

# Presentation of UNESCO Bulgarian Cultural Heritage Sites as Knowledge System in a Learning Environment

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**Abstract.** The article describes cultural heritage sites in Bulgaria, under the protection of UNESCO, as database elements that can be used for e-learning. The learning environment will motivate intellectual inquiry and, through organizing the methods of collecting and managing information, will be created cultural knowledge for existing and new sites, which will be evaluated and promoted. The environment serves the State Educational Standards (SES) of educational content for the cycle Social Sciences and Civic Education. The established database presents structured, scientifically proven and didactically correct knowledge, and is a conceptual framework of how sites can be viewed, perceived and "assembled". For the users (learners) the information about sites is a basis for research and a communication tool. By interpreting the cultural significance of artifacts, they structure information based on the attributes of the database. The features of the sites are a carrier of memorable and enriching information. The meaning is not found only in a specific object, but is created from the interaction between user, message and environment.

**Keywords:** cultural heritage, database, digital dictionary, education, E-learning environment, UNESCO

## 1 Introduction

The List of UNESCO World Cultural Heritage Sites [11] includes seven Bulgarian architectural (cultural and historical) sites: Boyana Church, Madara Rider, Thracian Tomb of Kazanlak, Rock-Hewn Churches of Ivanovo, Rila Monastery, Ancient City of Nessebar and Thracian Tomb of Sveshtari. The sites were selected in accordance with the criteria set of UNESCO protection [10].

The article describes listed sites as elements of a database that will be used in e-learning environment. Why those sites? Because they give the opportunity for measuring time (history) in a specific Bulgarian way, showing the changing world and what's left from great civilizations. They also provide visible evidence of what were the values, scale of thinking and attitude towards personality of the Bulgarians during different eras. The two tombs are an apotheosis of life, cloistered places in favor of the public good, nature becomes architecture at a site and the old town of Nessebar gathers all in one.

A glimpse on available textbooks and learning tools, part of the cycle "Social sciences and civic education" (print media) and the existing ones in the network of digital products (php-presentations, multimedia and educational websites), shows that all of them provide mostly information on expert level about the Bulgarian sites, added to UNESCO's Cultural Heritage List. All of the sites, excluding the Rila Monastery and the Thracian Tomb of Kazanlak, are described with short annotations and a photo. Neither print nor digital materials provide the option for searching, enriching the content with new information or direct participation by the learners for the creation of new interpretations and new learning tools, in and out of the learning process.

Due to the listed reasons, we consider site information as additional learning content, which can be represented through an e-learning environment, like Bulgarian Architectural Sites of UNESCO (**BAO-UNESCO**), developed by the Institute of Mathematics and Informatics of the Bulgarian Academy of Sciences.

Modern digital technologies have the potential to create a new conceptual space in learning, revealing the complex connections between a user (learner), instructor, information and environment. The active participation of learners in the process of knowledge accumulation through the use of digital instruments stimulates creative thinking, as pointed [3].

The proposed environment directs sight, leads to understanding, integrates knowledge about conceptual ideas. The presentation of sites creates and provides their importance to the user (learner). Sites will be re-discovered, created and presented, or collected for forthcoming examination. The environment describes selected significant Bulgarian sites (that are world known). It motivates intellectual inquiry and, through organizing the methods of collecting and managing information, will be created cultural knowledge for existing and new sites, which will be evaluated and promoted. If the sites are also important for others, but not just for the user, this influence enhances personal experience, as seen in some Facebook initiatives [8]. A specific attitude and social behavior are achieved through the specific on-site experience. Then, the presented sites start to attract, educate and inspire. Additional cultural memory will be accumulated this way.

The BAO-UNESCO learning environment is envisaged to be easily accessible, without installation of additional specialized software. It will be used through the whole cycle of cultural-educational field Social Sciences and Civic Education, providing specialized, scientific and interesting materials. The BAO-UNESCO learning environment has been designed to provide quick access to a variety of interdisciplinary information that will enable the learners to get acquainted with all the seven architectural and historical sites in Bulgaria, which are objects of DB BAO-UNESCO. The environment provides well-structured additional educational content and describes in detail the tangible cultural heritage, listed in the UNESCO World Heritage List.

