

USING VIRTUAL MUSEUMS FOR TEACHING VIETNAMESE HISTORY IN HIGH SCHOOLS IN THE NORTHERN HIGHLANDS

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ARTICLE INFO		ABSTRACT
Received:	24/5/2022	Teaching Vietnamese history in specific and teaching broadly in the new trend of the 4th Industrial Revolution always require new approaches and innovations which are creative and effective to serve the fundamental and comprehensive requirements of the Vietnamese education. The virtual museum is an approach which creates links between museum and class, attractive objects and the content of historical lessons and then help student to learn history by different ways. The using of virtual museum in teaching history is therefore meaningful towards student in high schools in the Northern highlands of Vietnam. Based on the methodology of logic, synthesis, the article wanted to clarify the necessity of using virtual museums in teaching Vietnamese history for high school students in Northern midland and mountainous areas, the role and signification of using virtual museums in teaching history. Therefrom, the article deeply exploited and designed a virtual museum. At the same time, the article proposed the measures to use the virtual museum in teaching history in order to improve quality of history education in high schools.
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SỬ DỤNG BẢO TÀNG ẢO TRONG DẠY HỌC LỊCH SỬ VIỆT NAM Ở TRƯỜNG TRUNG HỌC PHỔ THÔNG CÁC TỈNH TRUNG DU MIỀN NÚI PHÍA BẮC

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THÔNG TIN BÀI BÁO		TÓM TẮT
Ngày nhận bài:	24/5/2022	Dạy học nói chung và dạy học Lịch sử Việt Nam nói riêng trong bối cảnh cuộc cách mạng công nghiệp 4.0 luôn đòi hỏi những giải pháp mới, sáng tạo, hiệu quả đáp ứng yêu cầu đổi mới căn bản và toàn diện giáo dục. Bảo tàng ảo chính là một giải pháp kết nối giữa bảo tàng với lớp học, các hiện vật trưng bày sinh động, hấp dẫn với nội dung bài học lịch sử, đem đến sự tương tác, trải nghiệm thực tế ảo cho người học. Giải pháp đó đặc biệt ý nghĩa với học sinh trung học phổ thông ở khu vực trung du và miền núi phía Bắc. Thông qua việc sử dụng phương pháp logic, tổng hợp, bài viết muốn trao đổi, làm sáng tỏ sự cần thiết của việc sử dụng bảo tàng ảo, vai trò, ý nghĩa của việc sử dụng bảo tàng ảo trong dạy học lịch sử. Từ đó, bài viết đi sâu vào việc khai thác và thiết kế bảo tàng ảo phục vụ dạy học lịch sử ở trường trung học phổ thông. Đồng thời, bài viết tập trung đề xuất những biện pháp sử dụng bảo tàng ảo trong dạy học lịch sử nhằm nâng cao chất lượng giáo dục bộ môn ở trường trung học phổ thông.
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1. Introduction

Using visual aids is always considered a “golden rule” in teaching in high school. As a result, teachers of all subjects always take advantage of every tool and means of teaching in order to build up the most effective cognitive ways for their students. While the laboratory is an ideal place of studying and practicing natural scientific subjects, relics, objects and documents are the main source of information for History. Museums are a useful and practical medium for studying History in high school.

Due to this interesting issue, scholars have completed quite lots of research on using museums. Alan Reid Gartenhaus had deeply analyzed the way of using of museums to develop students' thinking and creating a new idea [1]. Those activities are applied in teaching Art, History and Science, which helps students have a chance to contact with collections in order to explore the meaning and value of artifacts in the process of research. George E. Hein argued that museums help to form people's identity. By accessing information and objects in museums, learners can observe and explore the knowledge of history and culture [2]. Alan S. Marcus has outlined the practice of using museums in teaching history in America. Field trips to museums are popular in schools in America, especially many states require that those trips have to connect with the history curriculum [3]. Nguyen Thi Coi debated clearly the relationship between museums, galleries with teaching history in high schools. The author confirmed the role of museums, and introduced fundamental information about some historical museums and the availability to exploiting those museums in teaching history [4]. Nguyen Kim Thanh mentioned supportive relationship between providing knowledge in classrooms and new teaching methods by using museums and galleries [5]. Besides, contents of some other works, projects, articles, and theses helped to clarify the theory and practice of using museums [6]-[10]. So far, in Vietnam, there has been no research on the use of virtual museums in teaching history in some high schools in the northern highlands.

