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Status Quo and Countermeasures of Academic Journals' WeChat Official Account Participation in Science Popularization

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Abstract

Taking 27 academic journals of the subject of "environmental science", which were also included in the core of Peking University in 2017 and 2020, as the research object, we investigated the science popularization participation of the academic journal WeChat official account. Research has found that the participation of natural science and technology academic journals in popular science varies. From the perspective of subject participation in popular science, academic journals have a relatively rich variety of popular science content types. From the perspective of academic journal participation in popular science, the number of popular science content types participated by each academic journal varies, and the positioning of journal participation in popular science has not yet formed differentiated development. The content types of academic journals in the field of "environmental science" participating in popular science can be classified into 9 categories: Discipline Review and Prospect, scientific briefings, promotion of science and technology and methods, industry dynamics and news, science and technology commendations, environmental governance systems, popular science knowledge, scientific research stories, and reader perspectives. Academic journals can fully utilize new media to participate in science popularization, and combine the positioning of the journal to take the path of distinctive science popularization participation.

Keywords

Academic Journals; WeChat Official Account; Popularization of Science Current Situation; Countermeasure.

1. Introduction

According to the Science and Technology Popularization Law of the People's Republic of China (hereinafter referred to as the Science Popularization Law), science and technology popularization (hereinafter referred to as science popularization) refers to the activities of the state and society to popularize scientific and technological knowledge, advocate scientific methods, disseminate scientific ideas, and promote scientific spirit. The popularization of science and technology can improve the scientific literacy of the public, promote technological innovation, and contribute to the implementation of the strategy of revitalizing the country through science and education and sustainable development.

Academic journals are periodic publications focused on a particular disciplinary field, primarily reporting on peer-reviewed, original, and latest research findings or technological discoveries. According to the Guiding Opinions on Promoting the Integration and Development of Traditional and Emerging Media, the interpretation of the concept of "all media" has made it an inevitable trend for academic journals to develop in depth towards integrated media. In recent years, China's academic journals mainly use the official WeChat official account as a new media platform. Statistics in 2019 show that the number of scientific and technological journals

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registered and operating WeChat official account accounts for 46.35% of the total number of scientific and technological journals in China.[1] At present, the cause of science popularization is booming in China, and the theoretical research of science popularization has gradually formed its characteristics. However, the theoretical and empirical research on the participation of academic journals in science popularization through WeChat official account is still lacking. The evaluation criteria for academic journals in our country determine the objective reality of limited space for paper media to participate in science popularization, but its relationship with science popularization cannot be ignored. Jia Jianmin and others[2] discussed the way for medical journals in colleges and universities to use new media to carry out health science popularization. Since science popularization has become an important content element and development direction of academic journals, and public reading habits are also changing, it is necessary to study how academic journals conduct science popularization through official WeChat official account and give play to the function of science popularization, in order to enrich the theoretical research of domestic academic journals in science popularization, To provide reference for the popularization of science in academic journals in China.

Taking 27 academic journals in the discipline of "environmental science", which were also included as the core of Peking University in 2017 and 2020, as the research object, this paper conducts a survey on the participation of academic journals in science popularization through WeChat official account, with a view to analyzing the current situation of academic journals' participation in science popularization at a higher level, and thinking about countermeasures. This study will have a strong theoretical and practical guiding significance for academic journals to participate in science popularization.

2. Research Design

2.1. Data Sources

Considering that the environmental protection department is one of the departments that should focus on promoting science popularization[3], and the main results of the 2018 China Citizen Science Literacy Survey also show that the most interesting scientific information for the public is cutting-edge scientific knowledge in environmental pollution and governance (85.10%)[4], this study focuses on 27 academic journals in the "Environmental Science" discipline, which are included in both the 2017 and 2020 editions of Peking University, Conduct a survey on the participation of academic journals in science popularization.

2.2. Data Collection and Processing

By focusing on the WeChat official account of 27 academic journals of the "environmental science" discipline, which are also included as the core of Peking University in 2017 and 2020, we can determine the data of their WeChat official account participating in science popularization from January 2020 to June 2023. Please refer to Table 1 for details. In addition, using the official websites of these 27 academic journals and the science popularization participation data of paper journals as supplementary research materials, it was found that no new types of science popularization content could be generated. Therefore, the 9 types of science popularization content formed (see Table 1 for details) passed the theoretical saturation test.

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Table 1. Science Popularization Participation On WeChat Official Account Of Academic Journals Of "Environmental Science" Discipline