The learning environment aims to develop abilities, capabilities and skills regarding:

- Ways to accomplish set goals – they can be various and detailed, and depend on declarative and procedural knowledge, relevant to the current field, as well as unconventional behavior within the environment.
- Knowledge units – they represent organized and interconnected knowledge in the presentation of objects, based on structural similarities between them.
- Solutions – a correct, complex and original solution will merge possibilities of combining knowledge.
- Introspection – users will seek information to implement strategies for finding an appropriate solution (especially in finding new, unexpected and unusual structural features).
- The implementation will lead to the creation of a database of systematic knowledge and new applications, modified by experience.

Using the learning environment, through a specialized module named *I Create*, the learners will be able to include information about architectural and historic sites from their area of origin to the **BAO-UNESCO** database. The learners will be real participants in the process of accumulation and presentation of additional or new information. This will provoke the desire for discovering – an interesting and useful model of human behavior for cognitive activity. This “research” module can be used in lessons for specialized training or optional subject, for taking the educational process out of the classroom and its integration with other similar educational fields.

## 2 Designing the educational process

A variation of educational methods develops and extends the understanding of specific educational content. The UBD approach [9], as a set of methods, ideas, and practices for designing learning process, is suitable for assessing the degree of understanding of knowledge, and the skills used for its demonstration.

This approach aims to engage learners in research, promoting knowledge transfer and providing a conceptual frame for understanding particular facts, as well as for discovering major ideas within the content. Knowledge transfer is major criteria for conceptual understanding. Understanding can also be developed only through repeatedly methods for continuous assessment, proving connections and reasoning conclusions.

The proposed technological solution is also a way of thinking, focusing on big ideas and tasks on a selected topic. It provides a way of designing each educational course, aiming to achieve understanding and overcoming misunderstanding. It also provides a revision of teaching on the basis of giving new meaning to educational goals.

We use the method of designing educational units in a wider context and for the integration of additional educational content, merging major ideas with essential questions and main tasks for implementation. Individual lessons are too short for deeper development of major ideas, examining essential questions and authentic application.

UBD aims to a more efficient education, like computer software makes its users more productive (by maximizing the ease of use and decreasing the number of mistakes, standing in the way of results).

In the best models the form follows the function. Conclusions must be deduced from results. The expedience of the UBD approach is clearer, as understanding is the educational goal.

Traditional models derive from “search in learned”. Only after indicating the desired results, one can focus on the content, methods and activities that will achieve these results. Many learners focus on studying, and not on learning.

We offer a model, focused on (1) the desired results, deduced from educational content (basic and additional educational materials) and (2) evidence of learning prior defining the methods of teaching and the learning activities.

Activities alone don't lead to intellectual development. The learner assumes that activity is learning itself. One does not understand that learning is in the meaning of activity and results come afterwards – in the questions: What's the point? What's the connection? Why should I learn this? This requires the instructor to define clear goals, in other words the desired results, based on the assessment, towards which teaching and learning are directed. Evidences of achievement follows after framing the goals. These evidences form the questions: What should learners know, regardless what activities or texts they use? What evidences of understanding will they point? What texts, activities and methods allow these results?

During the development we've defined UBD as a three-stage approach of planning the educational process: 1. Defining desired goals; 2. Defining reliable evidences (designing the educational unit or course towards the assessment of collected evidences); 3. Experiential learning - "knowledge of" and "in the attempt". The choice of teaching methods, sequence of topics and resource materials is successful after identifying desired results and assessments, and is clear what they suggest. Teaching is a tool of achieving a goal.