In traditional teaching methods, using museums has the advantage of learning space, observation, practical experience, etc. However, it can be concluded from the reality that the approach has not promoted the educational role and significance of museums. Particularly, it is really difficult to teach History for high school students in the midland and mountainous provinces. Therefore, this article studied the issue of exploiting, designing virtual museums in order to propose measures to use virtual museums in teaching Vietnamese history in these schools, contributing to improving the quality of teaching the subject.

2. Research methods

The research studied the issue of connecting museums with historical lessons in teaching Vietnamese history, proposing methods and measures to use virtual museums in order that students' competencies can be developed to contribute to the renovation of teaching methods and improvement of teaching effectiveness.

This study employed theoretical analyzing method, and practical approaching method to answer the following questions:

- Why virtual museums should be used in teaching Vietnamese history to high school students in midland and mountainous provinces in the North of Vietnam?
- How virtual museums could be efficiently employed to teach the history of Vietnam for high school students the midland and mountainous provinces?

3. Exchange and discussion

3.1. The necessity of using virtual museums in teaching Vietnamese history for high school students in Northern midland and mountainous areas

Using virtual museums is a necessary measure to renovate methods of teaching Vietnamese history, which creates a close link between learning and practicing, schools and the society. The necessity of using the museum arises from various factors.

First of all, museums play an important role in the teaching of Vietnamese history in high school. It is usually defined as a good school, "a living historical book". The roles of the museum are expressed in the following aspects:

Museums are an excellent place to study, a special school for History. Museums are the place to store and display the original documents and objects. Museum plays an important role in helping people to visualize the past, presenting lively paintings about the noble life of industrious working, brave fighting and profound sacrifices of earlier generations who struggled to establish and defend the country.

Museums – "*a living historical book*" are a great source of knowledge to organize cognitive activities for students. Museums are always conceived as an information center, with the wealth of original, accurate and accessible information. The materials and artifacts of museums are interesting and highly reliable.

Museum act as a "*bridge*" between past and present. Documents kept in museums can be traced back to ancient time. Thus, the use of museum documents in teaching History will contribute to improving the quality of lessons.

Observing documents displayed in museums is an attractive way of learning. On the basis of the perception of the original artifact, students would realize the nature of things or phenomena to form their own concept.

Secondly, there are plenty of advantages of virtual museum in teaching Vietnamese history. In the early 1990s, the development of digital media quickly changed the way of displaying objects and documents, and new forms of virtual museums appeared in some developed countries of the world. Virtual museums are digitized museums, displaying objects in digital form. Based on the development of technology, virtual museums are known as many different terms and names, such as electronic museums, digital museums, online museums, museums of super-information, network museums. All of these terms share the same kind of digitized and accessible electronic information. Virtual museums are a product of digital technology, based on the features of real museums to complement and enhance the experience through personalization and interaction.

These days, some schools have paid attention to organize field trips to museums. Besides organizing these trips, teachers can directly link students with museum inside the classroom via virtual museums. With their inherent advantages, the two models of teaching at real museums and that of using virtual museums in the classroom play an important role in teaching History, contributing to the interest in learning, stimulating students' observation and thinking. However, in comparison to the former model, the use of virtual museums in classrooms has many outstanding advantages for teaching History in high schools, specifically as follows:

- Using virtual museum model is more economical;
- Geographic distance is no longer an obstacle;
- Teachers can actively and frequently use virtual museums in classrooms;
- Students can use virtual museums anytime, anywhere, which contributes to the development of self-learning.

Thirdly, to solve a problem arisen from the requirements of History teaching practice in high schools, the authors conducted a survey with 30 teachers of History in some high schools in Northern midland and mountainous provinces such as Kim Ngoc high school (Ha Giang), Thang Muoi high school (Tuyen Quang), Viet Bac Highland high school (Thai Nguyen), Hoa An high school (Cao Bang), Vu Le high school (Lang Son), Sop Cop high school (Son La) to investigate the following issues:

- Issue 1: Advantages and disadvantages of teaching with real museums (Economic conditions and geographical distance).
- Issue 2: Advantages and disadvantages of teaching with virtual museums in the classroom (Technical means, applying information technology skills)
- Issue 3: Assessment of the necessity of the use of virtual museums at classroom in teaching History.