Serial Number	Journal	Science Popularization Articles%	Discipline Review and Prospect%	Scientific Briefings%	Promotion of Science and Technology and Methods%	Industry Dynamics and News %	Science and Technology Commendations%	Environmental Governance Systems %	Popular Science Knowledge%	Scientific Research Stories%	Reader Perspectives%
1	Journal of Environmental Science	0.00%	—	—	—	—	—	—	—	—	—
2	Environmental Science	17.31&	0.00%	100%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00 %	0.00%
3	China Environmental Science	0.00%	—	—	—	—	—	—	—	—	—
4	Environmental Science Research	75.41%	0.00%	78.67 %	0.00%	0.68%	0.00%	19.43%	0.95%	0.00 %	0.27%
5	Journal of Agro-Environmental Science	22.34%	4.76%	71.43 %	0.00%	0.00%	0.00%	0.00%	23.81%	0.00 %	0.00%
6	Journal of Ecology and Environment	19.35%	0.00%	16.67 %	0.00%	0.00%	0.00%	0.00%	83.33%	0.00 %	0.00%
7	Environmental Science and Technology	0.00%	—	—	—	—	—	—	—	—	—
8	Journal of Environmental Engineering	33.33%	0.00%	70.37 %	0.00%	3.70%	0.00%	0.00%	25.93%	0.00 %	0.00%
9	Environmental Chemistry	72.73%	0.00%	68.75 %	0.00%	0.00%	0.00%	0.00%	31.25%	0.00 %	0.00%
10	Journal of Ecology and Rural Environment	84.70%	0.00%	44.05 %	0.44%	1.76%	0.00%	41.41%	7.05%	3.52 %	1.76%
11	Journal of Ecotoxicology	28.57%	0.00%	66.67 %	0.00%	0.00%	0.00%	0.00%	33.33%	0.00 %	0.00%
12	Environmental Monitoring in China	—	—	—	—	—	—	—	—	—	—
13	Environmental Pollution and Control	0.00%	—	—	—	—	—	—	—	—	—
14	Journal of Natural Resources	24.27%	0.00%	56.00 %	0.00%	12.00 %	0.00%	32.00%	0.00%	0.00 %	0.00%
15	Water Treatmen	69.54%	0.41%	24.38 %	28.10%	16.94 %	4.55%	21.07%	2.89%	0.83 %	0.83%

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	t Technology										
16	Environmental Engineering	77.84%	0.69%	14.56%	12.65%	14.24%	2.08%	48.87%	5.90%	0.69%	0.17%
17	Resource Science	30.00%	0.00%	100%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
18	Resources and Environment in the Yangtze River Basin	34.12%	0.00%	20.69%	0.00%	27.59%	0.00%	44.82%	6.90%	0.00%	0.00%
19	Earth and Environment	—	—	—	—	—	—	—	—	—	—
20	Industrial Water Treatment	56.35%	0.11%	6.23%	10.08%	55.61%	1.25%	24.46%	0.68%	0.34%	1.25%
21	China Population Resources and Environment	50.00%	2.33%	93.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	4.65%
22	Disaster Science	—	—	—	—	—	—	—	—	—	—
23	Marine Environmental Science	74.39%	0.00%	0.00%	0.00%	3.28%	0.00%	91.80%	4.92%	0.00%	0.00%
24	Chemical Environmental Protection	71.65%	0.35%	0.00%	0.71%	12.37%	0.35%	85.16%	1.06%	0.00%	0.00%
25	Water Resource Protection	16.36%	0.00%	0.00%	0.00%	22.22%	22.22%	55.56%	0.00%	0.00%	0.00%
26	Journal of Natural Disasters	—	—	—	—	—	—	—	—	—	—
27	Journal of Agricultural Resources and Environment	48.75%	0.00%	82.05%	0.00%	2.56%	2.56%	0.00%	12.82%	0.00%	0.00%

Remarks: (1) The four academic journals in the table, namely China Environmental Monitoring, Earth and Environment, Disaster Science and Journal of Natural Disasters, do not have a journal official account; (2) In the table, "Science Popularization Articles%" refers to the percentage of Science Popularization Articles in the articles of WeChat official account; (3) "Discipline Review and Prospect%" refers to the percentage of science popularization articles related to discipline review and outlook to science popularization articles, and so on.

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3. Characteristics of Science Popularization Participation in Academic Journals

3.1. The Participation of Natural Science and Technology Academic Journals in Popular Science Varies

It can be seen from Table 1 that 19 of the 27 academic journals of the "environmental science" discipline push popular science content through the journal WeChat official account, of which 10 journals account for more than or close to 50% of popular science articles, indicating that these 10 journals actively fulfill their responsibility for popular science.

The above data shows that the academic journals of the "environmental science" discipline have developed in depth towards financial media, and the science popularization participation of the academic journals of the "environmental science" discipline on WeChat official account is uneven. Some academic journals have gradually presented a media communication layout of paper media adhering to the academic mission and WeChat official account giving consideration to popular science. This part of academic journals form a synergy between paper media and WeChat official account to jointly complete the social functions of academic journals.

3.2. From the Perspective of Subject Participation in Popular Science, Academic Journals have a Relatively Diverse Range of Popular Science Content Types

From Table 1, it can be seen that the content types of academic journals in the field of "environmental science" participating in science popularization can be classified into 9 categories, namely: discipline field review and prospect, scientific briefings, science and technology and method promotion, industry dynamics and news, technology commendation, environmental governance system, science popularization knowledge, scientific research stories, and reader perspectives.

