European Review, page 1 of 16

doi:10.1017/S1062798723000571

Digital Publishing and the New Academic Ecosystem: An ANT Approach to the Recent Disputes over a Chinese Journal Database Giant

CHENGZHOU HE

Shanghai Jiao Tong University, Institute of Arts and Humanities, No. 800, Dongchuan Road, Shanghai, People's Republic of China, and Nanjing University, School of Arts, No. 22, Hankou Road, Nanjing, Jiangsu, People's Republic of China. Email: chengzhou@nju.edu.cn

As digital publishing gains momentum globally, it presents unique challenges in different regions and cultures. To address these challenges, it is important to understand the specificities of each local context. In light of Actor Network Theory (ANT), which advocates an interdisciplinary approach through an association of related factors from different fields, this article examines problems of Chinese digital publishing, focusing on one giant database, called the Chinese National Knowledge Infrastructure (CNKI). The discussion falls into three parts. First, the self-positioning of CNKI. As the sole academic database giant, it encounters a dilemma between making profits and serving the public – it has been criticized for charging high subscription fees and for committing intellectual property infringements. Second, the scholars, while becoming more dependent on digital publishing and such a giant database as CNKI, are bewildered by the fact that they become less capable of protecting their academic autonomy as well as their intellectual copyright. Third, CNKI's near monopoly has damaged domestic academic justice, which becomes detrimental to the development of Chinese academic journals and the international transmission of Chinese scholarship. The article concludes with an inquiry into possible solutions for building a new academic ecosystem in the digital era, locally as well as globally.

Introduction

The Chinese National Knowledge Infrastructure (CNKI) is the country's largest academic database, providing services including online searches and downloads of most domestic academic journals, doctoral dissertations, and masters' theses. Since its debut in 1999, it has collected more than 280 million academic articles and over 9300 journals, serving over 200 million end-users, with over 16 million daily visits and over 2 billion full-text downloads. The core users of CNKI come from universities, research institutes, enterprises, and public libraries in China, plus over 1600 institutional customers overseas in 60 countries and regions. China Academic Journals Electronic Publishing House (CAJEPH), the company responsible for the construction of CNKI database, is a subsidiary of Tsinghua Tongfang Co., a state-owned software firm, whose legal representative is Mingliang Wang. CAJEPH is among the first batch of digital databases approved by the State Press and Publication Administration, supervised by the Ministry of Education, and sponsored by Tsinghua University. It is also the largest professional internet and electronic publishing organization with the longest history in China. It needs to be pointed out that CAJEPH is not a private company; instead, it is owned by the state-owned Assets Supervision and Administration Commission of the State Council.

> In recent years, disputes over CNKI have been rising, focusing especially on two events. In April 2022, the Chinese Academy of Sciences (CAS) accused CNKI of raising subscription fees at a fast pace every year: In 2022, the two sides had active discussions in terms of the fees and subscription models. But after many rounds of arduous negotiations, CNKI still insisted on a renewal fee close to 10 million yuan. (China News 2022)

The academic organization claimed that it could no longer afford such high fees and would stop using the database from then on. Another case concerns individual intellectual property, and the lawsuit lasted for years. Since 2013, Zhao Dexin, a retired professor at Zhongnan University of Economics and Law (ZUEL), started charging CNKI with intellectual infringement. CNKI added over 160 of his articles online to make profits without his authorization. Until the end of 2021, Zhao has won all 13 lawsuits and received compensation of about 700,000 yuan for his losses. Both are typical cases among many similar disputes, revealing CNKI's problems of high subscription fees and intellectual infringement during its rapid development.

In 2022, the copyright and market authorities started investigating CNKI, which claimed in public statements that it would cooperate and make necessary corrections accordingly. However, later that year, the ruling of the 13 lawsuits for copyright infringement filed by Shiji Chaoxing Information Technology Development Co. Ltd. against CNKI, which ordered CNKI to pay the plaintiff 196,000 yuan in compensation, suggested that CNKI did not rectify the situation (Jiupai News 2022). In recent years, CAJEPH has been involved in over 1000 lawsuits with a total value of several million yuan and was the defendant in over 800 of them, among

https://doi.org/10.1017/S1062798723000571 Published online by Cambridge University Press

which 700 involved disputes over copyright ownership infringement and over information network dissemination rights infringement.

