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# RESEARCH ON ACTIVE SERVICE MODEL WITH PERSONALIZED EDUCATION RESOURCES

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## ABSTRACT

In this paper, the learning process is digitally tracked and recorded, with regard to learning evolves into data-intensive learning. Also, the number and scale of data are long and the resources are heterogeneous, and the information resources are not abundant, causing users to be lost. In the process of clean information, seeking information about in our field is like a smart needle in the sea, triggering the screening and acquisition of personalized information resources. Consequently, the rapid development and widespread popularity of Internet technology has led to social inequality and differentiation, resulting in information polarization between the rich and the poor and the knowledge gap. Consequently, the rationality and balance of resource allocation directly affects the degree of achievement of educational equity, in terms of the active promotion of educational resources. In the results, the digital divide is essentially the unfairness of information rights, which will lead to cultural divides, political divides and social divides.

**Contribution/ Originality:** The paper's primary contribution is finding that considers teaching under fair plane, concerning education fairness and its ingenuity and individualized learning. The individualized educational resources with active services are proposed with theoretical basis. We investigate skillfully excavated and learned analysis for data digging.

## 1. INTRODUCTION

Nowadays, information is being produced, disseminated and utilized by a large stack. The era of big data is officially coming. People face the sea of data and are in danger. There is a huge difference in the ability to manage and respond to data, making the digital divide intensifying. It has long pointed out that the public broadcasting cannot reduce the digital divide (Srivastava and Haider, 2017). The digital divide caused by the differentiation of search capabilities continues to expand in the era of big data, thereby it enabling search engines to ignore (Kong and Song, 2015; Halverson *et al.*, 2017; Powers *et al.*, 2017). It is especially important to understand and guess the needs of users and to provide information services that are good. In the aspect of information technology to promote the fairness of the education, use information active service technology to analyze the information literacy of different users. Governments at all levels and education authorities are coordinating science, driven by diversified and personalized education needs, following a unified resource construction standard, and realizing the common construction of resources sharing, promoting education balance and service education development (Fan and Yang,

2015). The allocation of educational resources is mainly the management and allocation of teaching facilities and resources, education teachers and services, and the purpose is to meet the needs of education. The starting point for education is equal. Teaching sharing resources continue to promote fertility, greatly enriched the educational resources, directly lead to information overload, choose to bring the plight of the learner, generate learning trek. Personalized service educational resources can be based on the learner cognitive basis, interest preferences, characteristics of a learning behavior, prediction learning needs of learners, learner initiative to push for the adaptation of knowledge and services (Baranov *et al.*, 2016; Chen *et al.*, 2016). In this way, the active promotion of educational resources is based on user needs, following certain protocol standards, and providing targeted resources to users in a timely manner (Rahimi *et al.*, 2015). The connotation of educational outcomes is mainly related to the learners' collaborative construction and internalization of knowledge, and the achievement of educational outcomes. Through personalized resources and services, the quality of the resources to the needs of learners push hands, we can promote learner to focus on knowledge construction, complete the transformation of knowledge to wisdom (Neuhofer *et al.*, 2015; Karplus, 2017). Only let each learner gain knowledge, ability and personality development, with the support of personalized resources and services, the learning community is passed through teachers and students (Aguilar *et al.*, 2015; Zhu *et al.*, 2016). Interaction, mutual help and mutual formation form group motivation and group performance, realize individual knowledge construction and collaborative knowledge construction, two-way spiral rise. In the process of knowledge collaboration construction, with the help of specific activities and collaborative strategies, knowledge can be sublimated into a certain method, thought and intellectuality; relying on personalized knowledge services and know-how Learning strategies, learners' individual differences are fully respected and identifiable, and everyone is given a fair opportunity to learn and participate.

## 2. TEACHEING UNDER FAIR PLANE

Today, the entire world is being digitized. In the field of education, almost all educational resources and learning materials are digitized. Personalized services are designed according to educational resources initiative learners interested preferences, learning environment, information needs through learner main dynamic customization, system recommendation, etc., proactively provide learners with information and services that may be of interest to them. At the same time, according to learners' feedback dynamic update learners' needs and services, is an important solution to solve the information and knowledge gap Trek proposed. Starting from the connotation of educational fairness, this paper analyzes the challenges faced by the educational process fairness in the level of individualized educational resources acquisition and explores education. Figure 1 shows us the faculty and students with personalized education resources.


