

Implementation and Research on Information Accessibility Technology Service Platform

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I. INTRODUCTION

In China, the weak group of the information world is a relatively large social group. At present, the number of the Chinese disabled people amounts to 82.96 million, accounting for 6.34% of the whole population of China, the number of people of 60 and above is 144.08 million, accounting for 11.03% of the whole population (among it, the number of people of 65 and above is 100.45 million, accounting for 7.69% of the total population), they are all in particularly urgent need of the information accessibility technology. Advanced information accessibility technology will make it possible for them to take part in social activities and shorten the distance from the outside world. This is an important issue concerning the harmonious development of the society.

The Chinese government attaches great importance to the cause of information accessibility. The annual “China Information Accessibility Forum” has become a symbol of China’s information accessibility cause. The research on information accessibility in China was initiated by researchers of several universities and colleges, and scientific research institutions. However, no mature information accessibility product has been developed from these researches and explorations. The present research of China’s higher education institutions and scientific research departments focuses on the following three aspects:

- a. WEB accessibility construction;
- b. application of the speech recognition technology in teaching;
- c. integration of the accessibility technology information resources and its multi-mode propagation.

II. METHODOLOGY

As a result of the obstacles in language, channel and regional administration, we have very little knowledge about information accessibility in foreign countries and we lack communication methods and channel for applying their advanced technologies, so that we cannot make effective use of the foreign advanced resources. With the Special Education College of Beijing Union University joining the Liberated Learning Consortium set up by St Mary’s University of Canada and IBM in 2005, the construction of this platform will enable us to interconnect with the Liberated Learning Consortium composed of over 10 universities and colleges around the world, popularize the advanced special education and information accessibility technology resources of foreign countries, integrate the relative domestic resources and carry out the information service and popularization of the accessibility technology. We should put information accessibility technology into practical use, gradually carry out accessible resource

construction, information service, distant education and research cooperation and popularization of the accessibility technology.

Information accessibility technology service and popularization platform is a comprehensive business platform for resource integration, information co-establishment and sharing, information management, research cooperation and international communication support. Research on information accessibility technology is characterized by both long term and innovation. Information accessibility technology service and popularization platform involves standard popularization, research data incorporation, research work cooperation, accessibility service integration and accessibility system integration. Its specific functions are as follows:

2.1 Resource co-establishment and sharing will advance information incorporation and building the resource center is the basis of the information accessibility application.

Information accessibility technology research cannot go without resource construction. Through collecting and recommending the latest information of international special education, the latest research trends of the relative universities and colleges, information on the research achievements of the relative trades such as the scientific education industry and the information industry, and the latest research information of some domestic and international research institutions such as IBM, Microsoft, Chinasoft and Chinese Academy of Sciences, Beijing HengKaiWeiYe Tech. Co., Ltd., we can provide uniform data reduction and information processing. The main contents of resource construction can be illustrated as in Figure 1, and the main functions are as follows:

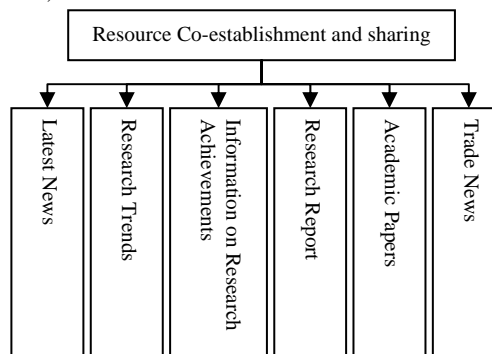


Fig.1 Resource Contents

2.1.1 Comprehensive classification

Since the resource contents are complicated and diverse, the platform provides three classification systems in order to find the required information in an easy, rapid and effective way. The first is to classify the regions based on the

characteristics of the source, the second is the domestic trade classification system based on the domestic trade practice, and the last is to classify the information according to Bayers' classification calculation method, and it designs and realizes an automatic classification method suitable for WEB information. The three classification systems describe the resource type from their own independent angles. Meantime, they incorporate into each particular piece of resource information and express the resource information from different classifications, thus achieving a scientific classification.

