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An Intelligent Model for Non-academic Learner Support Services in Open Education in China: A Counselor's Perspective

Jiangxia Yang[1], Xichun Han[2]

[1] The International Department of SSDFZ
[2] Open University of Xi'an, Shaanxi, P.R.C 710000

Abstract

Non-academic learner support services are as much indispensable to open education as academic ones which are quite more emphasized. This study collected the non-academic needs of 377 students from an open university through questionnaire surveys and interviews, from the perspective of a guidance counselor in open education. The results show what the students cared most are sharing life/work related topics, enriching campus culture, and providing childcare facilities. The research suggests an intelligent model for non-academic learner support services with five dimensions, which call for broad social participation and cooperation so that the services can be of diversification and intelligence. With this model students' learning experience and effectiveness are expected to be promoted in China's open universities.

Keywords: Learner Support Services, Non-Academic, Five Dimensions

1. Introduction

Over the past two decades, research in distance education, both domestically and internationally, found that learner support services have been considered crucial to the theoretical and practical exploration by open universities worldwide. Simultaneously, these services have become a focal point of attention and discussion for current and future concerns within open universities (Tian et al., 2023). In distance education, the fact that instructors and learners are physically separated for most of the time implies the inevitable presence of various obstacles, which underscores the necessity of integrating teaching and learning in the context of distance education by providing comprehensive and ample support for learners so that they can accomplish their part-time schooling (Bai et al., 2008). Learner support services in open education are now faced with new challenges as the social environment based on which distance learning is set is constantly changing, with new technologies, media, and even new professions (such as "online learner attendants") emerging (Ling, 2020). These challenges ask for new service concept, along with which service models that can better support what is needed can be constructed (Zhao & Zhang, 2023). For an "innovation driven" model, it is necessary to reconstruct the "ecosystem" of learner support in a systematic, multi-dimensional, and interactive way (Sun & Chen, 2021).

Learner support service aims to improve the quality and effectiveness of distance education as instructors guide, assist, and facilitate students during their learning process, especially in their independent learning (Ding, 2001; Li, 2020). This service comprises two types: academic and non-academic. The former is to meet students' course-related learning needs, generally professional support in knowledge, cognition, and intellectual aspects while the latter offers emotional and organizational support, including management support and emotional one (Melinda, 2011; Ormond, 2002). As most of the students receiving open education have to work, or take care of their families while learning, they often face the conflicts between work and study. That means they need to overcome more learning obstacles, compared with full-time university students, even though the retention period of their academic status is long, often 8 years. These obstacles are not all that academic support can help solve, instead, a considerable number of students require assistance of non-academic support, such as emotional communication and setting of learning atmosphere.

Current research focus, however, is mostly on academic support, which is much universal, while little attention is given to the systematic study of students' difficulties which are rather personalized in practice. The current learner support service model has not integrated multiple dimensions which are required to solve the difficulties, leaving the school as the only side to offer the support. That also means the response to the growing non-academic support services for students does not match their changing needs. To better satisfy their diverse learning needs, especially those non-academic ones, it is essential to establish an intelligent multidimensional model.