**Figure-1.** Faculty and students with personalized education resources.

**Source:** Chen *et al.* (2016).

The theoretical basis for the individualization of resource services to promote the fairness of the educational process: including the study of scientific theories, information dissemination theory, and personality chemistry.

### *2.1. Education Fairness and its Ingenuity*

Education equity is the focus of education in all countries of the world. Its internal communication has different interpretations in different eras. It is generally believed that the focus is on balance the allocation of educational resources. The principle of social distribution of educational resources reflects the social disparity in power to some extent. And the way of control, so education equity is an extension of social equity. The Swedish educator summarized the educational opportunities as the starting point conviction of educational equity is always accompanied by educational process.

It has received much attention in the academic circles and has also attracted great attention from the government level. The result is fair to levels. At the starting point of fairness, the central government and the education authorities at all levels jointly build and share educational resources. Optimize balanced allocation to promote fairness in education; at the level of process equity, schools and teachers personalize educational resources and services Push to promote fair education process: the result is fair level, the learning community to collaborate to build knowledge and deep within, realize To solve the "planning and production" of information, the process fairness level is to solve the "circulation and transfer " of knowledge, and the fairness of educational results is mainly Solve the "consumption and regeneration " of knowledge . The connotation of the fairness of education origin mainly involves the rational construction and balanced allocation of educational resources, and helps the starting point of education to be fair education.

### *2.2. Study Science and Individualized Learning*

With discipline around human learning, integration of science, cognitive science, computer science and other research achievements clever, "from different disciplinary angle all-round research on human learning coincidence, gave birth to a new, interdisciplinary field of research clever-learning science " in the country.

The goal, first of all, is to better understand the cognitive process and the socialization process to promote the most effective learning for everyone, and secondly, In order to redesign our impatient church and other learning environments by learning scientific knowledge, so that each learner can more learn and learn from others. Learning science to explore the meaning of adaptive learning, identify the ways to promote deep learning and lasting learning Ways to explore various environmental factors that affect human learning design related software tools, activity structures, course materials, learning science provides theoretical basis, insights, methods and means for the active service of personalized educational resources. For example, studying science.

Science research on "learning time dynamics", the push for determining the timing of information resources and services is very meaningful. The learning of scales is its influence on learners. The time of learning is to study different brain systems and social systems, Time and time to mobilize the role in learning, how to use the dynamic nature of time to promote learning. For example, learning the science on learning coincidence and collaborative learning, and believe that learning involves two processes: internal negotiation and external negotiation.

Knowledge with their own inner self negotiations has knowledge of, and external consultation refers to the interactive exchange of ideas with others of their point of view. It is the process of learning and upgrading together. Therefore, this study considered clever recommended content of information resources and services in addition to learning content, learning science places great emphasis on learning in real situations, and believes that learning. It is important to include the situation in which the learner is located. At the same time, in the stage of designing the personalized service resource active service model, it is necessary to face the need.

Combine "human-machine" intelligence, perceive and predict learner needs, create continuous "content stream" and personalized learning for learners service. Clearly information technology is to solve the problem learners' easy

access to educational resources and services for Students provide equal access to information. Comprehensive consideration of the dynamics of learner needs, the complexity of the learning process and the logic of the knowledge system, and the integration of human thoughts And wisdom, designs push technology feasible on the basis of precise push mechanism, achieve educational resources personalized service initiative, is believed Interest technology promotes the fairness and predicament of the educational process. The accuracy of educational resources cannot be achieved by human intuitive experience or intelligent technology. Push. Most current online learning system directly to the business recommendation algorithm simply transplanted to educational resources pushing module, does not consider the knowledge.

Push system existing educational resources, lack of information flow behind Chicago for "people" Emotional care, blind pursuit of narrow preferences, less consideration for guiding users to actively think and expand interest. From the push of the results In terms of most recommendation systems cannot perceive the learner's internal needs and evolve into strong knowledge marketing: from the push of content. In terms of coverage, the recommendation system is not strong in the ability to explore long tails of information, and the recommended types of information are single, resulting in a push content category.