Similar disputes have occurred in some Western countries in recent years. For example, in 2021, the University of California (UC) and Elsevier, a leading academic publishing company specializing in scientific, technical, and medical research, reached an agreement after extended difficult negotiations. The latter would finally offer open access (OA) to UC at a reasonable price for the following four years of negotiations. From 2019 to 2021 when they reached the agreement, thousands of researchers and students were not able to access resources on Elsevier. In some other cases, negotiations did not lead to any agreement. For example, Elsevier cut off researchers in German institutions in 2018, and the impasse of negotiations has continued to this day (Else 2018).

While disputes and disagreements between databases and academic institutions happen worldwide, incidents involving CNKI need to be reconsidered with special attention to their particularities. Zhu Jian at Nanjing University finds that when it comes to academic communication, there are commonalities between CNKI and other international databases, but the former 'is endowed with more Chinese characteristics' (Zhu 2022: 27). The first distinction between the two is that, lacking any journals of its own, CNKI merely enables literature reading, without including publishing services as Elsevier does. Secondly, CNKI is a state-invested database, which leads to its near-monopoly status. Domestic users have no alternative. Theoretically, CNKI is obliged to serve the public, though it also needs to make profits. Third, Chinese academic journals are unable to rely on publishers, who are usually granted limited serial numbers (Wang 2019), whereas their Western counterparts can publish an unlimited number of journals. Thus, Chinese journals possess little power to gain independence from a digitalized platform such as CNKI, which is detrimental to their potential development.

Thus, we should ask: is it possible for the database to strike a balance between public service and profit making? Does digital publishing affect scholars' autonomy? How does it exert influence, not only on the scholars but on the whole academic ecosystem? By employing Actor Network Theory (ANT), this article will place CNKI as one of the central actors in a lively network of Chinese academic ecology (in line with other actors such as research institutes, researchers, and journals), following its positions in relation to other actors, and in forging different kinds of associations in response to new changes in the academic world. This article attempts to address three major issues, namely, the self-positioning of CNKI as an academic database, the attitudes of researchers in the face of digital challenges, and the optimization of the academic ecosystem in the digital era.

The Self-positioning of the Academic Database

From the ANT perspective, the interactions among related actors from different fields or even disciplines are highlighted in the process of careful analysis. Within this

https://doi.org/10.1017/S1062798723000571 Published online by Cambridge University Press

vibrant network, non-human elements such as ideas, processes, and objects are also actors, as long as they 'transform, translate, distort, and modify the meaning or the elements they are supposed to carry' (Latour 2006: 39) and thus become 'mediators'. ANT provides a new perspective for comprehensively understanding a thing, event, or concept by rechecking its connection with other actors and the unexplored assumptions underlying it.

In the case of CNKI, the database has changed the traditional relationship among authors, readers, and journals and thus should be regarded as one central actor in bringing forth a new academic ecosystem in the digital era. The task of publishing in Chinese academia is divided between the journal and the database, usually with the former responsible for the paper version and the latter for the digital one. Therefore, CNKI exerts a unique influence on academic publishing and dissemination in China. Given its state-owned and near-monopoly position, the database has contributed significantly to the evolution of a domestic academic system different from that in Western academia. In a domestic situation where the journals are dispersed and the government calls for centralized management, CNKI seized the opportunity to meet the official need to improve supervision efficiency. However, it has brought risks in the long run, 'monopolizing digital publishing and communication' (Zhu 2022: 31), breaching the principle of equity and thus hindering a fair, healthy academic ecosystem, especially on its mode of internationalization. Nowadays, CNKI has been 'deeply embedded in a complex network of relationships marked by academic research, evaluation and research management', making its self-positioning within this network one of the most pressing issues to pin down. Several related knots in the network include journals, scholars (authors and readers), research institutes, government, and policies. By locating the database at the centre of the analysis and tracing its connections with each of these knots, CNKI's distinct modus operandi (method of operation) will reveal itself.

