, select the type of project. Since in our case it is a web application, we get information about the configuration of the application.

## 4 CHOICE OF PROGRAMMING LANGUAGE

Such functions as communication with the database, search for terms and information blocks display are implemented in the Java Script programming language. To communicate with the database in real time, we use the configuration created by the Firebase Realtime Database (see the code for configuring the database in figure 5).

On loading the page structure appears the function (figure 6, top), which receives data directly from the database in JSON format. This function is signed for changes in the database e.g. changing any of the term fields, adding a new term, etc. are updated directly in the application. Data can be obtained both in the whole and under a certain condition, e.g. words for a certain letter or only one selected term. The resulting data must be converted to HTML and embedded in an existing page without completely overloading

	A	B	C	D	E	F	G
16	Медиаарт	англ. mass media – средства массовой информации + арт – искусство	рос. Медиа-арт, медиаарт, медиа арт	див. також Медіамистецтво	"искусство создания медиатекстов при помощи медиатехники". "Течение в современном искусстве, использующее в качестве художественного пространства также современные коммуникационные технологии, как Интернет, телефонная связь, пейджинг и т.п."		Федоров, А.В. (2010). Словарь терминов по медиаобразованию. Издательство Таганрогского государственного технического университета. Таганрог, режим доступа: <a href="http://www.evartist.narod.ru/text22">http://www.evartist.narod.ru/text22</a>
17							Габдреева, Н.В. & Гурчани, М.Т. (2012). Словарь композитов ФЛИНТА. Наука, Москва, режим доступа: <a href="https://complex_words.academic.ru/1326/%D0%8C%D0%85%1%82https://complex_words.academic.ru/1326/%D0%8C%D0%85%D1%82">https://complex_words.academic.ru/1326/%D0%8C%D0%85%1%82https://complex_words.academic.ru/1326/%D0%8C%D0%85%D1%82</a> .
18	Медиааудит		англ. Media art				
19	Медиааудиторія, медиааудиторія			Аудиторія ЗМІ	"совокупность получателей сообщения, общего для всех ее членов. А. может представлять собой социальную группу и тогда обладать характеристиками: локализована в пространстве и во времени, имеет внутреннюю структуру и предполагает взаимодействие ее членов".		Батурник, М.В. (?). Социологический словарь, режим доступа: <a href="https://web.archive.org/web/20160304211920/http://enc.dic">https://web.archive.org/web/20160304211920/http://enc.dic</a>
20	Медиабезпека						
21	Медиабібліотека						
22	Медиабізнес				"підприємницька діяльність у сфері засобів масової комунікації, мас-медіа".		Барилевич, О.М., Григорова, З.В., Пунчак, Л.А., Сухоруков, І. (2017). "Глосарій", в Основи медіаменеджменту, КПІ ім. Ігоря Сікорського, режим доступа: <a href="https://rela.kpi.ua/bitstream/123456789/22199/1/mm_2018_0">https://rela.kpi.ua/bitstream/123456789/22199/1/mm_2018_0</a>
23	Медиабрендінг						
24	Медиавиробництво, медіаєне виробництво						

Figure 1: Google Sheets.



Figure 2: Register a new project in Firebase (left) and define security rules for data (right).

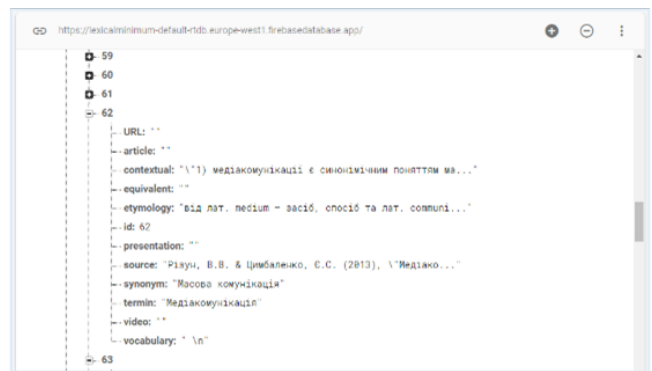


Figure 4: Fragment of the database structure.

```

Код.gs
40 }
41
42 // Initialize
43 function initialize(e) {
44   writeDataToFirebase(getEnvironment().spreadsheetID);
45 }
46
47 // Write the data to the Firebase URL
48 function writeDataToFirebase(sheetID) {
49   var ss = SpreadsheetApp.openById(sheetID);
50   SpreadsheetApp.setActiveSheet(ss);
51   createSpreadsheetEditTrigger(sheetID);
52   var sheets = ss.getSheets();
53   for (var i = 0; i < sheets.length; i++) {
54     importSheet(sheets[i]);
55     SpreadsheetApp.setActiveSheet(sheets[i]);
56   }
57 }
    
```

