Design and Implementation of the Battle Database within Aided Learning System for Military Theory Course

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Abstract. The military theory course is very important, and it is a compulsory military basic course offered by regular colleges and universities. In view of the low interest and difficulty of some students, the characteristics of military theory courses are firstly summarized in this paper, and the structure and function of the aided learning system are analyzed, then the classic examples of the battle database are listed , and finally the steps of the Implementation of the battle database are given. The conclusions of this paper can provide a reference for improving the teaching effect of military theory courses.

Keywords: Military Theory Course, Aided Learning Systems, Battle Database.

1   Introduction

The establishment of military courses in regular colleges and universities is not only a legal provision of the state, but also an objective requirement of the basic laws of education. Among them, the military theory course is a compulsory military basic course, and its status is very important [1]. Therefore, making efforts to study the military theory course well is not only a sacred obligation for contemporary college students to fulfill their sacred obligation to defend the motherland, but also a basic requirement for abiding by the law. According to the "Syllabus for Military Courses in Regular Colleges and Universities" jointly issued by the Ministry of Education and the National Defense Mobilization Department of the Central Military Commission in January 2019, the curriculum mainly includes "China's National Defense", "Military Thought", "National Security", "Modern Warfare", and "Information Equipment", etc. [2][3]

Military theory course has the following characteristics: First, it is closely related to military affairs. In particular, the current form of warfare and the main weapons mainly discussed in the two chapters of "Modern Warfare" and "Informationization Weapons". Second, it is highly theoretical. For example, the concept of military thought, ancient military thought, Mao Zedong's military thought are described in the chapter of "Military Thought", and their contents are not only a theoretical summary of the experience of past dynasties in war and military practice, but also a theoretical guide for military practice of modern war and future war. Third, it is difficult to learn. Military theory course generally is taught in the second semester of the first year in universities, when

the students' military foundation is weak, and some students are not very interested in it, and the time and energy invested are insufficient. Based on this, it is particularly necessary to implement an aided learning system to enhance the intuitiveness and practicality of the course and improve the interest of students.

The function of the aided learning system of military theory course will be analyzed firstly in this paper, then the design of the battle database, and finally the implementation of the battle database will be expounded.

2   The Composition of the Aided Learning System

An aided learning system is a computer software system whose main function is to help students learn a course using a variety of intuitive means. Aided learning systems already have mature design and implementation techniques [4][5][6], and it is more necessary to pay attention to the different characteristics of different courses. For example, for military theory courses, the aided learning system can provide examples of battles from the past and present, biographies of famous militarists, and introductions to the performance of weapons. Using it, students can better understand the course content on the basis of classroom learning. Therefore, aided learning system is very important for the study of military theory courses.

The aided learning system for military theory course is mainly composed of the following parts:

(1) Interactive interface. The aided learning system is developed based on the campus network, and students can log in at any computer terminal connected to the campus network and perform the following operations:

- Browse the teaching plan, teaching process, textbook and reference materials of the military theory course;

- View the teacher's profile and teaching achievements;

- Select some of these question banks to practice and get scores;

- Post comments and opinions;

- Browse the battle database, militarists, weapons, military events, military theories, and other resources.

(2) Management database. The management database is mainly used to support teachers to manage the aided learning system, mainly including:

- Teacher, including a list of the teachers who are teaching the course and a bio;

- Students, including a list of students who are studying the course and a bio;

- User permission setting, the administrator has the permission to modify and delete system data, and the student has the permission to search, browse, answer questions and comment;

(3) Library of learning resource. There are mainly battle database, militarists database, weapons database, military event database, military theory database, and the data of each database has text, pictures, audio, video and other formats.

- Battle database. It includes ancient classic battle examples of China, and modern classic battle examples of China and foreign countries, with time, place, process, result, influence and other elements;

- Militarists database. It includes China's military militarists with great influence throughout the ages, with elements such as character profiles, life events, and related figures;

- Weapons database. It includes the world's most advanced typical weapons, with elements such as weapon types, basic parameters, and main functions;

- Military event library. It includes military events with great influence in China throughout the ages, with elements such as time, main figures, event process, and influence;

-- Military theory library. It includes the representative military ideas and theories of China and other countries, with such elements as name, founder, theoretical connotation, and influence.

(4) Question bank. It includes the homework questions for each class, reflection and practice questions for each chapter, and review questions, including:

- Questions and their answers;
- Score setting and total score calculation;
- Assessment of the difficulty of the paper;
- Comparison of the training performance of students in different classes.

3   Construction of the Battle Database

In the more than 5,000 years recorded in history, there have been more than 17,000 battles of various types in the world, including a large number of wonderful examples of success, as well as many painful lessons of defeat [7]. Because each of these wonderful battles embodies many experiences and mistakes in the formation of real battlefields, they are regarded by many military experts as "the best teachers" and "valuable teaching materials." In ancient and modern times, at home and abroad, all persons who have made achievements in the military field have attached great importance to the accumulation and study of battles examples. Therefore, it is very necessary to design and implement a battle database to help students learn military theory course well.

3.1   Design of the Battle Database

As for the examples of the battle database, of course, their number is enormous. Here we take the "Military Thought" chapter of the military theory course as an example to illustrate the selection of examples from the battle database. The representative works of military thought, including Sun Tzu's "Art of War", Karl von Clausewitz's "on War" and Mao Zedong's Military Thought, etc., are listed below to illustrate some of the corresponding classic battles examples.