Given its monopoly status, CNKI's relationship with the government should be assigned a prominent position in our inquiry. What role does the government play in the network? Is it one of the many collaborators of CNKI or the de facto authority? From the academic standpoint, CNKI enjoys the right of academic appraisal, while the government serves as a co-agent that offers policy and financial support. However, when evaluated from a political angle, the government must be the regulator and real power holder. Following the disputes surrounding CNKI in 2022, the State Administration for Market Supervision launched an antitrust investigation into CNKI. The investigation reached a verdict at the end of the year and imposed a fine of 87.6 million yuan (5% of its domestic sales of 1.75 billion yuan) on CNKI for its monopolistic behaviour: first, selling database services at unfairly high prices; second, prohibiting academic journals, publishing units, and institutions from authorizing any third party to use academic literature data to ensure exclusive cooperation implementation. According to the page on the SAMR website, CNKI has excluded and restricted competition in the Chinese academic literature network database service market, infringed on the legitimate rights and interests of users, and disrupted the innovation and development of relevant markets and academic

exchanges and dissemination (SAMR 2022). Following the investigation verdict, CNKI pledged to lower its subscription fees by 30% within the next three years and improve its payroll system for authors (Chengdu 2022). The investigations and judgments on CNKI indicate that the government, with the ultimate authority over academic databases, serves as the regulator to balance each power and protect the rights of researchers and institutions.

As for academic journals, what is their relationship with the database? Is collaborating with CNKI beneficial for them? If not, why would they agree to it in the first place? Most Chinese academic journals are dependent on small-scale paper publishing and do not usually run digitalization on their own. According to an interview done by Sixthtone, an employee of a public library in Shanghai stated that the 'scale of domestic journal publishers is too small, allowing aggregators to seize the (business) opportunity' (Wang 2019). Therefore, journals trade their resources with CNKI by buying out the authors' rights to their articles all at once, transferring the rights and the academic resources to the database, and relying on the latter for digital publishing and transmission. This arrangement has brought them convenience but at the same time created difficult problems. The database now monopolizes academic resources, publishing rights, and digital publicity, leaving little autonomy for the journals. The journals are trapped in a vicious circle of being more exploited and less centralized, thereby bringing harm to the whole academic ecosystem and preventing Chinese scholarship from going global.

Apart from providing this ostensible convenience to the journals on the road to digitalization, CNKI also obscures their more inherent problems. Operating on a small scale and with little academic influence, many journals publish in largely homogeneous disciplines, which renders the whole system scattered and chaotic. In his article, Zhu points out that academic journals aggregated by CNKI 'cannot catch up with the need of disciplinary development because of their inappropriate structures and layouts, as well as the disintegration between the editorial and academic community' (Zhu 2022: 41). When CNKI aggregates these journals and republishes them on the database, it dismembers them into individual articles, thus tempering and concealing the deficiencies. However, covering up the problems numbs the crisis awareness of journals, prevents them from upgrading their professionalism, and, in turn, jeopardizes the academic ecology in China.

Universities and research institutes have yet more problems with CNKI. According to Zhu (2022: 32), 'universities and research institutes generally purchase a package library from CNKI (the periodical database is, of course, a must buy)'. From the perspective of the database, they are its major customers, who purchase open access and other services, such as providing a duplicate check and citation rate. However, from the standpoint of universities and institutes, their academic contributions are not adequately acknowledged, let alone rewarded. Being producers, providers and purchasers of academic resources in their relationship with CNKI, universities and institutes do not seem to hold as much power as they would like to.

https://doi.org/10.1017/S1062798723000571 Published online by Cambridge University Press

The monopolistic position of CNKI in the market of academic data gives universities and institutions little space for negotiating the prices and terms of cooperation. Tao Xinliang, a professor at Shanghai University, states that CNKI's role as the dominant source of academic data gives it 'absolute power'. Not only do institutions have to shoulder the heavy load of subscription fees, but also, as part of their agreement with CNKI, they often have to 'demand their students turn over the digital copyright of their theses as a condition for graduation' (Wang 2019). These monopolistic practices of CNKI have not gone without confrontation and opposition. Between 2016 and 2018, Peking University, Wuhan University of Technology, and Taiyuan University of Technology voiced their discontent with the surging prices in different measures, but all disputes culminated in the renewal of their contracts with CNKI. These events, as well as the most recent and prominent complaint from CAS, suggest that although little has been done to fundamentally challenge CNKI's power, its method of operation can no longer meet the demands of the universities and institutions, whose brewing discontent threatens CNKI's credibility and even existence.

Researchers may be the most vulnerable nexus in this academic network. On the one hand, their research requires a vast amount of academic data, provided mainly (sometimes solely) by CNKI; on the other hand, their works need a platform to be stored and transmitted. Because CNKI effectively meets these needs, particularly as it 'gradually monopolizes the digital publishing and dissemination of academic journals' (Zhu 2022: 29), researchers dare not voice their discontent when their rights are infringed:

> Individual scholars enjoy free downloads on CNKI after logging in to the intranet, as the universities and institutes have already paid the bill, usually in the form of a library package, but their yearly downloads will be the yardstick of CNKI's quotation for the next year.