2.1.2 Content retrieval, service of searching duplicate or new information

Retrieval of the existing contents can be done by means of the combination of classification, author, subject word, time, key word, quotation, ordinal number, code and technical terms, etc., fuzzy retrieval is possible and the retrieval scope includes primary document and secondary document.

2.1.3 Resource storage and multidimensional data form

In setting up the resource, we can store the multidimensional data which can be submitted to visual and auditory reading, recognition or language in a multidimensional array according to the characteristics of the resource, and write in the relation databank for storage. There are many sparse matrixes in this mode and people can observe the data through multidimensional views and flexibly satisfy the special requirements of different people.

2.1.4 Collecting through the main accessibility teaching resource

The resource collecting methods of the platform mainly include artificial entering and automatic collecting. Artificial entering means that the resource provider, following the instructions, gradually completes the submitting of all information on a uniform entering interface. While automatic collecting is to set up the website range of collecting according to the collecting rules formulated by man and write the relative resource information in the databank after data cleansing by means of PClawer. The specific contents of the teaching materials of the resource center are shown in Figure 2.

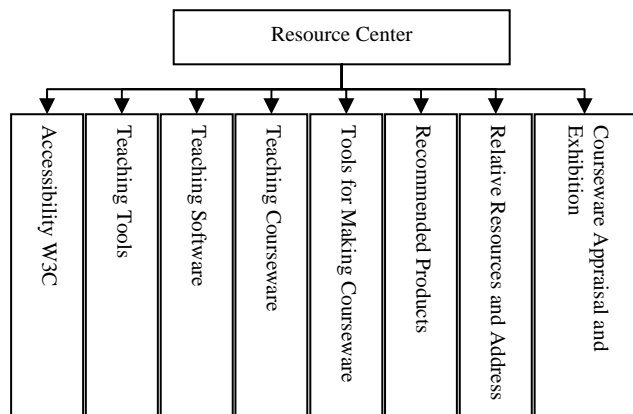


Fig. 2 Teaching Materials of the Resource Center

2.2 Information accessibility and teaching research cooperation platform is an important application field of special education and information accessibility research.

By means of data pre-processing, data cleansing, automatic abstract and automatic classification, we can collect documents on accessibility technology and teaching research, combine such tools as e-mails, calender, instant communication, website writing and cooperation and set up a research cooperation platform. The development of the platform observes WCAG1.0/2.0 and the norms of YD/T 1761-2008.

2.3 International communication is an important developmental trend of the popularization of the accessibility technology.

The popularization platform of information accessibility technology can conveniently interface with the relative resources of the Liberated Learning Consortium built up by St Mary's University of Canada and IBM, integrate the resources into contents related to the information accessibility technology in the way of XML, introduce and utilize the international advanced technical resources in a convenient way, provide the mode of RSS for subscribing the information on the international accessibility technologies, and supply favourable support to the accessibility international cooperation. The main contents are shown in Figure 4.

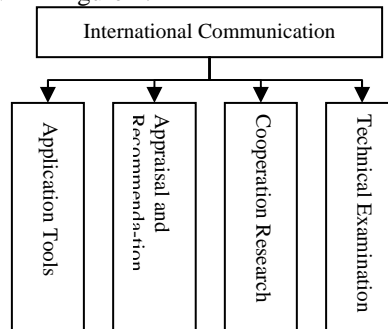


Fig. 4 Contents of the International Communication

III. RESULTS

Through the information accessibility service and the establishment of the popularization platform, we can realize firstly providing the information accessibility service for the weak group—the disabled, the old, the poor and the weak, and secondly, providing information on special education and information accessibility technology development for disabled workers, experts on information communication technology and teachers for special education. Thirdly, by taking advantage of Special Education College of Beijing Union University's joining the Liberated Learning Consortium in 2005 set up by St Mary's University of Canada and IBM and composed of over 10 universities and colleges around the world, we can popularize the advanced resources of special education and information accessibility of foreign countries.