Research on the Path to High-Quality Development of Grassroots Libraries in the Era of Artificial Intelligence in Henan

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Abstract: Since the age of digital intelligence, the government has introduced policies to actively promote the intelligent transformation of grassroots public cultural services. Based on the investigation and analysis of the development status quo of grassroots libraries in Henan Province, we put forward the path of high-quality development of grassroots libraries in Henan, namely, improving the mechanism and system, leading with digital intelligence technology, empowering by Yellow River culture (the heritage and values rooted in the history and traditions of the Yellow River region), and driven by users' demand.

Keywords: Artificial intelligence; Henan grassroots libraries; High-quality development; Public cultural services; Digital culture

1. Introduction

Grassroots libraries generally refer to public libraries sponsored by the government at the county level and below or run by social forces [1]. Influenced by politics, economics, history, and other factors, China's library system still faces many issues related to regional, urban, and rural development imbalances and inadequacies. But at the same time, it is the backbone of cultivating the sense of identity of local culture and realizing the cultural revitalization of the countryside. Since entering the era of digital intelligence, the state has issued several policies to promote the implementation of public cultural services "intelligent transformation" strategy and extended to the grassroots. For example, the report of the 20th National Congress of the Communist Party of China (CPC) proposes to "implement a national strategy for cultural digitization, improve the modern public cultural service system, and carry out innovative cultural projects to benefit the people." The Third Plenary Session of the 20th CPC Central Committee put forward the idea of "establishing a mechanism for high-quality cultural resources to reach the grassroots," focusing on solving the problem of urban-rural differences. In such a form, how the grassroots libraries in Henan can combine artificial intelligence technology, enhance the vitality of innovation, actively explore the effective

ways of intelligent transformation and upgrading, and help the Chinese-style modernization of Henan with high-quality digital culture construction is a question we should think about.

2. Relevant research

A literature search in China Knowledge Network shows that research on grassroots libraries in China began in 1980, with the number of publications in this field growing rapidly since 2006, peaking in 2017, and then declining. It shows that with the tilt of national policies towards rural areas, such as the introduction of the policy of building a new socialist countryside in 2006, the implementation of the "Nongjiajia Bookstore" project nationwide in 2007, and the requirement of enriching the spiritual and cultural life of the people in rural and remote areas put forward by the 17th National Congress of the CPC in October 2007, the attention of academics to the grassroots in rural areas, including grassroots libraries, has been increasing along with the number of research studies. The research has gradually deepened and entered a relatively mature period after achieving certain results.

The research themes on grassroots libraries are relatively broad, and after sorting and screening, they can be summarized as follows: First, the theme of reading promotion. Certain hotspots emerge, often aligned with national policy priorities. For instance, research on promoting reading among rural adolescents is highly valued by scholars, who note that grassroots libraries have weak service capacities for minors and need to rely on larger libraries with stronger professional expertise for support [2]. It is also important to fully leverage the role of schools and social forces. The promotion of local literature is gradually gaining attention, with the belief that it can benefit from the rapid development of cultural and tourism integration, explore the new value of traditional culture, and develop diverse cultural products using new media technology [3]. Scholars also found that the effect of reading in the countryside is not satisfactory, and believe that the serious "structural" contradiction in the supply of rural public cultural services should be solved.

Second, the theme of the service system. Most of the research is on the construction, innovation, guarantee, and evaluation of the service system of grassroots libraries [4]. At the theoretical level, the institutional system and governance system of public libraries with Chinese characteristics have been constructed, and grassroots library development models covering urban and rural areas have been formed, such as the "Pingqiao Model" and the "Jiaxing Model." There are problems such as the fragmentation of the service system of grassroots public libraries, unsound operation, and guarantee mechanism, and unbalanced regional development [5]. Although there is a general problem of "performance dilemma," the performance of county-level public libraries has been steadily improving in the past ten years [6]. New growth points can be found through development planning, innovative service models, and the development of integration [7].

Third, the theme of public cultural services. The study mainly focuses on the functional structure, emergent problems, and practical experience. It is believed that the emergence of rural libraries contributes to the reconstruction of rural cultural subjects and the repair of rural cultural self-awareness [8]. The construction of rural culture in various places generally faces problems such as difficulty in adapting to the modernization process. There is the integration and development of traditional culture and modern public culture, and the importance of using the power of village sages, to promote the systematic integration, institutional coordination, and high-quality development of rural cultural construction [9].