2. Literature Review

2.1 Overseas

"Continuity of Concern" proposed by David Sewart of the Open University (UK) in 1978 has had a profound impact on the research of learner support services. The theory suggests that learner support is directly proportional to the rate of learners who can complete their studies, that is, the greater the support, the higher the proportion of learners who are able to complete their studies. Learner support of the Open University (UK) is key to its international reputation and has received high attention in China's academia. Scholars such as Zhao Lili and Li Wei (2022) conducted a comprehensive analysis of the operational system, characteristics, and characteristics of its learner support services from multiple perspectives, presenting a panoramic view. They also pointed out that building a first-class open university in China requires the establishment of external and internal quality assurance systems, and emphasized instructors' and counselors' effective provision of non-academic support (Zhao& Li, 2022). Melinda dela Pena Bandalaria (2011) innovatively interpreted learner support services of remote or open education based the practice of the Open University of Philippines and collected first-hand information through online social network sites, forums on learning difficulties, and remote exchange meetings. She pointed out that the boom of network technology and online learning has transformed learners into knowledge creators from passive recipients of knowledge, and listed the attributes of learner support systems (Melinda, 2011). A common problem that troubles the development of open education globally is the high dropout rate of learners. According to Ormond Simpson (2012), the reasons for dropout given by students (such as work and family issues) are often beyond the help of schools only. In his book *Student Retention in Online Open and Distance Education*, he provided detailed explanations of academic and non-academic support by discussing the social and economic consequences following dropout, as well as the cost of student support, and the psychology of learning motivation. Li Juan and Lu Xin (2017) pointed out that open universities in the UK adopt a service mechanism linked by learner support teams, and launch a model for integrated learning and learner support (Liu & Li, 2012). As for the service process, it shifts from fixed to open, as learning data shifts from regular surveys to process analysis, which improves the intelligence of learner support and helps learners eliminate loneliness during the process (Li et al., 2017). The research on learner support services in open universities outside the UK includes Ling Ling's (2020) comparative study on the standards of four typical distance education institutions abroad. The study shows that the "learner-centered" distance service concept has gained widespread recognition (Ling, 2020).

2.2 Domestic

With universities and educational institutions joining distance education, open universities are facing challenges in the market because of the redistribution of student enrollment. Many open universities around the world are already facing a crisis of declining enrollment (Zhang, 2017), thus providing high-quality learner support becomes a merit that can help gain market advantage. Tang et al. (2020) used the exploration of the Open University of Jiangsu as an example to emphasize that in order to achieve the value of learner support, it is necessary to meet personalized learning needs and focus on team building. In the research review of modern distance education, Sun Chaoxia and Chen Danyan (2021) found several evolutions: first, support means have shifted from group serving to personalization; second, support methods have shifted from non-real-time to a combination of real-time and non-real-time; and third, support content has expanded from academic to both academic and non-academic (Tang, 2020). Tian Mengmeng et al. (2023) pointed out that empirical research on learner support is in shortage through an investigation into the academic achievements related to China's learner support services over the past two decades (Tian et al., 2023). They suggested strengthening empirical study with theoretical guidance and conducting interdisciplinary research. Some scholars have also sorted out and analyzed factors that may influence the design of learner support process, such as Li Wei (2020), who has formed a measurement model considering service strategy, demand, attributes, and resources (Li, 2020).

As mentioned above, changes in the learning mode and the identity transformation of learners in open education, as well as that of traditional service concepts in the digital world, are having a profound impact on the service mode of learner support, which certainly needs further attention. Its service model is slightly lagging behind the value form rooted in digital universities and needs to be reformed. At the same time, the problems faced by open education, such as high dropout rates and declining student enrollment, are difficult to solve solely by schools or institutions. It is also necessary to combine multiple dimensions, like constructing multiple points to support its implementation, and form a scalable and sustainable intelligent service model.

3. Research methodology and data collection

The research subjects involved in this study are all learners pursuing higher education in a specific open university in China.

3.1 Research Methodology

Conducted online and offline interviews, and questionnaire surveys.

3.2 Data Collection

(I) Data were obtained through both online and offline interviews, centered on students' "non-academic difficulties and needs". The interviewees were randomly selected students from 10 majors, including 14 undergraduate students and 16 college students. Students' information is shown in Table 1.

