Construction of Small-Scale Journal Clusters for Sci-Tech Journals: Preliminary Practice Postprint of "Zhenqiu Journals"

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Abstract

【Objective】 To analyze the developmental advantages and problems arising in the practice of constructing "small journal clusters", and to provide references for such construction initiatives.

【Methods】 Using the "Zhenqiu Journals" cluster, organized under its sponsoring institution, as a case study, and guided by principles of systematic and brand-oriented development, we implemented practices in the integration of website, submission and peer-review, and typesetting systems, brand establishment and promotion, upgrading of knowledge service modes, and intensive management.

【Results】 We summarized the advantages and disadvantages of journal cluster construction, and proposed key areas for future improvement and development directions in response to existing problems.

【Conclusion】Although the construction of "small journal clusters"faces numerous challenges, it has produced positive impacts on both overall and individual journal development, demonstrating that "small journal cluster" construction represents an important stage in the development from ordinary journals toward journal "clusterization".

Full Text

Construction of "Small Journal Clusters"for Scientific Journals: Preliminary Practice of "Zhenqiu Journals"

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Abstract

[**Objective**] This study analyzes the developmental advantages and problems arising in the practice of constructing "small journal clusters" to provide reference for similar initiatives. [**Method**] Taking the "Zhenqiu Journals" cluster organized under its host institution as an example, and guided by systematic and brand-building principles, we implemented practices in integrating website, submission and review, and typesetting systems, establishing and promoting brand identity, upgrading knowledge service models, and implementing intensive management. [**Result**] We summarize the pros and cons of cluster construction and, addressing current problems, propose key areas for improvement and future development directions. [**Conclusion**] Although constructing small journal clusters involves numerous challenges, it has produced positive impacts on both collective and individual journal development, demonstrating that small journal clusters represent an important stage in the evolution of ordinary journals toward centralized clustering.

Keywords: clustering; small journal cluster; Zhenqiu Journals; journal management practice; scientific journals

With digital advancement, the knowledge service model of scientific journals continues to evolve, and forming professional journal clusters has become a key measure for improving disciplinary service quality and enhancing journal influence and dissemination capacity. In July 2019, four ministries including the China Association for Science and Technology, the Publicity Department of the CPC Central Committee, the Ministry of Education, and the Ministry of Science and Technology jointly issued the *Opinions on Deepening Reform to Cultivate World-Class Scientific Journals*, which designated "promoting clustering and accelerating transformation toward collectivization"as a construction goal for the "next five years" [1]. Furthermore, in October 2019, seven departments including the China Association for Science and Technology launched the pilot clustering project "China Science and Technology Journal Excellence Action Plan" for the first time, proposing to "pilot and explore the clustering development path for China' s scientific journals" and "achieve breakthroughs by flagship journals and agglomeration development of high-level journal clusters" [2]. Under strong national advocacy, professional clusters of academic journals in various domestic disciplines have gradually demonstrated developmental advantages.

Chinese journals are characterized by small scale, weak strength, dispersed publishing units, low concentration, and weak market awareness [7]. Ordinary professional journals in small disciplines can scientifically adopt clustering concepts to form "small journal clusters." Although small journal clusters lack large-scale strength, they similarly embody the spirit of "staying warm together and developing collectively," enabling integrated and intensive development [8], nurturing

individual journals through the cluster, and offering greater advantages and potential in terms of in-depth and precise services. Small journal clusters will also become an important stage in the development of China' s journal clustering.

Publications in the seismology field are generally weak, small, and scattered, operating like small workshops, making cluster development an important pathway for journal growth and strengthening [9]. In 2021, to optimize the structure of scientific journals and promote intensive development, five journals from our institution formed the "Zhenqiu Journals" cluster with strong support from our host institution, the Institute of Geophysics, China Earthquake Administration. This paper takes "Zhenqiu Journals" as a case study to specifically analyze the cluster' s development status, discuss the advantages and problems after clustering, and propose suggestions for future development directions and work priorities by referencing other clusters' experiences.

1. Introduction to the "Zhenqiu Journals" Cluster

1.1 Current Status of the Journals

"Zhenqiu Journals"is named after the abbreviation of the Institute of Geophysics, China Earthquake Administration journals. The cluster includes:

- ***Acta Seismologica Sinica***: Established in 1979, bimonthly. It primarily publishes innovative research results and technical achievements in seismology, as well as papers in geophysics, seismogeology, engineering seismology, and other related fields. It is indexed in Scopus, the Chinese Science and Technology Core Journals Catalogue (Natural Science Volume), Peking University Core Journals, CSCD, and other databases, and is classified as T1 level in the high-quality journal grading directory released by the China Association for Science and Technology. The editorial office currently has three editors.
- ***Earthquake Science***: Established in 1988, bimonthly, it is one of the earliest English journals established in China. Its publication scope is basically the same as *Acta Seismologica Sinica*. It is indexed in ESCI, Scopus, DOAJ, and other databases, and is classified as T2 level in the high-quality journal grading directory released by the China Association for Science and Technology. The editorial office currently has two editors.
- ***CT Theory and Applications***: Established in 1992, bimonthly. It mainly publishes innovative research results in CT theory and applications, reflecting the frontiers and advances in CT science and technology both domestically and internationally. The journal features columns on theory and methodology, geophysical CT, industrial CT, medical CT, reviews, and information. It is a Chinese science and technology core journal and is classified as T2 level in the high-quality journal grading directory released by the China Association for Science and Technology. The editorial office currently has one editor.

