Framework Design of Recommendation System in Ubiquitous Learning Environment

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Abstract. This article from the perspective of learning situation of resources and the recommendation of the learning process, demand situation together, put forward in the various stages of the learning process for learners recommended to meet the demand of current situation of learning content, learning strategy, learning path concept, based on this design pan in the learning situation, a framework of recommendation system.

Keywords: Ubiquitous learning; recommendation system; learning strategy.

1. Introduction

The rapid acquisition of information resources and social network resources, communication to promote the transformation of learning mode, however, the educational information resources disorderly growth, weak interoperability, resources are divided from each other, the lack of contact, it is difficult for the learners to provide one station type service learning. Ubiquitous learning is any person at any time, any place, based on any computing device to obtain any required learning resources, to enjoy the learning process [1].Ubiquitous learning requires a lot of learning resources to meet the different needs of the learners, on the other hand, it also allows the learners to quickly find the resources to meet the needs of the current situation in the resources of the ocean. The contradiction between massive resources and the personalized demand lead to information mazing intensified. In view of this situation, there are two solutions, one is "people look for resources" active search, another is "resources to find the information recommendation. For the first scheme, the learners to accurately express the demand, the search will be targeted. For the second programs, although the information is recommended to provide active service, but it will appear the content of the recommended not allowed, improper timing, information harassment and other phenomena. Therefore, the learning resource recommendation system is very important in the ubiquitous learning environment.

2. Model Analysis of Recommendation System

Learning resources, as an important factor to support the learners learning, runs through the whole process of learning. At present, most of the learning resource recommendation system will focus on finding may need of learning resources for learners, those who support the information and ignore the learner needs in access to learning resources and learning process, activities, and strategies. In the ubiquitous learning environment, learners' ability level is uneven, and learners are more concerned about the "situation problem solving" than the test scores [2].The important role of the recommender system is to provide learning support for learners in the learning process, including the support of learning content, learning strategies, support for learning activities and learning paths.

2.1 Recommendation of Learning Content.

The appropriate learning content can build a good learning support for learners. From the massive resources to find and recommend to the learners to meet their current learning needs is the most important work of the recommended system. One of the most important features of ubiquitous learning is situational, learners not only need to learn the content related to the subject of learning, but also need to learn the content of the current context. In other words, the recommended learning

content is not only to meet the needs of learners in the learning topics, but also with the characteristics of the learners, the environment, the equipment used to match.

2.2 Recommendation of Learning Strategies.

The strategy of knowledge transfer and the cognitive structure of learners, learning style, can speed up the speed of the learner's information processing, and promote the occurrence of effective learning. Pan role in the learning environment of the recommendation system should assume "teachers" and learners to recommend suitable learning design, this study design is based on the learning strategies and learner's cognitive structure, learning style to match, in learners of the learning process through the monitor the status of their own learning to adjust learning strategies to ensure the achievement of learning goals. Therefore, the recommendation system should be able to recommend appropriate evaluation criteria to learners according to their learning goals.

2.3 Recommendation of Learning Path.

Ubiquitous learning often uses fragmented time on tiny, fragmented content to start learning [3][4].In order to satisfy this kind of characteristic, ubiquitous learning resource is a kind of micro resource which only carries a single knowledge point. Path for learners to master the whole knowledge system has an important role, it is therefore recommended that the system should be able to recommend suitable learning path for the learners learning to recommend future may need to learn knowledge and between the relationship. At the same time, it is recommended that the system should be combined with the current situation of learners (such as learners' current knowledge structure, ability level, learning goal, etc.) to recommend learning resources related to each knowledge point.

3. Scenario Design of Recommendation System

According to the position of the recommendation system in the ubiquitous learning situation, the paper designs the recommendation system of the ubiquitous learning situation from the point of view of the support of ubiquitous learning process. The recommendation system is designed for different learning aspects of the corresponding recommendation service, in combination with the ubiquitous learning situation for learners to provide support for the whole learning process (Fig. 1).

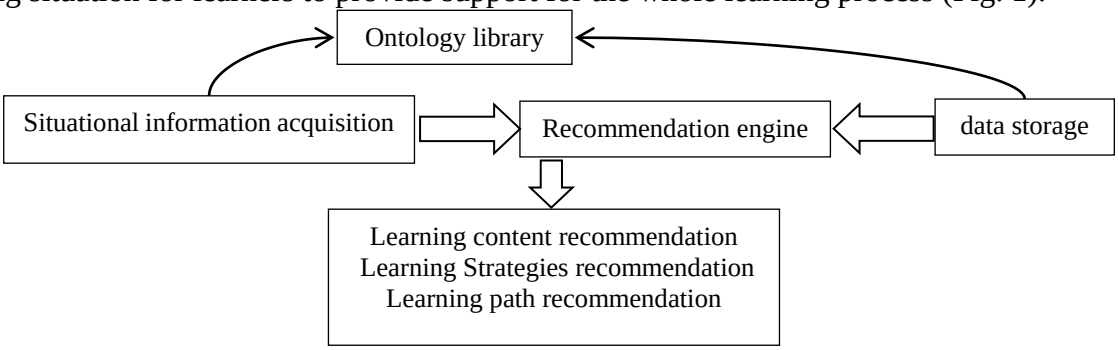

Fig. 1 Framework of recommendation system

Taking into account the ubiquitous learning may be the purpose of the two types of learners, in order to meet the needs of different learners, learning content recommendations include: situational content recommended and popular content recommendation. Situational content refers to the learning content that meets the needs of the current situation of the learners. Hot content refers to the system of high quality, learning the number of learning content. Popular content recommendation for those who do not have the specific learning objectives to provide the near future excellent learning content, to help learners to understand the current learning hot spots, found that the new learning interest.

In the learning process learners according to their own learning conditions at any time to adjust the learning strategy. The template of learning resources is the organization of the content of resources according to a certain learning strategy. The learning resource template is recommended according to the learner's knowledge structure, learning style and so on. It is recommended that the appropriate resource template for the learners to present resource content.

In order to guide learners’ step learning development, recommendation system by making use of the learning resources on the semantic association to find the next step of knowledge, combined with

the learner's current situation to select the most suitable resources recommended to students, so as to guide the learner to carry out a further study. The situation here is mainly to consider the characteristics of learners, the environment, the use of equipment and so on. At the same time, the system in a visual way presented the semantic relevance between knowledge, in order to learn who understand their knowledge nodes and recommend learners according to their own situation to choose the next step of learning and the contents of the current knowledge exists between before and after.

4. Conclusion

With the continuous development of information technology and learning science, people pay attention to the development of learning resources from the content of resources to the content and learning process of the combination of the direction of change.[5] Learning Resource Recommendation System as an important learning support service, it should also be recommended only from the content of learning content to the content, resources, experts and service changes related to the learning process. Currently in the exploration stage of recommender systems do not fully meet the design of the ideal state, the next step still need to further improve the existing learning content, learning path recommendation, as soon as possible so as to achieve learning activities and service learning, learning strategy, recommended.

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