Table 1: Information of the 30 interviewees

No.	Major	Degree	Enrollment time	Number	Note
1	Computer science and technology	Undergraduate	Spring, 2022	3	Interview was done in November 2023
2	Chinese literature		Spring, 2022	2	
3	Primary education		Fall, 2022	6	
4	Mechanical manufacturing and automation		Spring, 2023	2	
5	English		Spring, 2022	1	
6	Big data technology	College	Spring, 2022	2	
7	Business and enterprise administration		Spring, 2022	8	
8	English (for business and communication)		Spring, 2022	2	
9	Preschool education		Spring, 2023	3	

| 10 | Road and bridge engineering technology | | Fall, 2023 | 1 | |
| Total | / | / | / | 30 | |

Students' non-academic learning challenges and needs, as the interview records show, fall into three types: a. Struggling to find a sense of belonging, often feeling isolated as interactions with counselors and courses mainly occur online, and desiring a more humanistic campus culture. For English majors, the desire to communicate with peers with campus culture is stronger, as lack of an environment to communicate with others is detrimental to language learning. b. Lack of connections with what they have obtained from the course resources in real work and life, and thematic lectures and knowledge beyond professional courses are expected; c. Busy with work and childcare on weekends, finding it challenging to attend face-to-face classes then and hoping for diversified services from the open university, such as childcare facilities, to address concerns during class time. Additionally, students expressed challenges such as insufficient understanding from family members about their enrollment in open education, tight family finances, and the inability to allocate time for learning due to busy work schedules. Some unemployed students believed that the university should provide employment guidance. For details, see Table 2 and Figure 1.

Table 2: Non-academic learning challenges reflected in the interview

Challenges	Count	Proportion	Dimension
Lack of a sense of belonging	12	40.00%	University, peers
Unable to obtain thematic lectures related to life and work	8	26.67%	University, community
No Childcare place while taking courses on weekends	6	20%	University
The company does not provide career development related to continued education	5	17%	Enterprise
Lack of employment guidance	4	13%	University, community
Hard to get support from family members	4	13%	Family

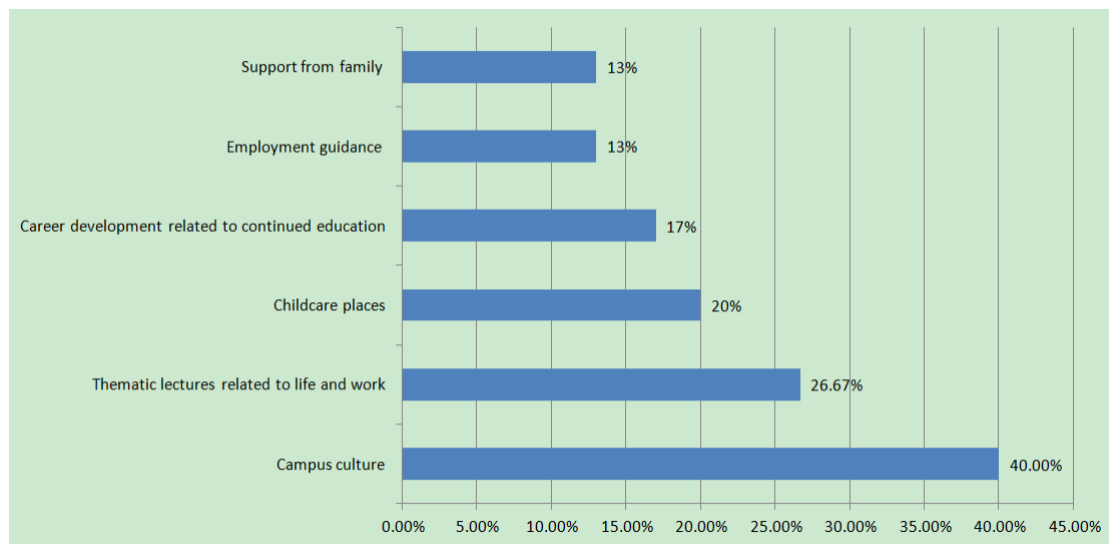Their non-academic needs are shown below.

