

# Designing a Teaching Website for Early Warning Technology Support Specialty Based on Information Architecture

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**Abstract:** With the advancement of education informatization, learning through the internet has become a very important approach. Existing teaching websites generally have problems such as low accuracy of information grouping and obvious disconnection between the navigation system and content. Based on information architecture, a teaching website for early warning technical support specialty is designed in this paper from four aspects: content organization, identification, navigation, and interaction. The unification of information processing and information requirements is achieved using this method, which improves the quality of professional course construction for early warning technology support specialty.

**Keywords:** Information architecture; Early warning technology support specialty; Website design

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## 1. Introduction

It is imperative to establish a teaching website for early warning technology support specialty (abbreviated as AMEWTS), in order to solve its course construction problems, such as single teaching means, scattered resources, and low information level. By analyzing the existing teaching websites, it has been found that the accuracy of information grouping is low, the navigation system is disconnected from the content, the interactivity of the website is poor, and the updates are not on time. Information architecture (IA) is a new way of thinking about the organization and management of information content<sup>[1]</sup>. It pays full attention to the interaction between information content and demand users as well as emphasizes the concepts of “making information clear and understandable” and “user-oriented.” This paper attempts to interpret the connotation of IA and analyze the design of AMEWTS teaching website based on IA. The results from this research have important reference value not only for the application of IA theory, but also for the construction of teaching websites.

## 2. Connotation of IA

IA is the art and science of organizing information and interfaces. It involves the design of organization systems, identification systems, navigation systems, and search systems. The purpose is to help people find and manage information more successfully in the web environment and satisfy the information needs of users more effectively.

The organization system determines the grouping of the information content, the information organization scheme, and organizational structure <sup>[2]</sup>. The identification system decides on how to name and call for the grouping content and creates a consistent identification scheme <sup>[3]</sup>. The navigation system determines how website users browse and retrieve grouped content <sup>[4]</sup>. The search system determines how users search for information and helps users retrieve the information they need <sup>[5]</sup>.

From the perspective of education, IA has three characteristics: (1) a combination of multidisciplinary practical activities, such as web design and information science; (2) it emphasizes user-centered and user experience, which is exactly in line with the “student-centered” concept emphasized in the education field; (3) it particularly emphasizes usability and visualization, which coincides with the concept of “transcending time and space constraints as well as achieving the optimization of the educational process” pursued by educational technology.

### **3. IA design and analysis of website**

The IA of AMEWTS teaching websites should highlight the “user-centered” concept. “User-centered” refers to understanding the real needs of users, so that users can clearly grasp the overall structure of the website as well as quickly and easily find information to meet their needs. It can be seen that a good IA is of great significance to website design.

#### **3.1. Necessity of website IA**

The AMEWTS teaching website is a service website. It uses IA to guide the construction of the website. The content, function, and design style of the website are in line with the needs of users, so that users can quickly obtain the information they need on the website with less time and cost. In addition, the IA of the website is conducive to the formation of an overall information system framework as well as the internal and external information environment of the website, which helps developers optimize resource allocation, enhance the flexibility and scalability of the website, as well as facilitate subsequent maintenance.

#### **3.2. Strategies for website IA**

##### **3.2.1. Design principles**

In order to guide website construction based on IA, it is necessary to adhere to the needs of users as the fundamental and prerequisite. The learner is the target of the website. The design of AMEWTS teaching website should be based on the needs of the learner upon analysis. Specifically, the website should have the following two functions: (1) teachers and students can upload or download teaching resources according to their own operating authority, the teaching resources support a variety of formats and technical standards, and the content includes teaching courseware, video resources, various documents, etc.; (2) the platform provides professional courseware production tool resource services, which allow teachers to develop course teaching resources online or offline, and students can obtain effective learning resources online.

