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Research on Key Technologies of Personalized Recommendation Service on E-learning Platform

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Abstract

E-learning online learning platform of personalized recommendation service key technology has been widely attention, the traditional work has already can't meet the demand of the current era of development, should be combined with the personalized recommendation service characteristics of online learning platform, correct the key technology, design related services platform, improve the application effect of personalized recommendation service, Break the limitation of traditional work and lay a solid foundation for its follow-up development.

Keywords

E-learning Platform; Online Learning Platform; Personalized Recommendation Service; The Key Technology.

1. Introduction

In the development process of the age of lifelong learning, open online learning has received extensive attention, and the development and innovation of open-type personalized learning systems has begun to emerge. E-learning's online learning platform is one of them. The platform is designed with Internet technology and related supporting technologies, so as to improve the overall platform design effect and achieve the expected work purpose.

The recommendation service has a certain guiding role. In the online learning platform of E-learning, relevant services and design forms should be adopted. The learning target platform should be actively designed, various data information should be collected by using user interest modeling technology, and the form of time-limited feedback should be used. Obtain the corresponding user interest data information, so as to better obtain the user's interest information, and then use the vector space model to correctly reflect the user interest model, correctly design the learning resources, adjust the original information, and use the information to supplement the information. Advanced technology, update and design the user's interest model, so as to improve the overall design effect.

2. Application of User Interest Modeling Technology

2.1. Application of Vector Space Model ASM

In the design of the work, the vector space model ASM as the basis, which is the most commonly used is the user model representation, the user is represented as n vector, there are (T1, W1)..... (Tn, Wn), each dimension has key words and weights, and the weights use different values and actual values, which can respectively express the user's conceptual interest and related interest degree. The vector space model as the foundation, take the form of feature words on behalf of the interest, right to the user's interest, to some key words in the related important degree representation of user model, computing speed fast, recommendation system of resources, can also use this method to express correctly, help to users, similarity comparison between entities. However, for user interests, generally very complex, only some keywords can not fully represent the user's interests or hobbies, and related word order problems and semantic

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problems are different, it is easy to lead to the accuracy of related expression. Therefore, it is necessary to combine the characteristics of the vector space model to correctly study the limitations and shortcomings, clarify the semantic relationship and context relationship, and improve the relevant vector space model, so as to improve the work effect of all aspects[1].

2.2. Reasonable Adjustment of User Interests

In the process of actually updating the user interest model, it is required to reasonably use the collected user interest data information to correctly update the interest model of the relevant user, so as to ensure that the relevant information can be fully grasped so as to provide personalized services. During this period, the reasonable update and representation of the user interest model should be organically integrated, and the update technology corresponding to the representation of the model should be used to improve the effect and level of the recommendation service. For example, advanced information supplementation technology can be used, and through the support of this technology, the mechanism and mode of model updating can be formed, and it can be divided into two supplementary forms of directly adding data information and including adjusting the original information[2]. Among them, the supplementary technology of the original information type is mainly used to transform the collected user interest data information into the relevant representation mode of the user interest model, which can effectively form the relevant user interest model. Adjustment or deletion can retain the original information to a certain extent, so as to reasonably track user interests. However, after a long period of data accumulation, under the influence of the original data information, it is difficult to better analyze the interests of users in a short period of time. Therefore, related technologies that directly supplement the data can be used, in addition to the user's new information. The content of data information feedback is added to the user model, and the weight of new information and old information in the user model can also be adjusted correctly, so as to better reflect the user's new hobbies and interest information, and play an important role. effect. At the same time, it can better reduce the weight of invalid information, and finally delete it automatically. Such methods help to alleviate the application status of traditional technologies, make up for the application deficiencies of previous technologies, and comprehensively improve the application effects of related technologies[3].