Figure 1: Students' non-academic needs in the interview

(II) Used "WJX" (an online tool) to design a questionnaire centered on "non-academic learning difficulties and needs", which was responded by a total of 349 students in November 2023. The questionnaire survey was designed for registered students at the Open University of Xi'an, both undergraduate and college students who got enrolled in the spring and fall semesters of 2022 and 2023. The online questionnaire was distributed to students through counselors, and a total of 349 questionnaires were collected. There were 347 valid questionnaires after invalid

ones were removed, of which 61.38% were from college students, 38.62% from undergraduates, and 51.3% were from students aged 31 to 40.

According to the survey data, 59.65% of students chose "busy with work and not available for study" when answering "what kind of non-academic learning difficulties are you faced with", 32.85% thought "lack of a sense of belonging", 26.51% gave vote to "having to take care of children on weekends and thus unable to attend classes", 38.04% thought "what is taught is not related to life or work", and 9.79% chose "hard to get support from family members". It should be pointed out that compared to undergraduates; the dilemma of "busy with work and not available for study" is more prominent among college students, accounting for about 80% of the total.

Table 3: Non-academic learning challenges reflected in the survey

Challenges	Count	Proportion	Dimension
Busy with work and not available for study	207	59.65%	Enterprise
Lack of a sense of belonging	114	32.85%	University, peers
What is taught is not related to life or work	132	38.04%	University, community
Having to take care of children on weekends and thus unable to attend classes	79	26.51%	University, family
Lack of career guidance	21	6.05%	University, community
Hard to get support from family members	34	9.79%	Family

When asked about "what measures can increase your motivation to learn", 59.65% of students chose "companies support academic advancement and provide career opportunities accordingly", 21.16% chose "providing childcare facilities", 33.44% considered "campus culture plus peer communication" important, 38.9% believed that strengthening the correlation between courses and life or work can increase their motivation to continue learning, 6.05% believed it was necessary to provide career guidance, and 9.79% believed it was necessary to promote family communication to obtain support.
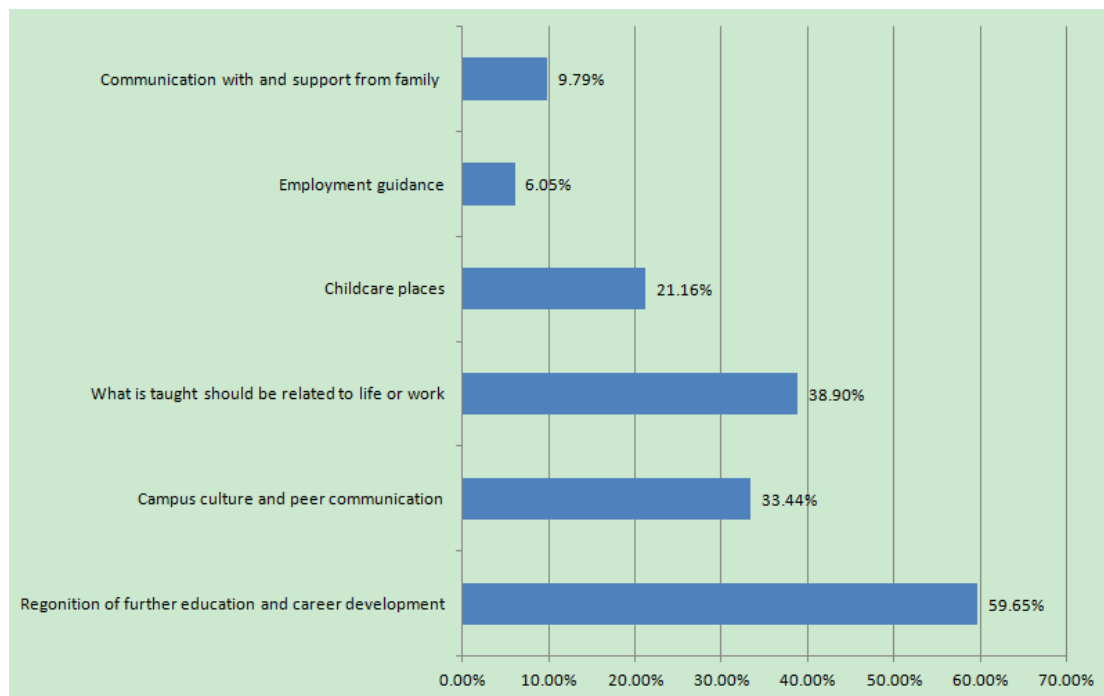