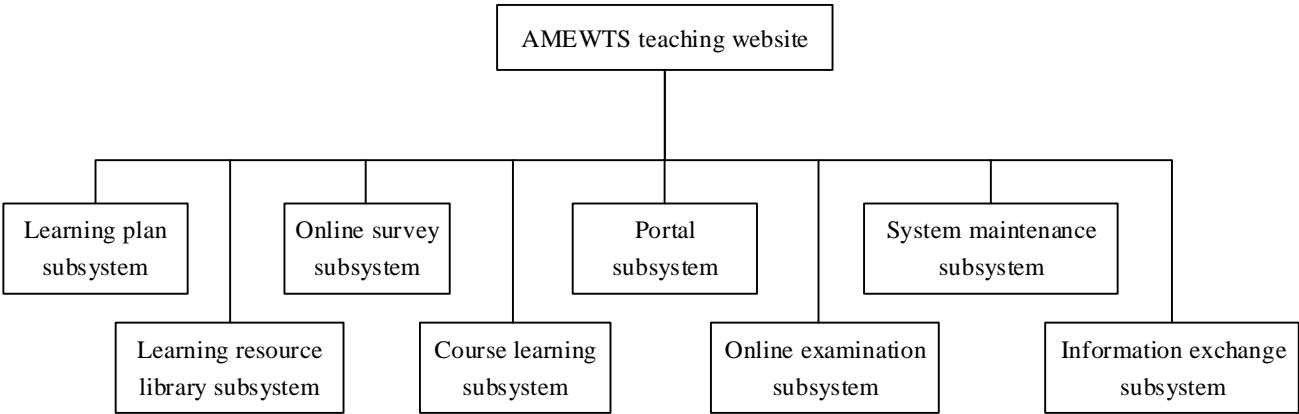
##### **3.2.2. Design analysis**

The following is an analysis of the IA of AMEWTS teaching website from the four core aspects of IA; namely, the organization system, the identification system, the navigation system, and the search system.

###### **(1) Organization system**

IA pays special attention to the organization and management of website information resources, and its goal is to seek the unification of information processing and information needs. Educational content is the physical basis of a teaching website, so the website should organize information

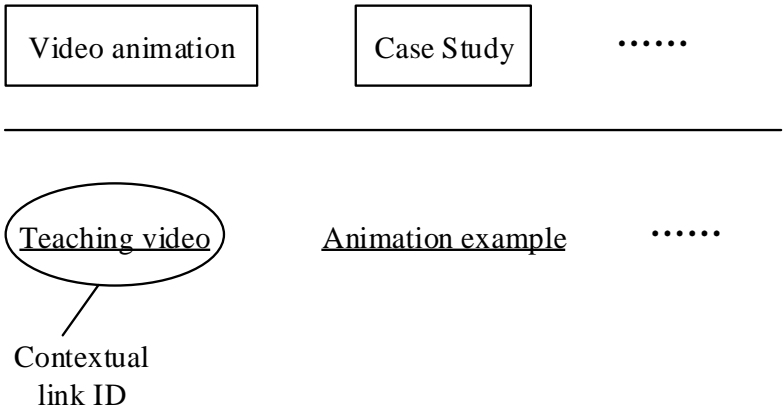
scientifically. People’s recognition towards teaching websites is directly related to the overall structure as well as the rationality and clarity of the website, which should be reflected by the content organization system of the website. **Figure 1** shows the system composition of AMEWTS teaching website.



**Figure 1.** System composition of AMEWTS teaching website

(2) Identification system

The process of assigning information identification to website information is a process of guiding information. The main function of the identification is to give each category a suitable name. This identification should not only conform to users’ usage habits, but also reflect the actual situation of the category and distinguish it from other categories, so as to ensure that the website has the characteristics of accuracy, standardization, and consistency. Website identification systems are generally divided into two types: title type and contextual link type. Title type identification is more commonly used than link type identification. Regardless of the type of identification, it must be able to clearly express and standardize the characteristics. **Figure 2** shows the design of the identification system for AMEWTS teaching website.

