

The journal economy in China

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Abstract

Journal business models can be understood as an attention cycle. In this cycle, measured attention, in the form of bibliometric indicators, becomes a key asset that can be converted in readership and submissions. In the Chinese state-run publication system, it can also be converted into public support. The opportunities to assetize and convert attention and financial resources differs radically between English-language journals operating under Chinese control, Chinese journals operating with international publishers, or Chinese-language journals. Using data from qualitative interviews with Chinese editors, we demonstrate how this conceptualisation helps understand crucial differences between these journals, but also the specificity of the Chinese publishing system.

1. Introduction

Editors and the editorial work they perform are essential to keep the scientific record robust and trustworthy. Editors are widely recognized as the gatekeepers of scholarly publishing, but their tasks are more complex. Editors are also planners, brokers or facilitators, curators, and sometimes all of these at the same time (Noel 2022). Journals are not only a place or platform to publish scientific results; they are an extension of the laboratory and editors are hence an extension of the collaborative peer community.

Part of their concerns is that journals need resources: there is an economy of publishing. With the emergence of commercial interests in scholarly publishing (Fyfe, Coate et al. 2017), the focus shifted from community-managed publications to scientific communication as a business model, with new players and a different resource structure (Mabe 2009) and a concern for profits in the competitive academic market. The editor and editorial committee is the core of a journal, and such an editorial team needs financial support and managing staff capacity from the publisher to maintain orderly operations, while journals need academic community support through submissions, reviewers and readership.

The commercialization of scholarly publishing is reshaping editors' concerns. The scaled up commercial publishers now have a clear product line and brand extension strategies which capitalize on prestigious journals' name, transferring the symbolic capital of the original brand's prestige to spin-off journals. This enables them to share

the same prestige and transform this prestige into new economic capital (Khelfaoui and Gingras 2020, Khelfaoui and Gingras 2022, Teixeira da Silva and Fassin 2022). The organising structure of the editorial process at big publishers is in a long procedural chain, with highly specialized labour division and standardized practices (Horbach and Halffman 2020), which specify the editor's role and task in different layers with the navigation of particular interest of big publishers. The innovative editorial process, such as new peer review types and publishing technologies, requires the editor's initiative and skills to adapt to changes (Horbach and Halffman 2020). With the shift to open access publication models, new concerns about transparency and research integrity increase challenges to the journal editor's role as the gatekeeper.

Since resources are limited and journals are many, researchers, publishers, and even governments need to decide which journals are worth extra investment. Indicators of worth, such as citations and Journal Impact Factor (JIF) become tokens of performance that offer to support such decisions. Visibility and attention are key ingredients of these indicators, both measuring exposure of journals and promising attention to its authors, fuelling even their use in career and research assessment.

These indicators are not simply available. Such measurement importantly requires an underlying digital bibliometric infrastructure which makes measurement possible and manageable. A variety of bibliometric databases, journal rankings and journal lists have proliferated over time across different countries and languages enabling various possibilities to measure journal quality. Most noteworthy and authoritative is the Web of Science and its embedded metrics.

Given the vital role of Chinese science, and the tremendous growth of scientific publications from China, the operation of Chinese journal publishers and editors is remarkably invisible. The editor's role in the Chinese science context with its specific political-economic social setting, remains unclear, both in terms of the editor's publishing practices in an administrative organizational structure, and in regard to how journals operate as a business.

This study first offers an framework for the journal attention economy and its attention cycle, and exemplifies this attention cycle for Chinese publishers' and editors' publishing practices, to investigate how editors and journals generate attention and turn attention into resources in the Chinese publication system. This helps understand how these editors cope with changing external demands and pressures of Chinese and international evaluative regimes, and the salient differences between Chinese journals with a national and international orientation. Our study aims to add the understanding of science publishing in a different language and governance model and explores the collective and professional roles and responsibilities of editors in facilitating responsible research.

2. Theoretical framework

Based on Latour and Woolgar's credibility cycle to depict relations between efforts of researchers and the rewards they earn (Latour and Woolgar 1986, Hessels, Franssen et al. 2019), we develop an "attention cycle" to explain how journals earn attention through efforts to generate citations and reputation, which this attention can subsequently assetize as currency/capital to produce new resources (Birch 2017).

The journal attention economy

Journals operate in an economy in which information is exchanged for attention and ultimately resources. Journals are a forum in which knowledge claims are publicly legitimated, debated and developed. This setting helps researchers to claim priority of scientific results and generate credit (Csiszar 2018). The knowledge claims journals conveys need the research community's acknowledgement and attention. Thus, the journal is assessed in terms of the attention it purveys: by authors (submitting, assessing career advantages, attention, chances of getting in), reviewers and editorial board members, by publishers (as they become measures of business value), and in evaluation regimes (organizations, governments).