As for individual users, downloading a journal article or conference paper on CNKI costs 0.5 yuan per page, while masters' theses and doctoral dissertations are 7.5 and 9.5 yuan per copy, respectively. For scholars whose articles are included in the database without their permission, have they been paid? If not, would they feel treated unfairly and exploited? For users who pay for paper downloads, is this charge reasonable? Would it be a burden for some users or affect their academic work?

As a central actor in the network, CNKI should seriously reconsider its role in the academic world, making its self-positioning clear. As a state-funded academic database, it has the responsibility to spread knowledge and serve the public. Tongfang Knowledge Network Technology Co., Ltd. (Beijing) said in a statement posted on its official WeChat account that it would fully cooperate with the government's investigation. It said: 'We will deeply reflect on ourselves [. . .] and take the social responsibility as a knowledge infrastructure'. The goal of a company should and always will be to make profits, but it also needs to balance its different roles in society. As an old Chinese saying goes, 'A gentleman makes money in the

right way'. It is expected that the database should promote the flow and sharing of knowledge and information, but it has failed to do so.

CNKI needs to re-evaluate its present charging standards. Is it reasonable to charge the download of all works in its database? Should the charge vary with different types of work? Is overcharging an issue to be taken care of seriously? Will it impose a burden on the parties concerned? Will it lead to a monopoly in the domestic academic industry? Shen Teng, director of Harmony Partners Law Firm (Beijing), claimed that to determine whether a company is guilty of industrial monopoly, there are usually three steps: to delineate the relevant market, to inquire whether a certain company has taken a dominant position in the market, and to determine whether the company has abused this position. According to the regulations of antitrust law, only anti-monopoly law enforcement agencies or judicial organs have the power to determine whether a company constitutes a monopoly. Shen believes that the company's dominant market position is not illegal, as the real target of the antitrust law is the 'abuse of one's market dominant position'. Therefore, in the case of CNKI, it all depends on whether its high subscription fee constitutes some kind of 'abuse' of its monopoly status.

In the current Chinese academic ecosystem where databases occupy a strong position, all parties have had to interact with CNKI, despite the irreconcilable discords within each of these relations. The unique position of CNKI brings the database lots of profits but hinders the long-term progress of the domestic academic ecosystem, which has consequences on journal reform, academic equity, and internationalization. What are some of the difficulties that researchers have faced and are facing under the impact of such a database as CNKI?

The Perplexity of Researchers: Digital Publishing and Academic Autonomy

As mentioned above, Chinese researchers rely heavily on CNKI for its vast resources and its academic impact. In the digital age, researchers access research literature primarily through databases rather than traditional print journals. The database, which is more convenient and efficient, provides digitized versions of academic papers and can track the impact of articles through numbers of downloads and click rates. By these means, researchers are able to know the impact of their research articles, and academic organizations can evaluate the academic performances of individuals and institutions for the sake of efficient administration. It is now understandable why CNKI, though it has turned out to be controversial time and again, is invaluable and indispensable in the academic world. However, the business model of CNKI poses a series of problems for researchers' work, and they have become aggravated and more readily apparent in recent years. These problems exist in the researcher/author/reader's relationship with journals, research institutions, and the government, under the influence of the academic database.

The medium of CNKI has changed the journal's relationship with the researcher, both as the reader and as the author. On the one hand, as authors who aspire to publish, researchers (sometimes without being aware) authorize their copyrights to the journals, which includes the right of information network transmission and the right to have the work published in other formats and venues. The journals, falling behind and lacking ambition and resources in digital publishing, often hand over these rights, along with the autonomy and agency as the publishing entity, to CNKI to reassign the duty. In this way, the authors are distanced from their own articles, losing their publishing autonomy with the journals. Over time, 'the journals and the authors stay blocked from digital publishing and communication' (Zhu 2022: 29). Also, even though authors have signed the agreement, with or without knowing it, CNKI's re-publishing their articles without paying them still violates the Copyright Law of the People's Republic of China (The Standing Committee of The National People's Congress of PRC 2020), which orders that remuneration should be paid to the author.[a] This is also the reason why Professor Zhao won the lawsuits against CNKI.