Results of the survey are shown in table 1, and table 2.

Table 1. Advantages and disadvantages of teaching with museums

Issue		Advantages		Disadvantages	
		Number of choices	Percentage	Number of choices	Percentage
Issue 1	Economic conditions	8	26.7	22	73.3
	Geographical distance	6	20	24	80
Issue 2	Technical means	18	60	12	40
	Applying information technology skills	19	63.3	11	36.7

Table 2. Assessment of the necessity of the use of virtual museums at classroom

Issue 3	Level	Number of choices		Percentage	
Issue 3	Very necessary	11		36.7	
	Necessary	18		60	
	Unnecessary	1		3.3	

The results of the survey show that the application of the teaching model using real museums had many difficulties in terms of budget and geographical distance. Meanwhile, the model of using virtual museums had favorable conditions to apply regards of equipping technical means and applying information technology skills. In particular, when being asked if there was a need to use virtual museums in the classroom, the majority of reviews agreed.

With their outstanding advantages and favorable conditions, virtual museum model is a necessary and important technological solution. Through this connection, teachers and students can use materials and artifacts on a regular, flexible basis in the lessons and extracurricular activities of History.

3.2. Exploiting and designing a virtual museum to use in teaching Vietnamese history in high schools

With their digitization, high connectivity, virtual museums are easily exploited in History teaching in any classroom with modern technical facilities, without space and time limitation compared to real museums. Therefore, teachers and students should be equipped with skills to exploit and design virtual museums.

In practice, in addition to traditional displays, many museums have renewed the display method by developing a virtual exhibiting model through a virtual museum system. Therefore, it has facilitated the linking of the museum with the lessons of Vietnamese history in high schools. For example, teachers and students can explore some of the typical virtual museums such as the National Museum of History with regular exhibitions (Prehistoric Vietnam, Dong Son Culture, Ngo - Dinh - Post Le - Ly, Tran Dynasties), special exhibitions; Museum of Military History of Vietnam. Teacher exploits a virtual museum with the theme of Dong Son Culture as shown in Figure 1. Through observing the virtual museum, students can vividly observe the content of the lesson.



Figure 1. Virtual museums about the National Museum of History

Based on the exhibits of traditional museums, teachers can actively design virtual museums. The process of building a virtual museum consists of four following steps:

- Step 1: Select virtual museum theme. Based on the objectives and pedagogical plans, teachers can choose the theme of the virtual museum. This is the first step in the constructing process to determine the theme of the museum as a basis for the selection of exhibits.

- Step 2: Digitize the artifacts for the virtual museum. In this step, teachers perform the work of shooting objects, processing images by 3D techniques. Data displayed in virtual museums are mainly written artifacts and images related to events, typical historical figures, work tools, weapons, etc.

- Step 3: Use the software to build the virtual museum. After digitizing artifacts, teachers use software (Panotour, 3DVista virtual tour) to create virtual museums.

- Step 4: Edit and complete. The built-in virtual museum will be adjusted by the teacher to make sure that it is consistent, easy to use and follow, and meets the objectives of teaching History.

For example, prepare for lesson number 18 of 12th grade history - The early years of the national resistance against the French colonialism (1945-1950), teachers in Thai Nguyen province can exploit documents, images, and maps of the Viet Bac Armed Forces Museum to build a virtual museum model of the Viet Bac campaign, the border campaign. With the above design of the virtual museum, materials and artifacts related directly to the lesson combined with the guide's narrative will create a visual, lively and exciting lesson for learners.

3.3. A number of measures to use virtual museums in teaching Vietnamese history for high school students in Northern midland and mountainous provinces

In order to use virtual museums in teaching Vietnamese history in high schools, teachers can proceed the following measures:

3.3.1. Organizing historical tracing activities to recover events and phenomena

Virtual museums have a rich collection of electronic materials, which contain traces of history and evidence of the past. Traces are what left behind an event or a phenomenon. The trace may be displayed on a map, a saucer or related object and image. Based on the traces, researchers, historical learners can recreate the events or historical phenomena.

When conducting virtual museum lessons, teachers can organize students to explore, detect traces to recreate, restore historical events and phenomena. Historical tracing is a teaching activity that activates students, helping them develop the capacity of identifying material and reproducing the past. Based on the guidance of teachers, students are allowed to actively monitor and trace at the galleries in virtual museums, in combination with using textbook and lessons.