- ***Progress in Earthquake Sciences***: Established in 1971, monthly. It features short publication cycles, rich content, and strong readability. It publishes scientific and technological achievements in earthquake science research, exchanges domestic and international earthquake monitoring and forecasting, disaster prevention, and earthquake mitigation research work and information, and promotes earthquake science research and development. It is classified as T3 level in the high-quality journal grading directory released by the China Association for Science and Technology. The editorial office currently has two editors.
- ***Earth and Planetary Physics***: Established in 1970, bimonthly. It has long published full translated articles. In 2021, it changed its name from *World Earthquake Translation* to the current title and revised its publication mission. It mainly publishes new ideas, new technologies, and new advances in multiple fields related to geophysics and planetary physics, including solid geophysics, planetary physics, space physics, and atmospheric physics. It is classified as T3 level in the high-quality journal grading directory released by the China Association for Science and Technology. The editorial office currently has two editors.

Overall, the journals in the cluster have relatively low influence and lack high-impact leading journals. The team currently has 11 staff members, including 10 editors, indicating a shortage of editorial personnel.

1.2 Construction Ideas and Measures for the "Small Journal Cluster"

Guided by systematic and brand-building principles, Zhenqiu Journals implemented cluster construction in the following areas.

We established the "Zhenqiu Journals" portal website and registered the domain name www.zqqk.org.cn, which is prominently placed on the official website of our host institution, the Institute of Geophysics, China Earthquake Administration. The portal homepage features three modules—Special Recommendations, News and Updates, and Hot Articles—collectively showcasing the latest articles, hot papers, and editorial news from all five journals. Authors and readers can simultaneously browse content from all five publications on a single webpage, creating a spillover effect that increases article readership and downloads for both the cluster and individual journals.

The circulation and sharing of internal resources within a journal cluster represent an important mission of cluster development, and implementing a unified submission and review system serves as the breakthrough point for achieving this goal [10]. Therefore, we upgraded the systems for journals not yet using the XML submission and review management system, with all Chinese-language journals in the cluster now using the same system. This enables sharing of user and expert information among Chinese journals in the cluster and establishes an inter-journal manuscript transfer interface. Authors can select the order of journals they wish to submit to within the cluster; if the first-choice journal

rejects the manuscript for any reason, it can be automatically transferred to the second-choice journal, whose editorial office can decide whether to continue based on the review process and comments from the first journal, with subsequent journals following the same process. This interface both simplifies the submission process for authors within the cluster and, to some extent, prevents manuscript outflow.

Digital transformation requires full-process digital publishing as an inevitable requirement for the upgrading of scientific journals [11]. Accordingly, we upgraded the systems for publications not yet using the XML structured typesetting system, enabling all journals in the cluster to achieve XML structured typesetting and online editing and proofreading. Based on cloud-based online operations, we implemented single-article publishing, priority publishing, and priority release with simultaneous website and WeChat updates, achieving information exchange throughout the release process, shortening the manuscript production and release cycle, and facilitating reader access, downloading, citation, and sharing of articles to promote rapid dissemination of academic achievements.

With the development of new media technology and changes in reading habits, social media can accelerate the dissemination of scientific research results and strengthen connections between journals and readers, with more scientific journals embracing social media platforms [12]. WeChat official accounts have become one of the effective means for scientific journals to enhance academic influence. Before the cluster' s establishment, each journal had its own WeChat account, but due to limited editorial staff, these accounts were poorly managed with low follower counts and minimal monthly postings. After the cluster' s formation, following the principles of overall optimization and intensive integration, we decided to abolish the individual accounts and applied for a service account under the name "Zhenqiu Journals." We built specific modules within this service account according to each journal's needs, enriched content, and unified management. Officially launched in May 2021, the account rapidly gained a substantial following through promotion and currently maintains active operations. Although Weibo' s traffic has declined compared to its peak, it still holds certain value, so we also established a "Zhenqiu Journals" Weibo account to synchronize information releases with the WeChat account, publish cluster work updates, and forward industry-related content.

While social media promotion effects depend on user forwarding and sharing and are limited by follower counts, email 推送 represents a simpler and more efficient dissemination method [13] that can deliver information to target audiences effectively by creating different recipient lists based on various themes. To better attract excellent manuscript sources and increase journal visibility, we utilized a big data repository of experts and authors to launch point-to-point email campaigns, delivering journal articles directly to relevant experts and authors, with approximately 50,000 emails sent per issue and an open rate exceeding 15%.