CNKI's copyright infringement may be even more egregious and blatant when it comes to the inclusion of masters' and doctoral theses. The large number of theses is one of CNKI's vaunted features and improves its plagiarism-checking service sold to the universities. However, the theses are published on the platform without agreement or payment. According to a report by Sixthtone, many Chinese students expressed their discontent over the exploitation by CNKI of their work. Some universities, such as Dalian University of Technology, 'demand students sign a letter agreeing to give their authorization of digital copyright to CNKI', the refusal of which would jeopardize their prospect of graduation (Wang 2019). This means that the students' ownership of their copyrights is completely at the mercy of their universities, which have signed agreements with CNKI to publish their students' theses. This exploitative mechanism can be very disheartening for the students, especially those who aspire to become professional scholars.

On the other hand, as readers, the researchers have switched from reading journals to reading individual articles re-published on the database. By disassembling the journals to individual articles aggregated on the database, CNKI has certainly provided convenience for researchers to search and read articles. However, this convenience comes at a price. The researchers are no longer concerned with the history and features of the journals, further discouraging the latter from upgrading, digitalizing, and clustering.

Different parties' reliance on CNKI creates an awkward problem for the researchers: double dipping. The researchers and their institutions have to pay double fees to the database, one to have their articles included in CNKI and the other to access the resources included. This has resulted in the authors paying to access their own articles online. CNKI interposes a toll both along the route of the researchers' access to academic journals *from* the database and of the publication of the researchers' works *onto* the database. Although universities and institutes purchase open access to the database, authors still need to pay for downloading some

https://doi.org/10.1017/S1062798723000571 Published online by Cambridge University Press

of their own articles, especially when they cannot have access to their university digital library website. For individuals, especially young scholars, the problem of double dipping can have a serious negative effect on the development of their research work owing to the increase of unnecessary research cost.

However, researchers cannot confront such a giant enemy as CNKI, nor can they resist its monopoly, because their academic activities are already fully reliant on CNKI. In a digital age when certain academic journal databases are well on their way to monopolization, scholars do not usually take legal action against them, because they are worried that the databases might remove their articles, which would affect their transmission. For example, Professor Zhao's articles were immediately removed from the platform after the lawsuits. In an interview with *The Paper*, he explains the reason why no one acts against CNKI's monopolistic behaviours: the scholars fear that CNKI will take their papers offline, since CNKI is now the most acknowledged 'publication' in Chinese academia, largely determining the articles' number of citations. He also points out the 'unreasonable protocols' of some institutions, who refuse to acknowledge journal articles unless they are published on CNKI.

Suing CNKI might cause even worse ramifications for scholars. With a strong influence in Chinese academia, CNKI may put pressure on journals to discourage authors from suing, or even ask journals to turn down the authors' articles. Zhao recalls in the interview his experience of receiving a phone call from a chief editor of a journal asking him not to pursue his lawsuit. In conclusion, due to its monopolism and copyright infringement, CNKI creates an academic ecosystem that disempowers the author and stultifies the effort of rectification.

The recent disputes and complaints highlight the urgent need for CNKI to reflect on its mode of operation and strengthen the construction of its copyright credit system. Tao Xinliang, a professor of law at Shanghai University, emphasized that it is not only crucial 'to regulate CNKI, but also to construct principles for the whole system [. . .] to get rid of historical influence and reconstruct the rules' (Wang 2019). Fang Xingdong, a distinguished professor at Zhejiang University, emphasized the complexity of the issue, and proposed system innovations and new governance mechanisms for its solution (Fang 2022). As the problem of CNKI encompasses many parties and relations inside the Chinese academic network, the solutions should also be considered with regard to the specificities of each relationship.

Optimizing the Academic Ecosystem

In response to the challenges in digital publishing, different parties, including governments, universities, research institutes, researchers, and databases, need to take action for the construction of a better academic ecosystem. In this age, when the local and the global become more and more entwined, what happens in the Chinese academic world cannot be separated from the European or the American academic

https://doi.org/10.1017/S1062798723000571 Published online by Cambridge University Press

world(s) or any other. In addition, the optimization of the Chinese academic ecosystem would be better studied with reference to the factors outside of China.