More and more narrow. Existing data mining tools can provide powerful technical support for personalized push, but master the information of these technologies Experts also often a lack of awareness of science, understanding the learning process, the knowledge structure and teaching principles, it is difficult to achieve also posted occasional push. Management disciplines teachers, although the law cooked stable internal needs of learners and clear hierarchy of knowledge and logic, but in Master and use new technologies rather slow, the establishment of docking between the lack of appropriate channels and information specialists, it is difficult to achieve cross-border co-Work. Therefore, how to follow the theory of learning science, comprehensively consider the various factors of the learning process, and predict the diverse needs of learners, Selection of appropriate prediction algorithm and recommendation technology, integration of human thought and wisdom, map the match off between learners and resources the system is facing a big dilemma.

## 3. INDIVIDUALIZED EDUCATIONAL RESOURCES WITH ACTIVE SERVICES

### *3.1. Educational Equity under Theoretical Basis*

Learning scientific theory to study the influence of different learning methods on the learning effects of different learners, emphasizing situational learning for knowledge building The value of the structure, this research and development by providing each student with personalized learning services including learning resources and learning community, promote learner can gain an improvement in learning performance. Personalized learning theory advocates differentiated teaching for different learners Learning strategies and learning materials, this study provides a clever investigate the differentiation of resources and services for different types of learners, thereby promoting each Learners can gain growth and development based on natural well-being. Data mining technology can skillfully analyze learner learning patterns and predict Measurement needs of learners, and provide technical support for the realization of personalized education. In Figure 2, we can see the motivation and task cycle in the process. In terms of channels and channels, this researcher delivers personalized resources to the learners who need them through a dedicated service, thereby shrinking the digital divide. Learning analysis and knowledge services based on data mining results, provide targeted learning interventions for each learner, design personalized different from the direct interventionist stance of teaching system design, learning science service education as the goal, with the help of advanced Summing learners and resources of bilateral interaction, to make recommendations intellectual content, using virtual reality technology clever digital characterization And presentation technology to build knowledge content based on real social context, so that students are immersed in the real social context. Exploration, so as to establish meaningful learning associated with the real world relative access and behavior.