Figure 3: Google Sheets Script Editor.

```

<script type="module">
  // Import the functions you need from the SDKs you need
  import { initializeApp } from "https://www.gstatic.com/firebasejs/9.0.0/firebase-app.js";
  import { getAnalytics } from "https://www.gstatic.com/firebasejs/9.0.0/firebase-analytics.js";
  // TODO: Add SDKs for Firebase products that you want to use
  // https://firebase.google.com/docs/web/setup#available-libraries

  // Your web app's Firebase configuration
  // For Firebase JS SDK v7.20.0 and later, measurementId is optional
  const firebaseConfig = {
    apiKey: "AIzaSyA...",
    authDomain: "lexicalminimum.firebaseio.com",
    databaseURL: "https://lexicalminimum-default-rtddb.firebaseio.com",
    projectId: "lexicalminimum",
    storageBucket: "lexicalminimum.appspot.com",
    messagingSenderId: "1010101010101",
    appId: "1:1010101010101:web:1",
    measurementId: "G-T3JT704E9D"
  };
    
```

Figure 5: Database configuration code.

it, thus increasing the speed of the application. Given the same

structure of terms, it was decided to create our own rendering of the received data in JSON format in HTML format. The obtained data are delivered to the input of the function “render” building the display of terms in the window of registered terms. The display of each individual term is built using the “renderItem” function. Each term in this window is a link that, when clicked, displays detailed information about the term in the central window. It is implemented using the “renderTermin” function, which receives the “id” of the term. Then its HTML representation is created according to the developed template. Accordingly, the fields that are not in the description of the term are not displayed on the screen. In addition, during processing, the text is analyzed and the necessary links are added and abbreviations are highlighted. For an example of the implementation of these functions, see in figure 6, bottom.

```
function getData(event, type = 'LexicalMin') {
    var dbRef = firebase.database().ref('1YQG7H2FT1tkuQoE1_wXnhCHf0LCSHGURhpbTtEgF-qc/${type}');
    dbRef.on('value', snap => { render(snap.val()); renderTermin(0) });
}

function addAbr(description) {
    let abbrev = ['англ.', 'рос.', 'фр.', 'див. також', 'див.', 'лат.', 'син.'];
    for (var k = 0; k < abbrev.length; k++) {
        description = description.replaceAll(abbrev[k], `<span class="lightblue">${abbrev[k]}</span>`);
    }
    return description;
}

function addLink(text) {
    return text = text.replace(/(https?:\V\/[\^>]*[\w\/])\/gmi, `<a class="lightblue" href=${1}>${1}</a>`);
}
```

Figure 6: Function that receives data from the database (top) and word processing functions (bottom).

In order to operate the search window and display the term, a “search” function has been created. It filters the list of terms displayed in the corresponding window by the entered text.

### 5 USER INTERFACE

The user part is implemented as a web application that receives data from the Firebase Realtime database in real time. It has (figure 7):

- (1) A window for searching and choosing terms.
- (2) A window of registered terms with a media component.
- (3) Window with data on the term in which it is recorded (if any): etymology of the term, synonym or reference to another term, equivalent in another language, dictionary and / or contextual meaning of the registered terminological unit, source (if possible with a hyperlink to the e-dictionary or scientific work, from which the meaning of the term is selected).
- (4) The top menu of icons, the choice of which allows to represent each term either in the format of a reference to scientific works, in which it is certified as a key one, or in the format of video illustration, animation, photo illustration, presentation, show or screen announcer (selectively for different terms).
- (5) Side menu containing sections “About the project”, “Version for the visually impaired persons”, “Media Library”, “Dictionaries of media terms”, “Contacts”, “Add term”.

In comparison, e.g. the content of the concepts of “media education” and “media studies”, which are denoted by the corresponding terms in the user window of register terms (figure 8).

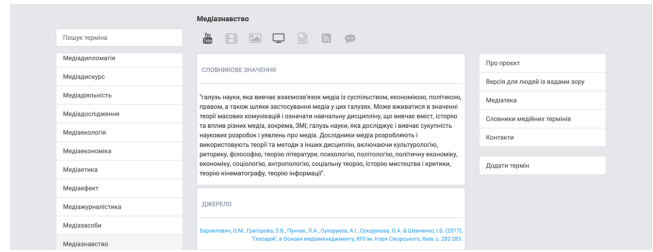


Figure 7: Custom windows, top and side menus of the web application.



Figure 8: Fragments of video illustrations, scientific article and presentation of the terms media education and media studies.

Accessibility is a very important feature for a web application. To solve the problem of accessibility of the website for all people, a special plug-in “Button visually impaired” (BVI) [6] was added to the page. It automatically changes the version of the site for the visually impaired (figure 9).