In general, domestic research on grassroots libraries is relatively mature, and the research content is gradually deepening. However, the results predominantly focus on summarizing practical experience, with a need for broader research perspectives and more diverse methodologies. The theoretical foundation is not yet sufficiently developed, and development strategies are not clearly defined. Compared to international research, domestic

studies still need to delve deeper into areas such as cultural service effectiveness, reading space construction, and the application of information technology.

3. Research significance and value

3.1. Academic value

Firstly, an examination of the development of China's grassroots library research reveals a significant gap in both quality and quantity compared to urban and college libraries. This discrepancy does not align with the national rural revitalization strategy.

Secondly, Henan, located in the middle and lower reaches of the Yellow River Basin, boasts a rich historical and cultural heritage. Since 2019, the high-quality development of the Yellow River has become a national strategy. In alignment with the strategic focus and resource endowments of national social science projects, research in the Yellow River Basin aims to leverage historical and cultural advantages to drive high-quality development across multiple societal fields. Therefore, this research aligns well with current trends and priorities.

3.2. Application value

As we approach the conclusion of the "14th Five-Year Plan," several key initiatives are being implemented. These include improving the mechanism for the synergistic development of urban and rural public cultural services, using cultural prosperity to support rural revitalization, and achieving breakthroughs in the digitalization, networking, and intelligent development of public culture. In this context, the construction of grassroots libraries in Henan should align with national policy directions and goals, seize the opportunities available, and steadfastly pursue high-quality development. This involves leveraging artificial intelligence technology and driving cultural service innovation through the preservation and development of the Yellow River's excellent traditional culture. By doing so, Henan can contribute to Chinese-style modernization with a renewed role and approach.

4. The development status of grassroots libraries in Henan Province

4.1. Basic situation of grassroots libraries in Henan Province

As of 2021, Henan has 169 public libraries, 2,412 cultural stations in townships (streets), more than 50,000 comprehensive cultural service centers in villages (communities), and more than 46,000 farm bookstores [10]. During the "13th Five-Year Plan" period, county libraries in Henan Province have successively built several "city libraries" and "24-hour self-service libraries." The model of main branch libraries has been widely carried out, and a new public library service network integrating urban and rural areas has been constructed. According to the survey, the average area of county libraries and the total number of books in the collection of Henan Province are in the middle and lower levels of the country [11]. Moreover, most county-level libraries do not have official websites and mainly carry out publicity and services through WeChat public numbers and other multimedia. Many township branch libraries do not have full-time staff.

4.2. Effective construction of digital culture

County libraries in Henan Province have generally conducted online promotions of rare ancient books in their collections and organized thematic knowledge lectures on history and culture. In 2020, the construction of the public digital culture project in Henan Province was officially launched, characterized by provincial-level coordination, a focus on grassroots development, an emphasis on integration and innovation, and the encouragement of social participation. The province's public cultural service distribution and management

platform was launched in 2018. Following this, the digital platforms "Cultural Yuyao" and "People's Cultural Cloud" were introduced. In 2023, China's first personalized digital reading platform, the "ShuXiangHenan" application, was established. This platform offers "menu-type" and "order-type" services, aiming to promote digital cultural development at the grassroots level and enhance comprehensive cultural service centers.

Henan makes good use of "library +" thinking to promote reading and cultural construction in villages. For example, the Yiming Book House in Jiaxian County is the first rural public service book bar in Henan Province, which adopts a social crowdfunding approach to integrate the culture of ancient buildings, teahouses and lodgings, and other rural characteristics into public cultural services. In 2020, Xin'an County Library launched the "one-stop cultural and leisure" mode of "urban library + business" and recruited some outstanding entrepreneur volunteers as "reading promoters" of the urban library to improve the reading service. The high-quality integration of culture and tourism in Henan Province has been in full swing since 2021, such as the Zhouyao Library on Longxiang Street in Jiaozuo's Zhongzhan District, the South Taihang Branch of the Provincial Library, the "Red Bookstore," and the Dandelion Stage Station Substation. These forms are all manifestations of the quality and efficiency of rural reading space and social integration and sharing.