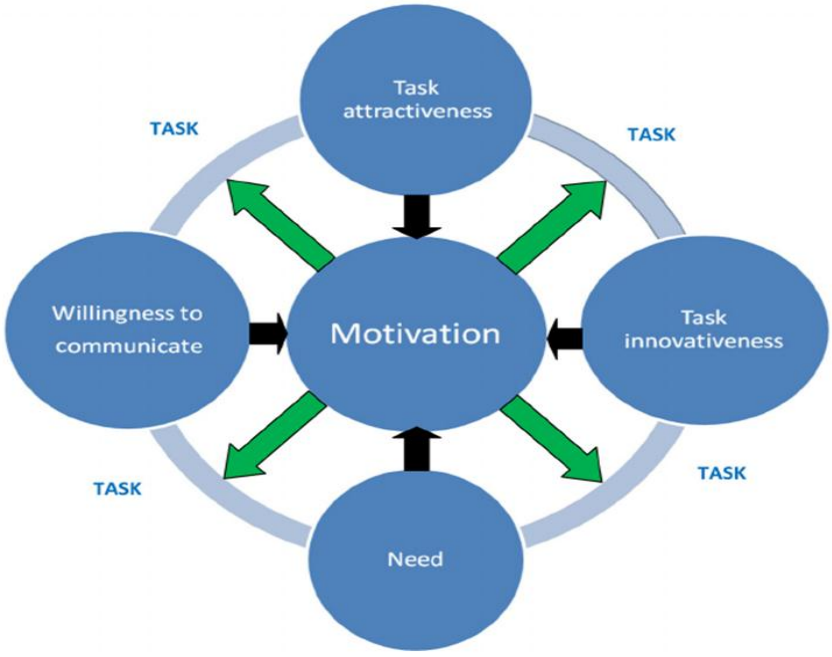


**Figure-2.** Motivation and task cycle in the process.
**Source:** Neuhofer *et al.* (2015).

With interactive tools and interactive media, with the same clever students, teachers, experts in interactive collaborating on community-based social learning; At the same time, the body is also experiencing learning sessions and conflicts between existing knowledge and new ideas, assimilation and adaptation, and ultimately the formation from Having your own insights, tapping your self-worth and building your own identity. Cognitive tools, learning environment, collaborative culture, and technical support Sign language, constitute the main Community cooperation between deep learning of the necessary social intermediary. Obviously, effective use of information technology Surgery, exploring individualized education resource active service mode, learners can explore knowledge, social learning and self-development.

### *3.2. Personalized Learning*

Personalized education as an educational dream, ancient and modern, Chinese and foreign educators' different interpretations were made. Ideal as early as 2,500 years ago, our country and educator Confucius individualized education they already have, that "because of material teaching, no child left behind "education thought. Nuclear is individualized for the inclination and ability to learner differences, implement different customize educational goals and learning plans, training methods and coaching programs, and organize professionals to provide learning management strategies and knowledge management Technology and the effective educational resources of Dad, help educators to break through the limits of survival, achieve self-growth, self-realization and self-improvement.

Some scholars define personalized education to provide a safe learning environment and support for students and harmonious interpersonal relationships, thus promoting beyond the self, pay attention to the improvement of students' cognitive ability and the length of academic knowledge, caring for the emotional experience of students and the growth of the spirit. The connotation of sex education is constantly evolving. The initial aim was to pursue different educational methods, provide different educational content, and gradually is proposed that the entire education system needs to be individually designed and implemented. Later, with the rise of social learning and collaborative learning methods, Rich and personalized education not only pays attention to the learner's own cognitive development and identity, but also gradually pays attention to learners' interpersonal relationships.

Personalized education supported by information technology is a new demand to promote fairness in the educational process. New technology, human learning concept and square the transformation of the economy and

the transformation of the economic growth model have also raised demands for education reform. In the era of industrial civilization, it is necessary to inspect a large number of skilled players. Workers pipelining, gave birth to the "class teaching system" and "class industrialization" which adapts the training mode to teach Knowledge, ability and self-development. From the perspective of educational fairness, we have implemented a model of teaching students who are educated and educated. Entering a talented person and diversifying development is the highest level of education equity. The theory of personalized education provides a theoretical basis and guiding ideology for the active promotion of educational resources. The essence of educational resources and active services the qualitative meaning is to provide personalized educational resources and learning based on students' learning style, cognitive foundation, learning situation, and rationality. Requirements include learning objectives, learning content, and learning. Educational resources such as partner, learning path, learning style, learning evaluation, cognitive tools and educational services are all required to learn the needs of the learners are compelling, allowing learners to receive educational resources and learning services that are timely, pleasing, and desirable. Therefore, personality.

The active service of educational resources should first pay attention to the rational state and information needs of learners in different situations; then, according to users The requirements and the labeling of the resources themselves, filtering and filtering information for learners, simplifying and simplifying, and changing knowledge fragments into systematic knowledge Chain, based on the equipment held by learners, adaptively present educational resources and learning services; finally, we must consider the timing of information push, and gather a good knowledge chain is recommended to the user at the right time.

## 4. SKILLFULLY EXCAVATED AND LEARNED ANALYSIS

### *4.1. Data Digging*

Mining techniques are designed to screen and extract rules and knowledge that are of interest or valuable to decision making from vast amounts of data. This knowledge is implicit in potential information. Data mining has classification, prediction, estimation, clustering, correlation analysis and time series mining Digging and other functions. Data mining has five major steps: data selection, preprocessing, feature transformation, pattern mining, solution and evaluation. In order to optimize the quality of education management and learning performance, it is necessary to extract valuable information from educators and learners from a large amount of data. This demand has spawned the emergence of educational data mining research. Figure 3 gives us the perspective of student achievement with plan, study, gather and do.