2.3. Technology of Genetic Algorithm Update

In the process of updating related systems, in addition to the use of direct supplementary technology, the genetic algorithm can also be used for updating. For the genetic algorithm update technology, it is mainly based on natural selection and related genetic mechanisms, and is an advanced iterative search optimization technology. In terms of each evolutionary generation, relevant individuals can be appropriately selected in the problem domain according to the individual conditions within the population, and the relevant genetic operators of natural genetics can be used to correctly perform crossover processing and form new ones through mutation. population[4]. Through this process, the population can be reasonably adapted to the environment. In the last generation of the population, the dominant individual can form the optimal solution to the problem after decoding. By applying the related update technology of genetic algorithm, the initial population can be better used to represent and express the interest model, and the evolution of the population can form the update form of the corresponding interest model. In general, the application of the genetic algorithm update technology has a high level of professionalism. However, due to the differences in the form of chromosome coding calculation and the calculation form of fitness in each problem domain, it is difficult to be widely used. In practical work, the update technology of neural network can be applied to make up for the defects of traditional technology, and form an adaptive type of update technology. After the interest changes, the neural network can adaptively adjust the network connection weight, and express such interest changes by updating the output form of the network[5].

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3. Learning Resource Modeling

With the rapid development of modern distance education technology, the construction of learning resources has received extensive attention, which mainly includes resource platforms of material types, network course types, educational resource management types, and distance education system types. The characteristics of various resources and courses are different, and the corresponding management system and learning system also have the characteristics of form changes, which can fully reflect the advantages of characteristic resources. In the construction of learning resources, E-learning can be used as a basic form, and it can be regarded as a systematic project of long-term construction and maintenance. However, the relevant learning resources are complex and diversified, so resources with different levels and attributes will be formed, and different situations will be presented in the process of management and use. Therefore, under the background of the rapid development of E-learning, metadata technology should be used reasonably, and standardized research should be carried out to provide relatively standardized description measures for the collection of various digital information units and related resources, and reasonably Apply relevant tools to form a good foundation[6]. For metadata, it is an inevitable element in E-learning, which can better describe and index resources, so that people can easily obtain important resources. For learning resources, there is a direct connection between its representation and the user's interest representation. Usually, the same mechanism is used to represent users and resources. In terms of learning resource representation, the technology used is consistent with the representation technology of the interest model, and the space vector model is also used for representation. Taking the vector space model as the basis, it can make better use of the characteristic words representing user resources to describe the learning resources, form the corresponding technical model, improve the utilization rate of various technical resources, and give full play to the advantages of different technologies. In this way, the expected working purpose is achieved. Usually, the feature vector of learning resources is mainly expressed in the form of "R=(RID, W1, W2...Wn)". For RID, it belongs to the resource number, while the feature vector of learning resources is R, which belongs to n+2-dimensional vector, for n, the number of keywords belonging to learning resources, and w1 is the weight value of the feature words corresponding to each other. Since the difference in the importance of the resource description of the related features is not high, it can be The weight of the feature word is 1 by default, for example, the related learning resource model R=(10098,3), (personalized service, 0.76) (learning, 0.45), of which 3 keywords are in 10098, the proportion of personalized service It is 0.76, and the relevant proportion of "learning" is 0.45. Through the design of relevant personalized services, clarifying the proportion of various resources and elements will help to form corresponding design mechanisms and models, improve relevant design effects, and break traditional work. Limitations, change the current form of work, and provide help for the development of personalized recommendation services for related online learning platforms[7].

4. Conclusion

Under the background of the rapid development of e-learning market, various manufacturers and research institutions have begun to put forward solutions on relevant online learning platforms, which provide help for people's networked learning. In order to increase the functions of relevant platforms, the corresponding conceptual model of personalized e-learning solution should be provided according to the characteristics of personalized recommendation system, and relevant design effects should be comprehensively improved through the support of the model in accordance with the working principles of individuation and intelligence. In order to comprehensively improve the application effect and level of relevant technologies, it

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should be combined with specific user interest model and corresponding system to handle correctly, give full play to the application role and advantages of different technologies, and achieve the expected work objectives.

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