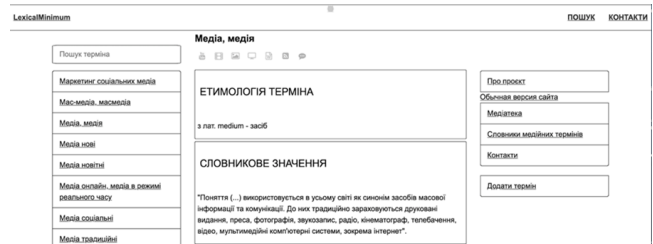


Figure 9: Version for the visually impaired using the plugin “Button visually impaired”.

The panel on the site for the visually impaired allows you to change the color scheme of the site, size, type and line spacing of fonts, the speech synthesizer voices changes in settings. With the plugin one can change the functions of the site that meet the needs of people with disabilities [6]. Scalability requirements are also met – the font is increased to 200%, while there is no horizontal scroll bar. This effect is achieved with a scalable layout. The user has the

opportunity to choose the color of the font and background from 5 options: black on white; white on black; dark blue on blue; brown on beige; green on dark brown (figure 10).

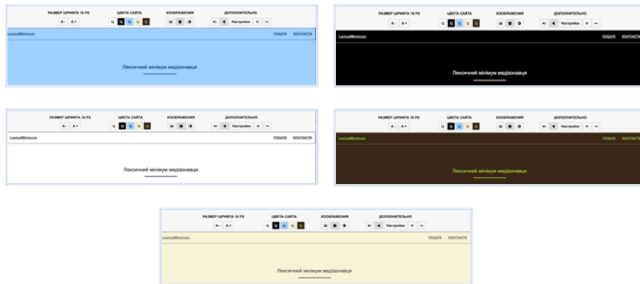


Figure 10: Option to select a color.

The developed web application has an adaptive design that allows to display pages and their contents according to the device on which the user opens them.

## 6 CONCLUSIONS

Thus, the electronic educational resource “Lexical Minimum of Media Scientist” as a reference educational publication provides applicants for education, graduate students, doctoral students and teachers of training courses in the media cycle with the following information:

- On the basic terminology with the media component of the subject area “media studies”, giving grounds to form the lexical minimum of a media specialist and media researcher.
- On the meaning of basic terms, recorded in lexicographic sources and certified in scientific works, consequently forming their correct understanding and, accordingly, terminological competence not only of the future media specialist, but also the teacher who prepared information about a term.
- On the available equivalents in English, Polish, Russian and possible synonyms and related terms. It forms the knowledge about the specifics of systemic relations between terminological units that nominate the conceptual apparatus of the industry, and hence a holistic view of the industry, its structural sections and divisions, research objects, etc.
- On the current bibliography of dictionaries of media terms (traditional and electronic), as well as on the scientific works themselves where they function as keywords. This allows students and teachers not only to get acquainted with scientific achievements in the field of media studies, but also with teachers’ works on a certain range of scientific interests using these materials to compile abstracts, write scientific papers and prepare reports for scientific conferences.

The proposed resource is, on the one hand, an experimental-educational virtual media laboratory, on the other – lexicographic and bibliographic laboratory which helps to form certain skills and abilities by students and teachers of, in particular:

- (1) Forms knowledge about technologies of creation: the consolidated and systematized dictionary of definitions of terms

with a media component, a definitive database of terminological units, e-library of dictionaries of media terms, media library (audio, video and photo libraries) collected on one platform (development of all these structural elements of the e-resource are discussed at regular scientific and practical seminars “Modern media studies: theory and practice”).

- (2) Forms and develops the ability to systematize and visualize the collected material, visualize and listen to information, interactively present abstract data to enhance the effect of cognition by teachers and students working on creating videos, photos, animations, podcasts, presentations about each term using the latest technologies – video cameras, cameras, appropriate software that allows you to shoot, edit, create animation, edit photos.

It is also a platform for the formation of interdisciplinary research teams, communicative interaction between teachers and students who work on its creation and simultaneously carry out scientific research in a particular research area of modern media studies.

In prospect, further development of the project provides:

- (1) Creating a separate application, or adding functionality to the existing one, which will allow editing terms and adding new ones (it is possible due to the authentication system and security rules applied to Firebase [10]).
- (2) Creation of a mobile application for the developed architecture.
- (3) Making applications for the creation of a database of e-bibliography of media terms dictionaries and media library.

Today there is also a lack of research on the development of concepts of multimedia terminological e-learning dictionaries, which would involve lexicographers, IT specialists, specialists in certain subject areas who have the terminology of their field, as well as specialists in publishing. It is important to keep in mind that the dictionary is also one of the types of publishing products (paper or electronic), which has its own target audience, the queries of which need to be understood and studied. This aspect is often ignored in dictionary research projects. Therefore, one of the prospects of our further research will be a survey of the user audience in order to assess the effectiveness of the created experimental e-resource in the learning process, as well as improving its user capabilities.

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