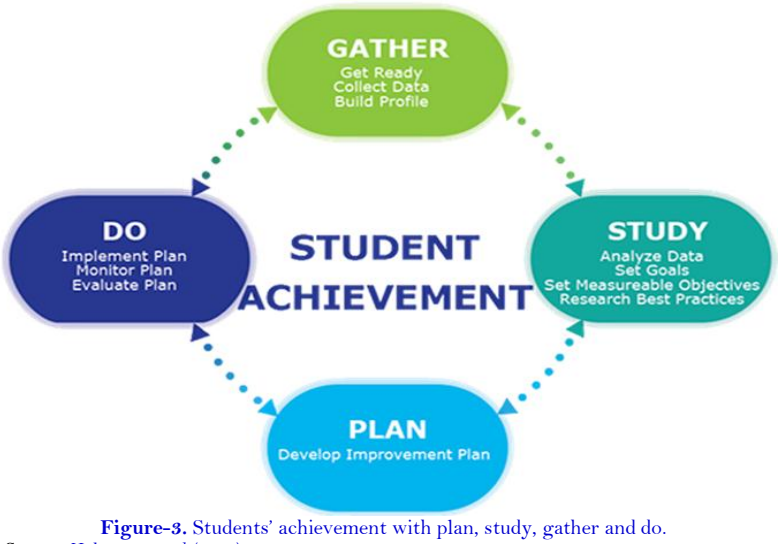


**Figure-3.** Students' achievement with plan, study, gather and do.
**Source:** Halverson *et al.* (2017).

According to mining applications in education theme of the conference, caused a data mining education in the country's attention. Information technology education in full swing to further promote and online education, leading to a big shock enlargement of education data, triggering education collar the various types of data in the domain are growing rapidly. Apply data mining to teaching and research, and discover hidden valuable knowledge from educational data. The use of key technologies classification, clustering, forecasting, data mass education into mining and clever use for students recommended for its two characteristics and learning styles of learning support services, to help teachers identify potential teaching of law and thus enhance the quality of teaching, the school managers provide macro management decisions.

Therefore, in order to support learners to deep learning and individualized creation, it is necessary to provide them with automatic perception of learning situations and knowledge. Don't learner features, provide customized learning resources and convenient interactive tools, automatically record the learning process and evaluate learning outcomes. This research introduces data mining technology into the active service of personalized education resources, using classification, clustering, and key technologies such as association rule analysis, clustering learners, classifying resources, and establishing relationships between resources and learners Guan also equipped, and implicit, potentially valuable decision-making rules and knowledge mining and utilization. Recommend appropriate to learners.

Educational resources, learning strategies, and support services that are characterized by their personality. At the same time, also recommend learning for learners learning clever similar, Learning partners with the same cognitive style and similar interest preferences build a learning community to achieve the goal of collaborative learning.

### *4.2. Learning and Analysis Techniques*

Discourse analysis is commonly used in learning analysis, emphasizing personalization and adaptive learning. In order to understand the characteristics of learners in depth and in order, you need to Collection of data from a large number of complex, mining and refining information learner, and then explore the potential of knowledge and patterns. For example, Interactive analysis through teaching and learning processes, semantic analysis of learning resources, social network analysis of learning peer relationships, and learner personality.

Feature analysis, learner behavior and sentiment analysis, etc., optimize the learning process and improve the learning quality. In educational information resources In the active push service, through the learning and analysis technology, students' learning behavior information, learning achievement information, and learning process are collected. According to the learning path, the learner's personality characteristics, learning behaviors and learning situations are fully captured. Learning analysis focuses on data analysis, The purpose is to mine relational patterns. In this study, first gathering of students learning state, learning processes and learning outcomes and other information.

For example, by collecting the frequency of students watching instructional videos on the learning platform, and withdrawing from teaching videos Point in time, to participate in the kind of learning activities, post the number of replies, the time spent on the test, scoring rate and other kinds of questions, Construction of the learner model to integrate this information what, guess what students learn sip there may be dangerous, and thus to provide targeted.

Learning intervention designing a world-wide learning program and recommending personalized learning by assessing the knowledge base that students have. Visible, the results of data analysis can be used as improve student learning, personalized recommendations Learning resources and learning activities provide an important basis.