### **3 Bulgarian Architectural Sites, under UNESCO Protection, as a Knowledge System in a Learning Environment**

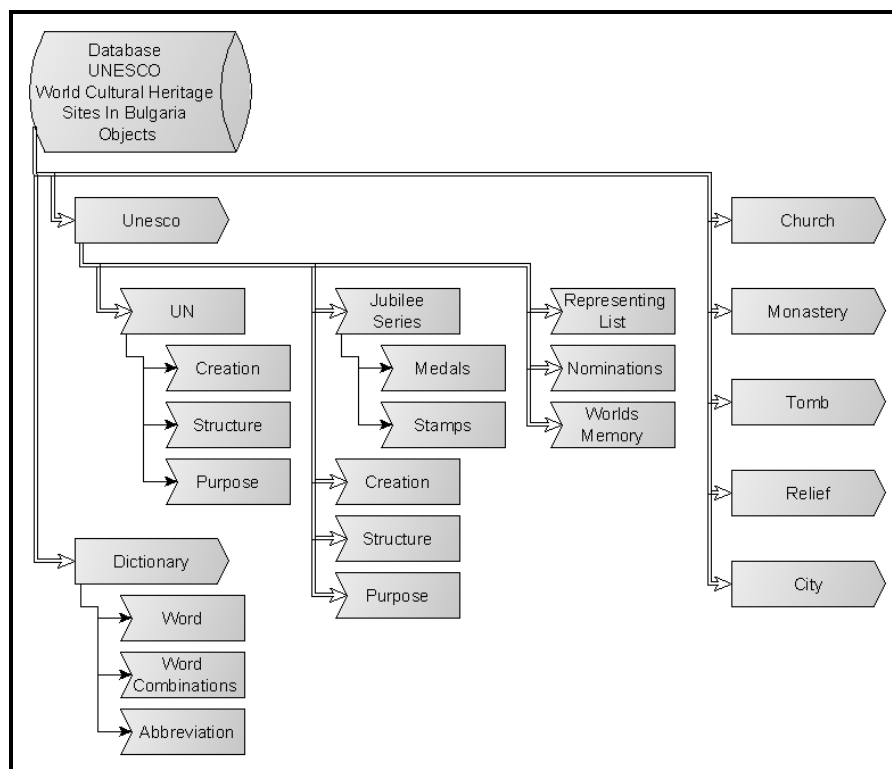
The educational environment “UNESCO Bulgarian Architectural Heritage Sites” (**BAO-UNESCO**) uses the database “Architectural Heritage Sites in Bulgaria, under UNESCO protection” (shortly **DB BAO-UNESCO**). **DB BAO-UNESCO** is designed and created as a specialized integrated knowledge system about the seven sites, representing Bulgaria in the world [7].

On one hand, the database is a conceptual frame on how objects can be viewed, perceived and “assembled”, and on the other – it presents structured knowledge. The knowledge is scientifically proven, in-depth and didactically correct. The information about sites is changing from selective expert opinion to research and a communication tool. Learners interpret the cultural importance of artifacts, structuring information on the basis of the attributes of the database. The characteristics of the objects are a carrier of memorable and enriching information. Thus, the focus shifts from historical

facts to social topics with ideological value. The meaning isn't found only in a specific object, but is created from the interaction between user, message and environment.

The **DB BAO-UNESCO** is presented in a tree structure. In order to describe an object of the Database, we use metadata – a great number of attributes, set on several levels, which have specific values. The values of the attributes are texts and images, containing learning content.

The elements comprising the Database (i.e. the objects of the **DB BAO-UNESCO**) are the sites in Bulgaria, placed under the protection of UNESCO. All objects in the Database are complex objects: for example, objects *city* and *monastery* contain object *church*.



**Fig. 1.** The tree structure of the **DB BAO-UNESCO**:  
2 autonomous objects and 5 types of objects of architectural heritage

#### 4 Database – an Extension

Two new autonomous objects have been added to the database of architectural heritage in Bulgaria, under the protection of UNESCO [7]: **UNESCO** and **Dictionary**.

Figure 1 displays the structure of the extended database, where the autonomous objects **UNESCO** and **Dictionary** are presented with their attributes.

The rest seven sites of architectural heritage, as objects of the **DB BAO-UNESCO**, are divided in five object types.

The **UNESCO object** is designed to provide knowledge about the United Nations and UNESCO (*United Nations Educational, Scientific and Cultural Organization*). UNESCO organization contributes to world peace by facilitating knowledge exchange, uses science as a platform for exchange of ideas through access for all (no matter of race, gender, language or religion) to information, guarantees development and free expression for all cultures around the world. UNESCO works with all countries worldwide to discover cultural and natural sites that can be defined as world heritage, unique and diverse natural sites, and historical and cultural sites.

The World Heritage List of UNESCO contains seven Bulgarian sites, added as tangible cultural heritage, and two, added as natural heritage. The Bulgarian intangible heritage is represented by four elements: “Bistritsa Babi, archaic polyphony, dances and rituals from the Shoplounk region”, “Nestinarstvo, messages from the past: the Panegyric of Saints Constantine and Helena in the village of Bulgari”, “The tradition of carpet-making in Chiprovtsi” and “Surova folk feast in Pernik region”.