(1) Classic examples related to Sun Tzu's "Art of War"

- In 632 BC, the battle of Chengpu between the Jin Dynasty and Chu Dynasty;
- In 506 BC, the Battle of Wu Dynasty and Chu Dynasty;
- In 341 BC, the Battle of Maling between Qi Dynasty and Wei Dynasty;
- In 119 BC, the battle of Mobei between Western Han Dynasty and Hun Dynasty;

- In 383 AD, the battle of Feishui between Eastern Jin Dynasty and Former Qin Dynasty.

(2) Classic examples related to Karl von Clausewitz's "on War"

It was mainly the war that took place under the French army led by Napoleon Bonaparte(1769-1821).

- In 1805, the Battle of Austerlitz between France and the Russian-Austrian forces;
- In 1807, the Battle of Eylau between France and the anti-French coalition;
- In 1812, the Battle of Borodino between France and Russia;
- In 1815, the Battle of Waterloo between France and Anglo-Prussian Alliance.

(3) Classic examples related to Mao Zedong's military thought

- In 1935, the battle of "Crossing the Chishui River Four Times";
- In 1937, the battle of Pingxingguan;
- In 1945, the Battle of Shangdang;
- In 1947, the Battle of Menglianggu;
- In 1950, the Battle of Changjinhu.

3.2   Implementation of the Battle Database

The basic idea and main steps of the Implementation of the battle database are as follows [8]:

Step 1: Sort out the key data indicators of battle examples' description, form a standardized model, and define the rules for battle examples' digitization.

Step 2: Design a way to obtain battle examples' data, and on the basis of manual input, through data mining and machine learning, the platform can automatically obtain formatted battle examples' data from internet and libraries.

Step 3: Build an effective management tool for the battle database, providing data entry, analysis, storage, maintenance, retrieval, management and other functions to achieve effective management of the battle database.

Step 4: Enrich the battle database and form a relatively complete digital resource library.

Step 5: Combined with the specific application needs of military theory course teaching, build a digital battle database service application function module, and develop a specific functional module for practical applications such as comprehensive analysis, screening, retrieval, and intelligent recommendation of the battle database based on the establishment of the battle database and the correlation analysis between them.

Step 6: Carry out the improvement and optimization of the digital battle database platform, and promote the practical application of the aided learning system to ensure that the system is further improved in continuous update and iteration.

4   Application Scenarios

In the course of studying military theory, students can use the battle database of the learning aided system in many places. For example, for the study of the chapter "China's National Defense", students can look through the examples of "Zhenbao Island Self-

defense Counterattack "; For the study of the chapter "Military Thought", students can look through the examples of the "Battle of Austerlitz"; For the "National Security" chapter, students can look through the "Attack on Pearl Harbor" example; For the study of the chapter "Modern Warfare", students can look through the examples of the "Battle of the Falklands"; For the study of the chapter of "Information Equipment", students can look through the examples of the "Russia-Ukraine Conflict".

The following is an example to illustrate the use of the learning aided system: the teacher guides and organizes students to complete the class discussion of the "Battle of Wu Dynasty and Chu Dynasty" in the chapter "Military Thought".

First, students learn the basics. They should understand the significance of the "Battle of Wu Dynasty and Chu Dynasty" in the classroom, and realize that this war was a key battle in the struggle for hegemony between Wu Dynasty and Chu Dynasty during the Spring and Autumn Period in China. After winning the war, Wu Dynasty became the most powerful military state at that time, while Chu Dynasty entered a long period of decline. At the same time, it was the battle of fame of the greatest military thinker of ancient China, Sun Tzu, which established the supremacy of the Art of War.

Second, students work separately to complete tasks. According to their respective division of labor, they log in learning aided system, find the introduction of the "Battle of Wu Dynasty and Chu Dynasty " in the battle database, inquire about the life deeds of Sun Tzu and Wu Zixu in the militarists database, study relevant operational ideas in the military theory library, collect and sort out relevant texts, pictures, videos and other materials, produce multimedia courseware, write discussion materials, organize group discussions, and improve the content of the discussion. After that, the multimedia courseware is submitted to the teacher for review and finalization through the learning aided system.

Finally, the teacher organizes a class discussion. According to the pre-class plan, the teacher organizes students to discuss in groups. Based on the introduction of the background, characters, process, results, and impact of the "Battle of Wu Dynasty and Chu Dynasty ", the students analyzed the military ideas embodied in the war. For example, the understanding of the importance of war is " The art of war is of vital importance to the State. It is a matter of life and death, a road either to safety or to ruin. Hence it is a subject of inquiry which can on no account be neglected. ", and the thinking of the five elements of war: "The Moral Law; Heaven; Earth; The Commander; Method and discipline". After the students completed the discussion, the teacher asked them to organize the materials and enrich them into the description of the "Battle of Wu Dynasty and Chu Dynasty ", so as to further improve the learning aided system.

5   Conclusion

Military theory courses are relatively abstract, so it is not easy for students to understand. Designing a battle database and building a powerful aided learning system often plays a role in getting twice the result with half the effort. In the current information age, network resources are abundant, and it is not difficult to collect relevant examples. On this basis, referring to authoritative history books, carefully improving the

information of battle examples, and enriching it into the battle database, will certainly help to enhance students' learning interest and learning effect.

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