When organizing historical tracing activities to restore events and phenomenon in the lesson, the teachers should conduct the following steps: Determining the content; Dividing students into groups and assigning traces; Groups observing by themselves and taking note, Teaching basic content.

With historical tracing activities through virtual museums, teachers let students explore the contents: The original life (Using documents displayed in Thai Nguyen museum); The traces of Thai Nguyen soldiers (Armed Forces Museum); Traces of Bac Son uprising (Viet Bac Armed Forces Museum)...

Teachers guide students to carry out activities shown on the study cards as follows: Tracing controlling locations at Dinh Hoa ATK through the Dinh Hoa ATK Virtual Museum; Combining the use of relics and objects in the Dinh Hoa area and exhibits. Students are assigned to look for the work places and accommodation of Uncle Ho, the Central Party, the General Command and other central agencies...

3.3.2. Conducting historical investigation to explain the nature of historical events

Methodologically, the process of historical perception of students has many similarities with the research process of historians. The greatest common point is that, based on the historical

evidence, researchers as well as learners will come up with correct and persuasive scientific arguments to recreate the past, explain events and phenomena. In other words, these research and study are conducted by investigative activities. Investigation means investigating and reviewing historical truth to evaluate and comment on that event. Historical investigating activity is an activity in which students engage to study about a historical event with different views.

Based on the historical evidence which is stored and exhibited at museums of past events, teachers instruct students to study based on artifacts, taking artifacts as starting points, thereby using knowledge in the textbook to organize historical investigation activities. Participating in historical investigations, students need to use their understanding of the historical context, creating a reasonable scenario for events that happened in the past. To test the hypothesis, each student must search and analyze the required information to decide if the hypothesis is consistent with historical evidence.

Historical investigation is an activity that boosts self-explored learning, gaining knowledge and developing abilities. Students receive and process information from the museum and come to the conclusion, clarify the problem of learning by themselves.

The steps of conducting historical investigations through virtual museums are as follows:

- Step 1: Determine the question of the investigation: Describing the historical facts, characters and phenomena in the textbooks; Determine what is known and what has been agreed, what is unclear or contrary.

- Step 2: Build scenario, hypotheses to explain the problem. Based on what students understand about the situation, provide a hypothetical scenario that is appropriate to the content of the lesson.

- Step 3: Find and analyze evidence to determine if the hypothetical scenario of the students is firmly grounded, convincing, and reflects students' correct perception.

- Step 4: Discuss and evaluate the results.

In the above tasks, the analysis of evidence through museum artifacts and confirmation of the hypothesis are the core tasks. The issue should be identified with WHY. When using virtual museum materials to conduct historical investigations, teachers can investigate issues such as: "Why did Uncle Ho and the Central Party choose Viet Bac as a base for resistance?"; "Why was Viet Bac considered as the grave of the French enemy?"

When teaching lesson 18th - The early years of the national resistance against the French colonialism (1945-1950), the teacher may conduct the investigation "Why did President Ho Chi Minh launch the national resistance on 19/Dec/1947?". At the beginning of the content, the teacher raises the cognitive question for the students. Next, students are instructed to observe the gallery of virtual museums. To clarify France's plagiarism and President Ho Chi Minh's call for national resistance, students observe images of the nationwide call for resistance, images of the nationwide resistance war. After listening to the guide's instructions, the teacher asks the students to respond based on the exhibits in the museum, along with the arguments. Next, the teacher comments and draws conclusions about the investigation.

3.3.3. Organizing students to play the role of a guide to assess student achievement

From the practical point of view, the current teaching of History, teachers mainly help students understand the basic knowledge, but not focus on the use of lessons learned in life. Some lessons are theoretical, which means that they have not been applied in the applying direction. Therefore, the current requirement is to increase the use of knowledge to develop students' competencies. One of the ways to solve that problem is to have the teacher act as a facilitator.

During the learning process with virtual museums, the guide is the person who influences students' perceptions and provide students with valuable information. In addition, most of the guides are well-liked by students for their compelling and inspirational narratives. By organizing visuals as well as professional activities of the instructors, teachers can ask students to play the

role as guides. This experience is mainly used in revising, reinforcing knowledge, or learning new knowledge, or conducting preliminary and summative lessons. When they play the role of guides, students would not only master the knowledge, but also practice their speaking skills, incorporating museum materials with the knowledge they have learned.