The **UNESCO object** is represented by appropriate structured fields: purposes (goal setting), structure, selection criteria for inclusion of elements (cultural values) in the list of World Heritage, a representative list of Bulgarian sites, Memory of the World Register (with one Bulgarian documentary heritage added – Enina Apostolos, an old Bulgarian Cyrillic manuscript (fragment) of the 11th century), Bulgarian nominations and Jubilee series (medals, stamps, etc.).

**Dictionary**, another autonomous object, has been added to the database, because the main users of the **BAO-UNESCO** Learning Environment are from the three grades of school education. It contains additional educational content for all **DB BAO-UNESCO** sites. Object **Dictionary** has been designed as a database [5], useful for and from all **BAO-UNESCO** sites [6]. It’s a semantic field that is sorted in alphabetical order and which develops the linguistic culture of learners through an accessible transition from semantics to semiotics – from meaning to the sign character of language. It establishes terminological clarity and a linguistic range of common interests. The Dictionary contains clear, relatively short articles to compensate for the lack of knowledge and limited vocabulary. Explanations of concepts correspond to the literary and linguistic norms, and the terminology of the respective cultural and educational field.

The **Dictionary** serves the additional educational content. The texts of the Dictionary articles are characterized by precision, consistency and uniformity in the use of terms and symbols, accessibility of the language and style of the presentation. Synonyms have been added for better working with language in semantic, stylistic and expressive plan. The Dictionary is also useful for developing a sense of language. It presents a different version of "reading" and "understanding" of the words, in which the search for meaning of concepts becomes examination. The Dictionary is unique with its objects and approach of development. It provides knowledge about the authenticity of cultural objects, because its rich of content. It reveals specific concepts

related to the history of Bulgarian traditions, architecture and arts. An adapted interpretation of the words with appropriate presented meanings (not short-defined concepts, but contemporary information, facilitating the understanding of concept meaning) makes it easily an accessible guide, offering information on the form, meaning, use and origin of words. The experience and style of the designed and developed in [1], [2] and [4] dictionary entries, has been used to describe the cultural and historical terms. The selection of words is made on the basis of texts and collected materials for cultural and historical sites.

## 5 Attributes for Description of Architectural Heritage Site

The attributes used to describe an architectural site as an object in the Database are divided into three groups. The first group comprises the attributes that correspond 100% to the UNESCO criteria, described in [10]. The second group includes the attributes, which hold new (supplementary) knowledge, which is not referred to the UNESCO criteria, however it will certainly wake the interest of this age group (history of the monument, description in literature or representation be a monument/picture, artefacts, found at the site, etc.). The third group contains attributes, which are specific to certain object types (like frescoes – churches and monasteries, environment – Madara Rider and Rock-Hewn Churches of Ivanovo).