## 5. TIMES SPREAD AND KNOWLEDGE SERVICES

### *5.1. Information Transfer*

Education is a typical information dissemination activity. The acquisition of human knowledge is inseparable from the dissemination of information, and the acquisition of information is an impact. Therefore, in order to improve the educational communication effect, it is necessary to analyze the needs of the educated, select the appropriate content and media, and construct an ideal. The way of interaction is conducive to the initiative and creativity of the educated. The emergence of online media faces the transmission and acquisition of information when scarcity and "sea of information" on the situation persists. Therefore the academic knowledge services become ever in-depth study of the subject.

Association first proposed the concept of knowledge services. Some foreign scholars believe that knowledge services are concerned with services rather than this information; it can provide users with access to solve practical problems users of information, knowledge products and other needed services, the user from the flood of information freed up. Go to corporate intelligence. Some scholars object based on the perspective of service, proposed knowledge services to meet the needs of external customers, production. It also provides a process for content-based valuable organization and results output. Some scholars tend to think that knowledge services are based on user questions.

Process Knowledge Service may be described as: (1) user demand model building: raw based on user basic information, such as browsing behavior into the initial user knowledge needs model. (2) Personalized knowledge service: the knowledge base returns knowledge according to user request, knowledge service after the subject matches and filters the returned knowledge with the user model; the personalized knowledge is pushed to the user. (3) User model feedback the knowledge initiative service platform includes a key component: knowledge requirements analysis module, knowledge space management module, knowledge Push service module. Knowledge module by tracking user needs analysis for the network pounds, social network data and some survey data.

To determine the user's knowledge needs, the module is a prerequisite for personalized push. The key to knowledge needs analysis is to build learners Interest feature model focusing on user profiles, understanding their learning situations, and tracking their learning behavior. Knowledge space management module various forms of resources are processed, managed, and integrated into a list of alternative resources. The premise of knowledge management is to build a school wherein the resource model learning, learning resources classification, characterization, automatic retrieval, dynamic reconfiguration polymerization. The main purpose is to extract the information resources that have been processed and aggregated, and push them to the user in an appropriate form. In order to meet the needs of different users at different stages, in the way services and content services, the need for innovative service model.

### *5.2. Personalized Teaching and Skillful Initiative*

In the context of big data, requires the full integration of the advantages of human wisdom and technology, creating a personalized educational resources active service department At the teacher level: teachers make full use of educational big data and analysis of the king, to fully obtain the learner's real learning situation (such as knowledge Reserves, learning preferences, emotional attitudes, etc.) and implicit learning skills, systematically grasp the structure and characteristics of educational resources, in the learner Establish the mapping between resources and, using the mass media and push clever tools, to provide targeted learners, adaptive learning service new challenge. It is pointed out that frequent information flow can lead to information overload. American communication scientist proposes that the information gap between the rich and the poor leads to information acquisition opportunities and information literacy differences, thus forming a knowledge gap.

Expansion learners can capture contextual information, interests, preferences Information and cognitive behavioral information, the use of semantic web and artificial intelligence technology Surgery, association rule

mining, in order to accurately predict and understand the needs of learners. On the one hand, learners can go from all kinds of places anytime, anywhere. Obtain the required information resources in the database, and be able to evaluate feedback on information resources; on the other hand, use the information active service technology "Surgery", learners can receive push intelligent push, personalized, customized, seasonal occasion of information services. Clearly, information push technology will reduce the effort and cost of cable Dissatisfied with the user information, to ease information overload. The basic aspects of communication process constitute elements of the objective laws and education combined, can explore education dissemination of results maximum the implementation path. In the network learning environment, the use of information active service technology to provide students with rich teaching resources and integration service obtain information and knowledge for learners to provide quality benefits, prompting learners to enhance learning and motivation.

## 6. CONCLUSION

This paper proposes the active service model with personalized education resources, in the context of big data, requires the full integration of the advantages of human wisdom and technology. Thus, Learning scientific theory to study the influence of different learning methods on the learning effects of different learners, emphasizing situational learning for knowledge building The value of the structure, this research and development by providing each student with personalized learning services including learning resources and learning community, promote learner can gain an improvement in learning performance.

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