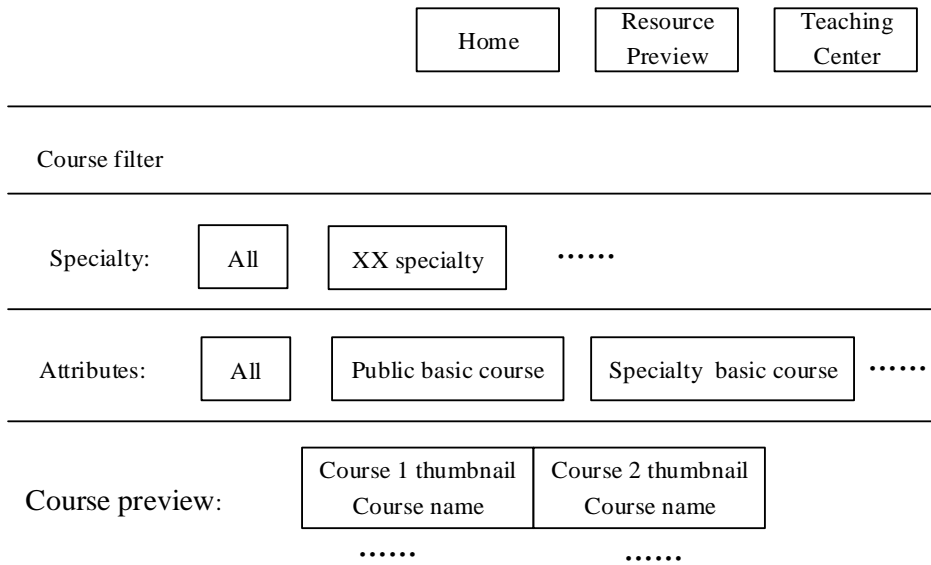


**Figure 2.** Identification system design for AMEWTS teaching website

(3) Navigation system

The navigation system is extremely important for every website. It is a shortcut for users to enter other service items. There are generally three types of navigation systems: global navigation system, local navigation system, and contextual navigation system. Among them, global navigation and local

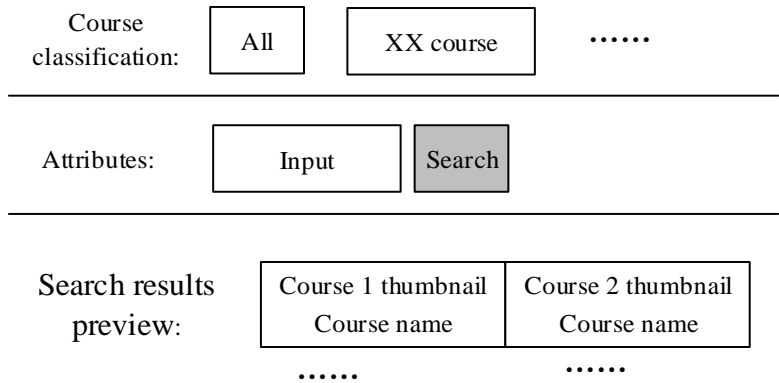
navigation are common-sense technologies for website construction, and they do not need much explanation. However, contextual navigation is highly emphasized for teaching websites. This kind of navigation allows learners to easily enter the knowledge points presented by the current page, and these knowledge points may be unexpected by the user. Contextual navigation plays a role of reference and guidance, like a tutor, which continuously guides learners into deeper contents. **Figure 3** shows the design of the navigation system for AMEWTS teaching website.



**Figure 3.** Navigation system design for AMEWTS teaching website

(4) Interactive system

A real learning process is a process of integrating a learner into the website context and interacting with educational information to produce correct meaning construction, which is different from ordinary online fast-food reading. In order to achieve this goal, the teaching website must ensure the occurrence of effective information interaction. On-site search is an effective way to achieve information interaction, which allows learners to quickly find the content of a specific topic. The core of the information retrieval system is a search engine, which uses the principle of subject classification to organize information and forms a retrieval database for the website, thereby providing learners with fast and accurate information retrieval services. **Figure 4** shows the design of the retrieval system for AMEWTS teaching website.



**Figure 4.** Retrieval system design for AMEWTS teaching website

#### 4. Conclusion

IA points out that a website must have a scientific and reasonable information organization system, a normative and standard information identification system, a complete and consistent information navigation system, as well as a diverse and comprehensive information retrieval system. When interpreting IA from the perspective of teaching, it is not difficult to understand the principles of educational psychology contained therein, such as the theory of meaning construction and the theory of interaction. In the construction of teaching websites, it is necessary to fully explore the educational significance of IA, while taking into account the characteristics of teaching, in order to realize the transformation from “information explosion” to “knowledge explosion.”

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#### Disclosure statement

The authors declare that there is no conflict of interest.

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