Attention itself is not countable, leading drivers of rationalization (business management, state administration) eager for indicators of attention (i.e. citations, and citation-based indicators). These have become performative: by now, they *are* attention, attention redefined, attention to the extent it matters.

In Franck (2002) analysis of the economy of attention of 'celebrity' scientists' academic reputation, he stressed the 'mental capitalism' based on the individual level. The attention gained by scientists accumulates and eventually translates into a form of capital. This form of capital built up through the attention gained is a form of reputation. "Scientific reputation is to scientific information as financial assets are to real capital." (Franck 2002)

Even though a journal's reputation is more a collective than an individual effort, including its complex economic logic and organisational structure, its underlying attention economy is fuelled by the individual scientist's drive to build a reputation. For both scientist and journal, measurable, accumulated attention comes in the form of publications and citations.

Attention is similar to money in the current information and media age (Van Krieken 2019). Attention of journals becomes a currency when it becomes comparable, quantified and measurable in the form of citation and download counts, the impact factor, ratings and rankings, circulation and subscription figures, and Altmetrics (including social media attention such as Tweets). The quantification of attention is a step towards financial commensurability.

The environment journals operating in has been organized as a market, but a very specific market, in which the medium is currency, but also attention, enabled by bibliometric indicator technologies.

Assetization of attention

Since journals demand attention as a means of production, the attention that a journal attracts is a measure of its value as a capital good, an asset (Franck 2002). There are different ways in which attention converts into capital and the possibilities vary between research governance models. For journals operating in a commercial publishing logic, as publisher's investment attempt to convert attention into subscription fees or Article Processing Fees in an open access publishing model. Journals in China are state-controlled and -managed, operating in an administrative logic. For these journals, attention provides leverage to get recognized by their

sponsors and state financial support. For example, China's public funding journal list is an attempt to reallocate both attention (attract high-quality publications to its own journals) and money (journals are publicly funded). With different conversion possibilities, in both cases accumulated attention can generate the resources to further increase attention.

Our analysis is based on qualitative interviews with Chinese editors and publishers. Access to these respondents is extremely difficult. After no responses to 100 interview requests, we had to rely on personal networks and introductions to obtain 26 interviews across STEM fields. While this snowballing may involve bias, there is simply no other way to access Chinese researchers. Respondents included prestigious and established medical and science publishers, as well as upcoming new journals. Questions investigated how these editors articulate and understand journal 'quality', how quality measures are implemented on them by others, and how quality measures inform journal management decisions.

All the interviews were conducted in Chinese, transcribed by Jing Wang and analysed using the Atlas.ti. The length of interview time ranged between 58 and 136 minutes.

3. Results

3.1. A focus on multiple journal models in China

The Chinese scientific publication system has specific features, with a state-controlled and managed system, multiple layers of regulators and sponsors, and a journal license system granting the legal right to publish in China (Wang, Halfman et al. 2021). The journal license consists of a China Number (CN) in addition to the International Standard Serial Number (ISSN). The centralized administrative management that allocates resources while keeping journals public and publishers deconcentrated is in sharp contrast with the international publishing system, in which most international publishers operate as commercial entities with clear marketing strategies, a highly specialized division of labour, and a long procedural production chain (Horbach and Halfman 2020).

However, there is also significant variation in operating models for journals in China. Scientific journals in China can be categorized along two important divisions. The first is language, separating Chinese journals published in English from those in Chinese. The second is the China Number (CN), dividing Chinese journals published by Chinese public research institutions (with a CN number), either in English or in Chinese, and Chinese journals published by international commercial publishers (without a CN number), almost exclusively in English. These different sets of journals deal with different operating conditions, including different pressures for resources and scientific support, as well as different modes of demonstrating 'quality'.

These two divisions lead to three groups of journals: public English-language journals with a CN number (English CN journals), commercial English-language journals without a CN number (English non-CN journals), and Chinese-language journals with a CN number (Chinese CN journals).

English CN journals integrate international publishing standards and competition pressure with the administrative management by the state, making financial support

conditional upon administrative evaluation and policy goals. Such goals include priority areas of research to support national strategic targets. These journals compete with international journals for submissions and attention, while being dependent on public resources and their particular allocation logic.

In contrast, English non-CN journals that operate in the international commercial publishing logic, are sponsored by their research institutions and not all intend to get recognition and support from the state. In this model, journals function in an attention cycle that, at least partially, resembles that of international commercial or society journals. In particular, there is a growing number of open access journals, created in strong partnerships with international publishers (CAST and STM 2022), which attract attention in a very similar way to – and in competition with – international journals.

Chinese CN journals preserve the Chinese publishing tradition, in which the administrative mechanism plays a strong role in guiding and shaping the activities of publishers and editors. In the state-controlled governance mechanism, editors and publishers of Chinese-language journals face particular challenges and high pressure to cope with changes in scholarly publishing without a clear policy and stable financial support.