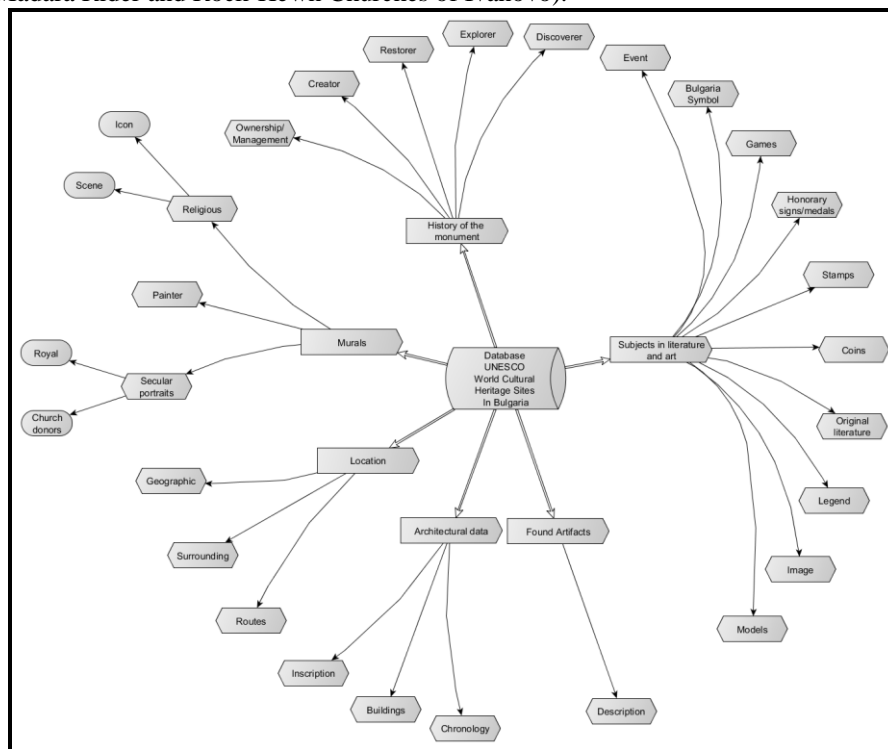


Fig. 2. Hierarchy of the attributes describing the 5 types of objects of architectural heritage

**Example:** Presentation of Object “relief” – **Madara Rider**, partial information of the description follows in the figure 3 bellow.

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<Relief><name>Мадарски конник</name>

    <ID of UNESCO><text> През 1979 г., на сесията на Комитета за световно културно и историческо наследство на ЮНЕСКО, състояла се в Луксор, Мадарският конник е включен в Списъка на световното културно и природно наследство на ЮНЕСКО под номер <number>43</number>. Критерий I: Мадарският конник е изключително произведение на изкуството, датиращо от началото на 8 век. Това е единственият релефа по рода си, без аналог в Европа. Критерий III: Мадарският конник е изключителен не само като произведение на българската скулптура. Надписите около Конника са ценен исторически източник за най-ранните години на българската държава и управлението на известни български ханове.

    </text></ID of UNESCO>

<ID of Union of the Bulgarian Tourists - “100 Tourist Sites”><number>97</number>

</ID of Union of the Bulgarian Tourists - “100 Tourist Sites”>

<Attributes>

    .....

    .....

<Subject in Literature/Art>

    <Author’s Literature> „АНТИЧНИЯТ МАДАРСКИ КОННИК“ © 2015, София © Петър Георгиев, автор © Издателска къща „Булга Медиа“ Печат: „Булгед“ ООД.
    </Author’s Literature>

<Legend>....</Legend>

<Model>....</Model>

<Coins>....</Coins>

<Stamps>....</Stamps>

<Honorary Sign/Medal>Орден „Мадарски конник“ се присъжда на чужди (дипломатически представители) и български (обществени дейци и военни лица) граждани за особено големи заслуги в установяването, укрепването и развитието на двустранни отношения с Република България. Той е трети по старшинство в наградната система на Република България. Орден „Мадарски конник“ е с лента с българския национален трибагренник, има две степени – първа и втора, и две категории – без мечове (вързва се на граждански лица) и с
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мечове (връчва се на военни лица).</Honorary Sign/Medal>

<Event>В гр. Шумен се провежда международен турнир по карате за купа „Мадарски конник“ в дисциплините „ката“ и „кумите“.</Event>

<Event>До Мадарския конник е направена **светлинна инсталация**, в която се осветяват вписаните една в друга основи на два средновековни храма. Единият е древнобългарско **капище**. Другият е средновековна християнска **базилика**.</Event>

<Bulgaria Symbol>През 2008 г. след общонационално гласуване Мадарският конник е избран за „глобален **символ** на България“ и ще бъде изсечен на първата българска евро-монета. Негово **копие** в реален размер може да се види в Националния археологически музей в София.

</Bulgaria Symbol></Subject in Literature/Art>

</Relief>

Fig. 3. Identification descriptor of the object “relief” and data in sub-attribute “event”

## 6 Conclusion

This article describes a database, containing didactically processed information about the Bulgarian architectural sites under the protection of UNESCO, presented using the means of modern informational technologies.

An exceptional advantage of the database is the ability for quick access to additional information and the capabilities of the application for different procedures, both for visualization and analysis. During analysis are created prerequisites for the integration of new data and the ability of updating information, as well as for maintenance, supplementing and extending the database.

This educational resource provides means for the students to get a good understanding of the sense and dynamics of the educational materials.

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  11. UNESCO List: <http://whc.unesco.org/en/list/43>
  12. SES – State Educational Standards (Държавни образователни стандарти): <http://www.minedu.government.bg/?go=page&pageId=1&subpageId=25>