Figure 2: Non-academic measures to increase learning motivation as reported in the questionnaire

4. Result Analysis

4.1 Analysis of needs related to non-academic support service

Non-academic support includes providing students with learning consultation and advice, feedback, and evaluations to ensure that they accomplish the continuous education while keeping a job. Their concerns are detailed as follows:

1. Students' learning motivation can be enhanced if enterprises advocate continuous education and provide career opportunities to them. To be specific, a student with a job may already find it challenging to further his/her education. It can be more challenging if the company he/she is working for does not consider it a positive choice. They may give up after a semester or two, which leads to high dropout. College students, compared with undergraduates, are more concerned about the support of their boss since the employment environment for them is more complex, and they are more likely to change their career paths.

2. Increase thematic lectures that align with real life and work scenarios, to which the connection of course resources should be strengthened. In the digital age, students are exposed to an abundance of information resources, and the channels for them to acquire professional knowledge have significantly expanded. Professional knowledge is thus no longer as scarce as it was in the early stages of distance education. What students aspire most now is to establish connections with guidance-oriented information beyond professional courses, which also reflects the increasingly diverse and personalized learning needs in open education. These needs can only be met with the non-academic support system.

3. Both realistic and virtual campus culture should be emphasized, so that students can develop a strong sense of belonging to their learning group. They need extensive and sustained care and service, or they may drop out due to their inability to overcome learning obstacles in life and the workplace (Li, 2020). Moreover, connecting with peers (i.e. learners who are also receiving open education) can help motivate each other spiritually and emotionally. Although there are class groups among peers, it is difficult to have further interaction because of lack of guidance or measures on a certain platform. Virtual learning communities, eGroups, or virtual coffee drinking get-together can be established across regions, without fixed topics, ratings, or mandatory requirements, solely for the purpose of social communication. This allows students to obtain more emotional strength and motivation from peer-to-peer support, increasing their sense of pleasures, satisfactions, and sense of belonging (Melinda, 2011).

4. Provide childcare facilities or children's leisure areas to help eliminate adult's learning disabilities. At present, parenting challenges are tricky for students from open universities in particular. The age group with the highest proportion among the survey respondents is between 31 and 40 years old, and some of them are currently in the stage of raising children, and must consider babies or children when they come to school for class on weekends or evenings during workweek. They hope the university can provide childcare facilities or services as expected.

5. Obtain support from the community, businesses, families, and other social levels so that the journey of continuing education is no longer lonely and helpless. Enormous pressure is there for those who still receive university education as they are working for business. On the one hand, work occupies most of their energy and time, and on the other hand, family expenses are under pressure. The fast-paced work, study, and life can easily breed psychological pressure. Some learners who are still unemployed hope to receive employment guidance from schools or communities.

4.2 Diversified non-academic support services

The demand for non-academic support services among students presents a tendency to be diverse and differentiated. Students have both common and individual needs for support services, and services that are applicable to one or a few types of students may not necessarily be applicable to everyone. The concept of learner support services in open education should be updated with the diversification of target learners and the socialization of educational concepts (Tang, 2020). Emphasis on the diversity and personalization of services is to increase in open education and lifelong education at large.

4.3 Intelligent non-academic support services

Some services offered by community education, like sharing life/work related topics, employment guidance, and mental guidance, are also necessary for students receiving academic education in open education. Resources of such services can be shared by artificial intelligence technology or through big data analysis, where a more

intelligent learner support environment is possible for predicting learners' need and providing real-time feedback or adaptive services.