Among these 9 types of content, there are relatively more journals that push scientific briefings, popular science knowledge, industry trends and news, and environmental governance system popular science content, with 16, 14, 12, and 10 journals respectively; There are relatively few journals that promote science and technology and methods, as well as popular science content related to scientific research stories, with only 5 and 4 journals respectively. By comparing the push rate of nine types of popular science content pushed by each journal's WeChat official account, compared with the push rate of other types of popular science content, the push rate of scientific briefings of 11 journals ranked first, and the push rate of environmental governance systems of 5 journals ranked first. From this, it can be seen that academic journals tend to push scientific briefings and environmental governance system related popular science content when participating in science popularization.

3.3. From the Perspective of Academic Journals Participating in Science Popularization, the Number of Types of Science Popularization Content that Academic Journals Participate in Varies

It can be seen from Table 1 that among the 19 academic journals of the "environmental science" discipline that participate in science popularization through WeChat official account, only 6 journals have more than or reached 5 types of science popularization content (that is, more than half). This result indicates that various academic journals in the field of "environmental science" generally have insufficient types of popular science content in the process of participating in popular science, and the types of popular science content in relevant academic journals need to be further enriched.

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3.4. From the Perspective of Academic Journals Participating in Science Popularization, the Content Positioning of Journal Participation in Science Popularization has not Yet Formed Differentiated Development

It can be seen from Table 1 that among the 19 academic journals of the "environmental science" discipline that participate in science popularization through WeChat official account, three journals have participated in all types of science popularization content, namely, Water Treatment Technology, Environmental Engineering and Industrial Water Treatment. Apart from "Water Treatment Technology", there is a phenomenon of individual content types dominating the push rate of 9 types of popular science content in "Environmental Engineering" and "Industrial Water Treatment". The push rate of environmental governance system content in Environmental Engineering has reached 48.87%, while the push rate of industry dynamics and news content in Industrial Water Treatment has reached 55.61%. This indicates that although these journals actively participate in scientific popularization, the content model of science popularization does not match the functional positioning of the journal, and the content positioning of journal participation in science popularization has not yet formed differentiated development.

4. Conclusion and Countermeasures

4.1. Conclusion

Taking 27 academic journals of the subject of "environmental science", which were also included in the core of Peking University in 2017 and 2020, as the research object, we investigated the science popularization participation of the academic journal WeChat official account. Research has found that the participation of natural science and technology academic journals in popular science varies. From the perspective of subject participation in popular science, academic journals have a relatively rich variety of popular science content types. From the perspective of academic journal participation in popular science, the number of popular science content types participated by each academic journal varies, and the positioning of journal participation in popular science has not yet formed differentiated development. The content types of academic journals in the field of "environmental science" participating in popular science can be classified into 9 categories: Discipline Review and Prospect, scientific briefings, promotion of science and technology and methods, industry dynamics and news, science and technology commendations, environmental governance systems, popular science knowledge, scientific research stories, and reader perspectives.

4.2. Countermeasures

4.2.1. Academic Journals Can Fully Utilize New Media to Participate in Science Popularization

The evaluation criteria for academic journals in our country determine the objective reality that the space for paper media to participate in science popularization is naturally limited. At the same time, new media participation in science popularization has the advantages of flexible and diverse content forms, short publishing cycles, wide dissemination range, and strong interactivity.[3] In the era of media integration and development, academic journals can fully utilize new media to participate in science popularization. In the face of the demand for fulfilling the responsibility of popular science and the development trend of the all media era, academic journals should actively embrace new media, pay attention to the integration of the publishing team structure, management mode, content, and channels. Reasonably allocate talents in various fields in the composition of the publishing team, increase the number of new media personnel, increase investment in new media, and provide training on business integration for the publishing team. In terms of management mode, explore and dilute the job boundaries

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between different positions, cultivate diverse integration abilities, mobilize personnel enthusiasm, and provide management guarantees for content integration and channel integration. Content fusion not only involves transforming academic achievements into popular science, but also needs to combine internet thinking, add various forms such as audio, video, animation, etc., and break through the limitations of traditional paper media. Channel integration should pay attention to fully leveraging the technological advantages of new media participation in science popularization to solve the problems of low timeliness in print journals.

4.2.2. Combining the Positioning of Journals and Taking the Path of Distinctive Participation in Science Popularization

It can be seen from Table 1 that among the 19 academic journals of the "environmental science" discipline that participate in science popularization through WeChat official account, three journals have participated in all types of science popularization content, namely, Water Treatment Technology, Environmental Engineering and Industrial Water Treatment. It can also be seen from Table 1 that the content of WeChat official account of Water Treatment Technology participating in science popularization is consistent with the functional orientation of the journal. We learned from the official website of "Water Treatment Technology" that the purpose of the journal is to focus on relevant technologies, adhere to the balance of theoretical and applied research, strive to promote academic exchanges and new technology applications at home and abroad, and serve the construction of the national economy. Matched with the professional reporting content of the journal, the popular science content of the journal mainly focuses on science and technology and method promotion, scientific briefings, environmental governance systems, industry trends, and news, while also taking into account other types of popular science content. It effectively combines with the journal's positioning, walks out of the characteristic path of popular science participation, and helps to enhance the journal's influence. Inspired by the participation in science popularization in Water Treatment Technology, academic journals can combine their positioning with the journal's participation in science popularization and take the path of distinctive science popularization participation.

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