We concentrated on "Zhenqiu Journals" brand building and promotion [14] by designing a brand logo, creating promotional materials and gifts, developing

warm-up PPTs for academic conferences, and actively participating in industry academic conferences to promote the journals and solicit contributions collectively.

To upgrade knowledge services, the cluster provides academic services to readers and authors, such as regularly inviting experts, article authors, and publishing companies to deliver academic lectures, and hosting or organizing high-end academic seminars that have attracted thousands of domestic and international experts and scholars to participate both on-site and online, further enhancing the brand influence of "Zhenqiu Journals."

To improve efficiency through intensive management, we integrated identical or duplicate businesses across the five journals that fall outside the core editorial focus and hired dedicated editorial assistants to handle these tasks, effectively alleviating pressure on editorial staff and allowing editors more time for soliciting contributions and organizing special issues, thereby improving the academic quality of the journals.

2. Advantages and Existing Problems in Zhenqiu Journals Development

Cluster construction represents not merely a quantitative change from single to multiple journals but a transformation in development scale and business model. Based on the integration work and current team operations, a review of the development path reveals that the formation of Zhenqiu Journals has demonstrated clear advantages. Compared with individual journals operating independently, multi-journal collaboration offers several benefits: it breaks isolation to form an organic whole with shared advantageous resources and improved overall efficiency; it promotes and drives new and weak journals to raise overall publication standards; it enables intensive work structure with rational task integration and improved efficiency; it fosters closer inter-journal relationships, enhanced team awareness, and internal cohesion; and it establishes a unique brand that maximizes brand value [5].

However, after nearly two years of cluster construction, several problems persist. The journals generally have low influence and lack high-impact leading journals, resulting in an 不理想 cluster structure and weak linkage mechanisms that cannot effectively drive new or relatively weak journals. With substantial overlap in publication scope and a weak structural foundation, the cluster experiences some internal competition for limited manuscript sources. There is a lack of professional operation and promotion mechanisms. Although new media operations are comprehensive at individual "points," the "lines and surfaces" are not refined or in-depth enough for meticulous cultivation. New media dissemination quality is not high, as most users only care about content related to their specialties, and the merger of Zhenqiu Journals' new media accounts makes it difficult to achieve precise demand matching, resulting in suboptimal communication quality. Institutional constraints prevent complete restructur-

ing of personnel, and although some work has been assigned to dedicated staff, the increasing workload makes these reductions seem insufficient.

3. Development Direction and Work Priorities

Addressing the above problems and drawing on successful experiences from large journal clusters, we propose the following considerations for the future development of the Zhenqiu Journals cluster.

First, optimize cluster structure by independently cultivating leading journals and building a collaborative development pattern [9-10]. This requires relatively substantial investment of human and financial resources to support promising journals such as *Acta Seismologica Sinica* or *Earthquake Science*, striving to develop them into leading journals within the cluster to further enhance the cluster' s reputation and influence and strengthen its linkage and driving mechanisms.

Second, leverage distinctive features, precisely position development directions, and prevent internal competition. As media integration deepens and all-media transformation enters a critical phase, competition has returned to the fundamental level of "content and dissemination." Although the journals are small, each has its professional characteristics, so they need to focus on hot topics and key issues for thematic planning based on their specialties, organizing high-quality special issues and columns [15].

Third, promote capability transformation for all staff [16] and, when conditions permit, cultivate a dedicated new media team. Small journal cluster construction currently involves "crossing the river by feeling the stones," with few successful experiences, and due to various institutional reasons, achievements are not easily replicable. Training and practice are the best ways to develop team capabilities, so all editors should be encouraged to participate in relevant training to learn about the latest technologies, broaden their horizons, and acquire new media skills to apply in cluster construction practice, achieving dual success in personnel skill enhancement and team building.

Fourth, strengthen platform construction and data mining [11], deeply explore content and value to achieve precise demand matching, and provide quality services through high-quality content and dissemination practices to fully demonstrate the advantages of small journal clusters.

Regarding institutional defects and cluster expansion issues [5], progress depends on the host or supervisory unit to advance implementation, with relevant organizational leaders proposing construction opinions to promote attention from supervisory and host units.

In December 2021, the National Press and Publication Administration issued the *14th Five-Year Plan for the Development of the Publishing Industry*, proposing to "accelerate the construction of world-class scientific journals, encourage capable scientific journal publishing enterprises to integrate and reorganize journal resources, accelerate the formation of scientific journal publishing clusters

and groups with relatively large scale and strong strength, and create a batch of high-quality scientific journals" [17]. With strong support from our host institution, the Institute of Geophysics, China Earthquake Administration, our scientific journals have taken the crucial first step in cluster construction.

Our preliminary practice demonstrates that forming small journal clusters generally produces more benefits than drawbacks for both collective and individual journal development. Through continuous exploration and practice, these clusters will eventually mature into better-developed entities that can better serve society. If multiple mature small journal clusters merge, they are likely to grow into "scientific journal publishing clusters and groups with relatively large scale and strong strength," making small journal cluster construction a crucial stage in the clustering development of ordinary journals.

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