When teaching new knowledge, teachers can organize guide-role playing activity as follows:

- Step 1: Assigns tasks to act as guide for each group of students.
- Step 2: Show how to prepare explanations and provide students with need skills
- Step 3: Students create presentations, select objects and rehearse presentations.
- Step 4: Students perform role-play as guides in conjunction with the use of virtual museums.
- Step 5: Evaluate the performance of student role play.

For example, when teaching the Viet Bac Fall - Winter Campaign in 1947, teachers could organize students to act as guides. Based on the information learned, as well as the use of virtual museum exhibits, students can present their insights about the progress of the campaign.

3.3.4. Guide students to collect learning materials through virtual museums

Along with discovering, exploring, and learning experiences, teachers need to guide students to collect learning materials through virtual museums. Outstanding historical facts, figures and virtual museums help students enrich, deepen their knowledge of the lesson, and contribute to the development of practical skills and other competencies such as IT applying and self-studying.

When students collect materials, virtual museums are spaces that contain a variety of materials and artifacts for them to select and collect materials for reinforcing and expanding the knowledge they have learned or preparing for new lessons. The abundance of virtual museum resources is both favorable and difficult for students. That is the difficulty of software interface, manipulation, selection and processing of information... Therefore, this requires students to be well-equipped to collect materials in order to efficiently exploit information sources quickly and accurately.

When using the virtual museum in the process of collecting historical documents to serve the construction of museums, teachers should instruct students to follow the specific steps as follows:

- Step 1: Guide students to determine the purpose and content of historical materials.
- Step 2: Instruct students to analyze the source and select the content.
- Step 3: Guide students to use technical tools to digitize collections.
- Step 4: Guide students to exploit the collected information.

Teachers need to be flexible in accordance with the conditions of each school, when using virtual museums in teaching Vietnamese history, so that they can enable students to approach quickly and effectively to this source of knowledge.

4. Conclusion

Virtual museums are important means which support teachers in guiding and organizing lessons for students to understand history in an authentic way, easily create the symbol and avoid "modernizing" history. Through the exploitation, use of museum artifacts, teachers will help students study in a specific, objective and systematic "historical environment". To effectively use the virtual museum in teaching Vietnamese history in high schools, requirements for solid knowledge, deep understanding of virtual museums are of significance. Also, teachers need to be equipped with ICT skills and the spirit of innovation and adaptability in the context of teaching in 4.0 Industrial Revolution.

REFERENCES

- [1] A. R. Gartenhaus, *Minds in motion: using museums to expand creative thinking*. Arkansas, 1997.
- [2] G. E. Hein, *Learning in the Museum*. Routledge, 1998.
- [3] A. S. Marcus, J. D. Stoddard, and W. W. Woodward, *Teaching History with Museums: Strategies for K-12 Social Studies*. Routledge, 2012.

- [4] T. C. Nguyen, *Historical Museum in teachnig history in high schools*. VNU Publishing House, 1998.
- [5] K. T. Nguyen, *Museums, Heritages - Origin in teaching and learning history in high schools*. Education Publishing House, 2014.
- [6] V. B. Dang, "Museum with the education of high school students," *Cultural Heritage Magazine*, no. 3, pp. 13-15, 2006.
- [7] H. T. Do and T. T. H. Le, "Organization of history teaching grade 12, School education program at Viet Bac Armed Forces Museum - Military Zone I in Thai Nguyen," *TNU Journal of Science and Technology*, vol. 129, no. 15, pp. 179-184, 2014.
- [8] T. T. L. To, "Virtual museum 3D - one of the breakthrough projects of the National History Museum," *Heritage World Magazine*, no. 9, pp. 24-26, 2013.
- [9] V. N. Mai, "Initial research on building a virtual museum to apply it to teaching history in high schools," *Educational magazine*, no. 9, pp. 51-53, 2012.
- [10] P. Maryse and B. Marion, "Websites and Virtual History Museums: Educational Strategies Used by Francophone Teachers in Canada," *International Journal of Instructional Media*, vol. 34, no. 2, pp. 159-169, 2007.