5. Intelligent Model for Non-academic Learner Support Services

Based on data collection and research analysis, it was found that meeting the increasingly diverse non-academic learner support services of students requires comprehensive consideration of multiple dimensions which integrates "five dimensions" such as schools, peers, enterprises, communities, and families, to form a "learner centered" model in the social environment, as shown in Figure 4. Among them, "peers" refer to learners who are also receiving open education but are dispersed across mobile terminals in reality. With "five dimensions" as shown in Figure 3, the open education system is able to serve a wider range of lifelong learners across the country.
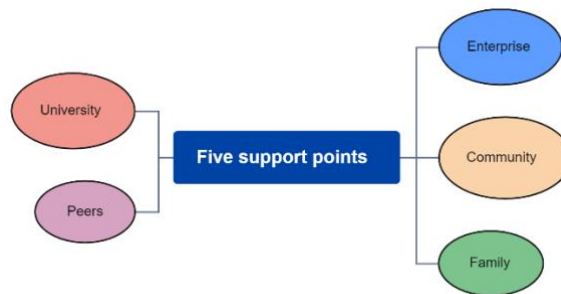

Figure 3: Five support points for non-academic learner support services

The five support points or dimensions suggested by this research, with the support of big data technology, mainly focus on non-academic factors such as the support of resource, management, environment, emotion, finance, and culture, also involving extensive social participation and cooperation, to form a diverse and operable smart model for learner support services, as shown in Figure 4.
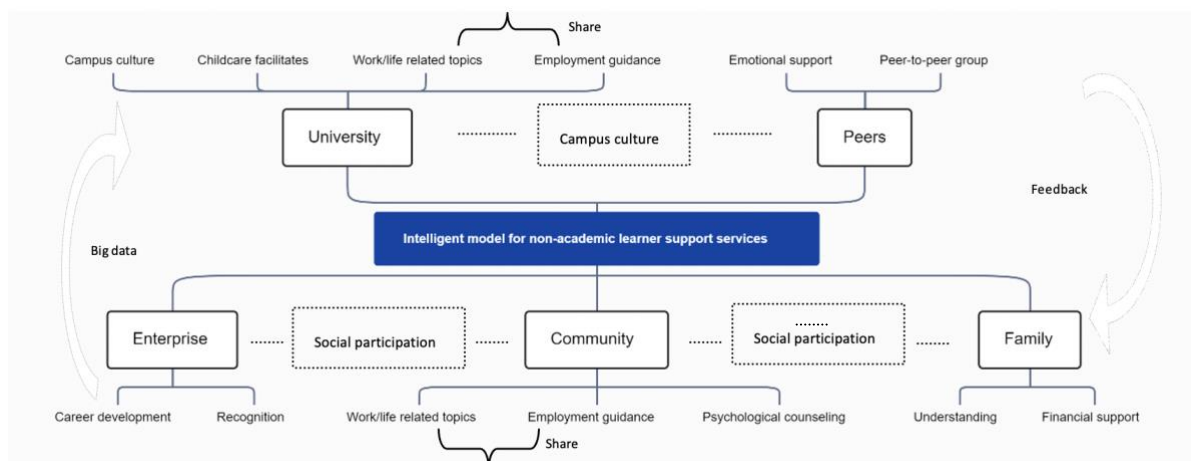

Figure 4: Intelligent model for non-academic learner support services

The characteristics of the model include but are not limited to:
a. In addition to the campus culture created by the university itself, a virtual and real campus culture jointly created by the university and learners' peers also counts. Peer students in open education are very special, since they do not have chance to see each other often, usually silent at different terminals where they can get access to online resources, a large but not fully awakened group. If members in such a considerable group start to embrace emotional communication, or mutual motivation and promotion to get mutual aid, then a virtual and real campus culture will be enriched.
b. The university enhances students' sense of belonging and identification by providing childcare facilities alike.

c. Enterprises, communities, and families form a three-dimensional system of social participation that complements each other and becomes a community of shared interests to truly promote lifelong learning for all (Sewart, 1993). First, Enterprises (i.e. learners' workplaces) provide career development opportunities for learners and hold a positive attitude towards their continuing education, creating professional conditions for learners to continue learning in their spare time. Community education, then, provides thematic sharing and employment guidance, while schools carry out non disciplinary thematic sharing and employment guidance too. The two can achieve extensive sharing of high-quality resources through big data technology. Lastly, the learner's family plays an important role in their education process, and without their understanding and support in emotion and finance, the learning journey may become tough.