While this categorization highlights crucial attention cycle differences, there are further variations, including open access status, disciplinary background, size, and journal age.

3.2. Measurable attention: attention that counts

In order to compete for scarce attention in the information abundance era, the first requirement for journals is to get visibility in the relevant scientific community. Journals need to appear on scientists' radar looking for articles to read, cite, or for research paper outlets. A major step to achieve visibility is to get 'listed', crucially in relevant abstract and citation databases. Based on this visibility, the next step for journals is to amplify the visibility and attention through scoring in the diverse journal rankings and lists. These databases, rankings and lists help journals make potential attention measurable and countable, which enables them to accumulate 'visibility' and perform 'quality' in a measurable sense.

Getting journals listed in the Web of Science (WoS) and subsequently getting a JIF, is a prime objective for many international journals to perform this visibility, including journals in China. The core collection of journals in WoS has globally been considered the authoritative database collecting 'high-quality' journals, which are assumed to publish excellent research. Although WoS arrived in China relatively late, it has established an dominant position as quality standard and its indicators play an important role in domestic journal assessments and lists.

In parallel, local indexing and measurement infrastructures have been developed by Chinese agencies. These infrastructures particularly matter to Chinese-language journals and have been used widely to present and evaluate journal performance. The key databases and journal lists noted by the respondents, include the Chinese Science Citation Database (CSCD), the Key Magazine of China Technology (CSTPCD), the Chinese Core Journals Directory from Peking University Library, and the China

National Knowledge Infrastructure (CNKI). Tangible and countable inclusion criteria of these journal lists have become the lens through which specifically Chinese language journals understand and construct ‘quality’.

In brief, the databases provide visibility in the sense that people get access to journal publications, but at the same time, the databases start to make it possible to count tangible attention to journals, such as citations. Coupled with the rankings and lists, these journal valuation tools also enable the next step in the attention cycle, which is to ascribe value to the counts. The journal assessment criteria of these databases and rankings/lists play a role in shaping editors’ and publishers’ practices and decisions about what kinds of articles to publish in which journals. These are the mechanisms that decide what kind of visibility counts.

3.3. Assetization: getting resources

Once journals have visibility and attention that counts, what can journals do with these counts? They turn attention that counts into subsequent capital/assets. That is, using attention to obtain (more) resources. Just as the process of generating attention, this assetization works differently for different groups of journals. There are three origins of financial resources for each group of journals.

The first funding source is from the journal’s sponsors, typically Chinese research organisations that host these journals. These sponsors need to support journals with regular operating funding and personnel resources. However, this sponsorship is not equally generous for all groups of journals.

The second influx of financial resources is the journals’ own revenue. In principle, English-language journals will get their revenue share from the partnership publishers, either in a subscription model or open access model. For Chinese-language scientific journals, there is no online subscription model or open access model to generate revenue in the same sense as international journals. The sale of journals is made by the most traditional way of selling hard copies of journals, but the income from hard-copy selling is normally trivial. However, Chinese-language journals have alternative ways to earn income, by charging page fees to authors and copyright fees to database providers.

The third funding source is the attractive financial support for journals by the Chinese STM Journal Excellence Action Plan, allocated by governmental agencies. However, the funding opportunities are unevenly distributed among English- and Chinese-language journals and high competition and administrative burden discourages many from even trying.

3.4. Attracting attention: getting good papers

In the next step of the attention cycle, journals can use their assets to attract ‘good’ papers or reduce costs. They can further develop the staff facilities, invest in the infrastructure and office support (a better website, manuscript managing system), social media management, cooperating with international journal platforms etc., pay for advertising possibilities and journal marketing strategies, and host and attend conferences to make the journal better.

The strategies to get good papers are not that different among different groups of journals. Once journals have resources to get more attention, then they can work on getting good papers, which means getting well-known authors, getting hotspot papers, which are seen as means to further boost attention.

4. Conclusion

There is a circular and self-reproducing dynamic of attention assetization: Attention that journals earn can turn into subsequent capital production. Once journals turn attention into resources, it basically means the better performance, the more assets. Thereby, that's where the circle gets closed and the dynamic mechanism to keep the cycle running. We demonstrated how this conceptualisation can be used to understand journal operation in China.

However, possibilities vary substantially between different types of Chinese journals: for prestigious, English-language Chinese journals, indicators can be used to generate state support. For Chinese-language journals, options are more restricted and they may even run into a funding ceiling.

From the perspective of open science, the attention cycle raises question about what 'open' really means – and this is particularly poignant in China. The attention cycle demonstrates how attention is not a matter of being 'open' or not, a simple binary. In fact, in China, public ownership guarantees openness. This crucial differentiator between journals is not whether the journal is open, but the amount of attention it manages to generate: some journals get more attention than others. The issue is not so much whether one has access to their information, but how easily researchers' attention is guided towards, or away from them.

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