5. The path of artificial intelligence technology leading the high-quality development of grassroots libraries in Henan Province

The "14th Five-Year Plan" for the Construction of the Public Cultural Service System proposes to take the National Intelligent Library System Construction Project and the Public Culture Cloud Project as the basis, strengthen the construction of digital cultural content resources, build a public cultural network platform, and expand the intelligent application scenarios of public cultural services. To promote the high-quality development of grassroots libraries, we need to combine the current national strategic decisions, the current situation of the development of grassroots libraries in Henan Province, as well as the realistic needs of grassroots residents, to find the direction and goals of the work, and to seek innovation and breakthroughs by leading the sustainable development with artificial intelligence technology. The specific path is shown in **Figure 1**.
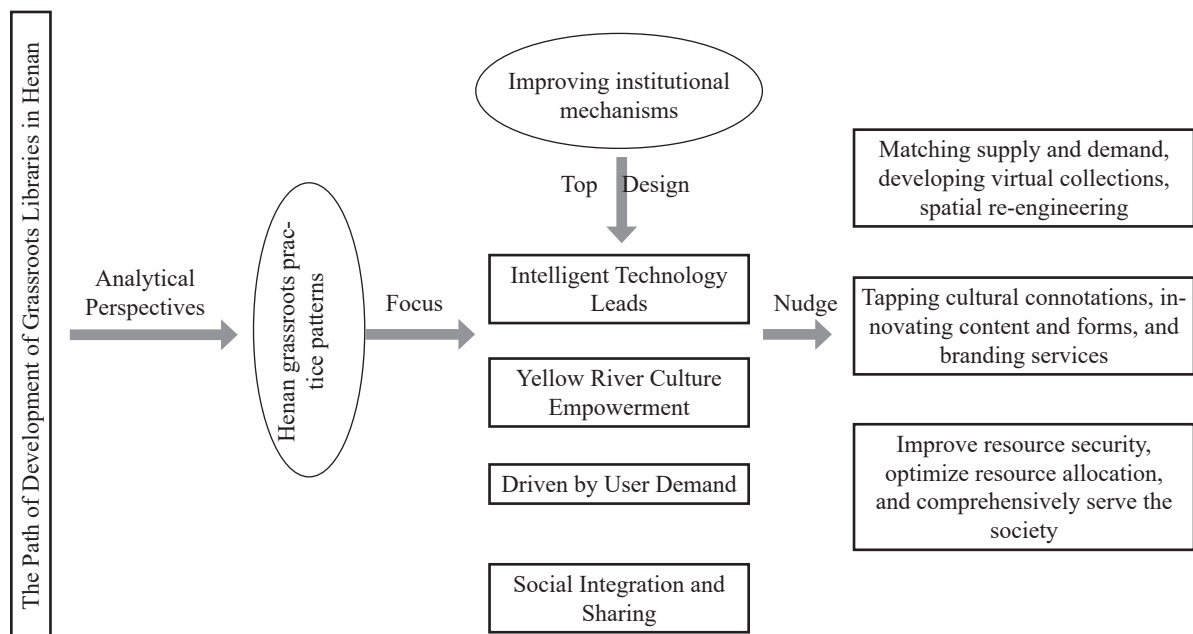

Figure 1. Development path framework

(1) Formulate and improve the institutional mechanism for the high-quality development of grassroots public cultural services in the province, do a good job of top-level design and planning, and form a benign operating ecology for career development. Henan Province has explored activating the endogenous power of rural revitalization with cultural construction, focusing on both hardware investment and mechanism improvement. Since 2015, Henan Province has set up a public culture coordination leading group at the provincial, municipal, and county government levels, giving full play to the role of coordination in the development of public culture planning, the construction of major projects, financial and personnel security, etc. [12]. After 2016, it issued the "Implementation Plan for Promoting the Construction of Grassroots Comprehensive Cultural Service Centers in Henan Province," the "Implementation Standards for Basic Public Services in Henan Province (2021 Edition)," and "Provincial Award and Subsidy Funds Management Measures for the Construction of Grassroots Comprehensive Cultural Service Centers in Henan Province" were issued after 2016 to provide guarantees for grassroots public cultural services in Henan Province in terms of funding, operation and management, and mechanisms and systems. In 2021, the People's Government of Henan Province included digital culture construction in the "14th Five-Year Plan," and this focus was reaffirmed in 2022. In 2022, the provincial party committee launched the Implementation Program for Promoting the National Culture Digitization Strategy in Henan Province, making systematic planning and deployment of culture digitization in the province. This series of policy initiatives is important for solving the problem of the lack of vitality and sustainability of many grassroots public cultural services [13].