The advantages of this model are: on the one hand, universities and peers jointly become the fulcrum to promote the construction of virtual and real campus culture, which then provides effective feedback to participants at the social level; on the other hand, through big data analysis, diverse non-academic needs of learners at the social level are summarized and classified, and real-time adaptation is carried out, making resource coordination and utilization possible, which helps promote the creation of a virtual and real campus. Both "virtual and real campus culture" and "extensive social participation" form a sustainable and timely cycle, jointly promoting the implementation of non-academic support services, and significantly improving their quality, cost, efficiency, and other aspects through process design. Furthermore, this model is designed to be learner-centered, which can help them obtain sustained and extensive care and services throughout the process, stimulate their learning enthusiasm and motivation, and thus enhance their sense of participation and presence. This conforms to the core concept of "Continuity of Concern" proposed by David Sewart.

This model targets a wide range of learners, including potential learners, current learners, and learners who have graduated. Through big data, potential learners are discovered and mobilized, while current learners are followed up in a process-oriented manner. Tracking and serving learners who have graduated can help replenish the student source of open education.
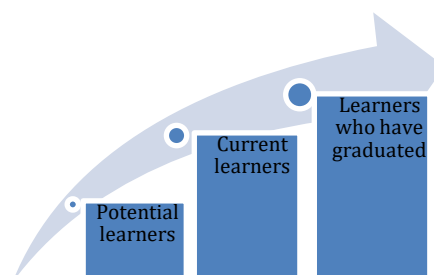

Figure 5: Type of Learners

The support covered by the "five dimensions" is of many types, such as resource support, management support, environment support, information support, culture support, employment guidance support, etc, as shown in Table 3. Different types of support equip students with a wide range of care and services from multiple channels and in various ways, promoting them to practice the concept of lifelong learning through continuing education.

Table 3: Support Types of Five Dimensions

Support Dimension	Support Type
University	Support of culture, resource, management, information, and employment guidance
Peers	Support of emotion and culture
Community	Support of psychology, information, and employment guidance
Enterprise	Support of career development and recognition
Family	Support of emotion and finance

Starting with the non-academic service demand of students in open education, the model clarifies the multiple support points of the services, so as to provide learners with high-quality learning experience during their further education through the use of big data technology which helps integrate effective resources, forming a sustainable, timely, and intelligent cycle with humanistic concern. This model can be achieved by connecting various support points through websites and platforms, connecting all parties to form a coverage service pattern.

6. Conclusion

This article proposes an intelligent model for non-academic learner support services supported from five dimensions based on the survey analysis of the non-academic service needs of students in open education from the perspective of a guidance counselor, aiming to reconstruct the "ecosystem" of non-academic support in open education, and improve students' learning experience and effectiveness. The diversified and intelligent model not only promotes the development of students' emotional and organizational abilities in open education by providing feedback and classification for their non-academic needs, which then integrates with their academic ones to serve as an important reference for building a lifelong education system for all and a learning society at large.

There are still shortcomings in the research, such as insufficient quantity and breadth of data collection, and the exploration needs to be extended in the following aspects: firstly, flexible, dynamic, and adaptive adjustment mechanisms need to be established to for the standardization and intelligence of services to create a theoretical system of non-academic support services that is suitable for the innovative development of open education in China; second, to explore the construction of hierarchical feedback mechanisms and non-academic support teams based on the service model, in order to improve the quality and efficiency of the services.

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