(2) Leading the search for sustainable development breakthroughs with digital-intelligent technologies to provide farmers with resources, spaces, platforms, and scenarios for digital innovation. Digital intelligence technology is more conducive to grassroots libraries to build an open human-oriented service model, through the cloud computing big data analysis of user needs, construction of a variety of intelligent scenarios, and the construction of an efficient human-computer interaction model, to provide convenient personalized intelligent services. Therefore, it is necessary to continuously strengthen the intelligent technology infrastructure of grassroots libraries and promote the transformation and upgrading of grassroots libraries by relying on the intelligent library system and the public culture cloud national project. In the initial stage, it can rely on the public culture cloud to build and share local resources, reuse business systems, rent cloud storage space, use software platforms to carry out online services, and build the framework of software and hardware systems [14].

(3) Deepen strategic integration, break various restrictions with proactive cultural integration practices, and innovate around resources, services, space, personnel, management, openness, and other elements. It can be coordinated by the provincial department, focusing on the protection and development of the Yellow River culture and other key areas of local culture, bringing together experts for the interpretation of classic literature, excavation, and protection of non-heritage skills, cultural and creative product development, and the construction of digital resource platforms for ancient books, and many more to provide high-quality content supply for the public cultural service institutions. Cultural tourism and cultural and creative integration can be promoted through donations and collaboration with social forces to build and enhance cultural and tourism facilities. This approach aims to embed public reading widely within rural cultural and tourism venues. Additionally, transforming community cultural complexes and organizing various cultural publicity activities can help connect more closely with grassroots residents' daily lives. Introducing cultural volunteers and other professionals to guide grassroots reading services can further enhance these efforts. Ultimately, grassroots libraries can improve their competitiveness by focusing on

local characteristic culture and developing a unique cultural service brand system.

(4) Innovative construction of resource service system based on demand. Grassroots libraries can strengthen the optimal allocation of resources and form system synergy by integrating and sharing with different types of libraries or other types of information service institutions, as well as joining the Library Union and the National Cultural Information Sharing Project to achieve cross-region cooperation [15]. The iterative updating of intelligent technology is more conducive to demand analysis and targeted delivery strategies, and then based on high-quality resources, reading space, and accurate professional services, the service content is provided by groups and levels, the service process is optimized, and diverse reading promotion activities and cultural resource activities are provided for all kinds of groups in a variety of forms and with strong relevance.

(5) Leading the construction of a well-off society with the new development concept. The development of public libraries should be integrated into the national development strategy, led by the new development concept of innovation, coordination, green, openness, and sharing, strengthening internal governance and encouraging social participation [16]. Grassroots libraries must take the initiative to assume more social roles, use resources, space, and other advantages to strengthen the linkage with the community, and extend services to the community and families [16]. Strengthen the promotion of reading for all, hold lectures, training, exhibitions, etc., to comprehensively improve the information literacy and scientific and cultural quality of rural residents. It plays a role in guaranteeing literature and information resources, building a cultural platform for the benefit of the people to inherit Chinese civilization, and helping to fight poverty. It plays a role in providing intellectual support for the local society, improving the development of community informatization, and promoting urban-rural integration [17].

6. Conclusion

The high-quality development of grassroots libraries in Henan Province should be aligned with the national development strategy, with the support of Yellow River cultural resources and cultural values as the attraction, artificial intelligence technology as the tool, and multi-format and diversified integration development as the means. Based on the practical field of rural areas in Henan Province, starting from the dimensions of formulating and improving mechanisms, reconstructing subject relationships, ensuring funding investment, resource and spatial transformation, strengthening interactive communication, and service performance evaluation, we should embark on a new development path of innovation, coordination, green, openness, and sharing for grassroots libraries in the era of artificial intelligence in Henan.

Disclosure statement

The author declares no conflict of interest.

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