As concerns governance, a series of measures have been discussed and proposed by scholars in different fields to optimize the operating mechanism of CNKI. First, a competitive mechanism should be introduced into the academic field to foster and support multiple databases and help promote the digitization of journals in large publishing groups. As Zhao advises, 'the state should support the construction of different digital academic platforms to co-exist and compete with CNKI' (Chen 2021). In addition, with the emergence of more platforms, government should play a better role in maintaining a balance among the different parties involved, providing strong support for researchers. In the international academic arena, various digital publishing companies have formed a competitive, supplementary, and relatively comprehensive network, which has greatly facilitated the work of researchers.

Second, the legislative authorities should introduce relevant laws as soon as possible to better protect scholars' copyrights and other publishing rights. Li Shunde, a researcher at the Institute of Law of the Chinese Academy of Social Sciences, believes that the discussion of CNKI should not be limited to the issue of monopoly but should consider the social, historical, and legal aspects of the copyright protection system to delve into the essential problems of CNKI (Li 2022). Although CNKI is the most high-profile offender in digital academic copyright infringement in China, it is certainly not the only one. As Zhao tells *The Paper*, the smaller outlets, such as CQVIP or Wanfang Data, CNKI's major rivals, do not pay authors either (Chen 2021). This universal phenomenon reveals a big loophole in copyright laws and their implementations. Li Junhui, Director of the Innovation Research Department of the China Judicial Big Data Research Institute and a researcher at the Intellectual Property Research Center of the China University of Political Science and Law, believes that CNKI should make adjustments to its own business model based on the court's judgment in the copyright disputes, including obtaining authorization from the author and paying the corresponding amount to the author. The remuneration standard should be agreed with authors, and the national copyright management department can also refer to other licensing fee standards to formulate corresponding standards (Ke 2021). Feng Xiaoqing, a doctoral supervisor at China University of Political Science and Law and Vice-President of the China Intellectual Property Law Research Association, stated that the formatted agreement (contract) of the magazine deprives the author of the property rights for the works, and even the right of inheritance (Yue 2022). Feng believes that the key to solving this problem lies in reforming the model contracts signed between journal publishers and authors, which should be regulated by the National Copyright Administration. Zhang (2022: 11) proposes that the supervision departments of copyright, press, and education should conduct copyright law enforcement inspections on knowledge resource platforms, periodicals, and graduate schools to standardize the cooperation between platforms, journals, and schools. The departments, journals, and schools should also formulate standardized formats of submission agreements. When the authors sign up with the journals for publication,

there should be clearer regulations concerning the rights they sign over. Strengthening the protection of intellectual property rights on knowledge resource platforms, periodicals, and graduate training institutions requires a joint effort of multiple departments.

Third, as a knowledge resource platform, CNKI should not make capital its sole motivator. For example, Hu Gang, a member of the Lawyer Team of the China Consumers Association, propounds that Tsinghua Tongfang Company should divest its business from CNKI 'to prevent the vicious erosion of knowledge aggregators by excessive capital-driven thinking' (Ke 2022). Fang Xingdong, Professor of Zhejiang University, believes that since CNKI is invested in multiple interests, the database should not be a profit-making entity governed by a single capital-driven company but should become a non-profit organization regulated collaboratively by different parties (Ke and Li 2021). These remarks resonate with the theoretical premise of this article, that is, CNKI is entangled with different players and powers, and hence the solution to its problems should be based on the comprehensive view of its position in the academic ecosystem.

One of the major reasons for which CNKI is involved in incessant disputes is that it does not have its own publication, but rather re-publishes articles from already-existing journals. Zhu rightfully points out that 'the primary characteristic of CNKI's business model is the co-existence of two publishing entities' (Zhu 2022: 38), and that this business model is the origin of its copyright crisis. Although the journals and CNKI reached a tacit agreement to split the profit, neither of the publishing processes is complete: while journals lack the technology of digital publishing and transmission, CNKI lacks the most basic steps of manuscript screening, reviewing, and editing. The best solution to this problem is for CNKI and other databases to establish their own integrated journal system in collaboration with the already-existing journals.

Efforts have been made in this direction in the last 12 years to establish closer collaborations between academic databases and journals to provide a better platform for digital publishing and transmission. *Specialized Series of University Journals in China* was established collaboratively by university journals and CNKI. According to its website, this specialized series aims to 'break the boundaries of universities, aggregate the expertise of each university, and realize the professional transformation of academic journals on the digital platform' (Specialized Series of University Journals in China 2013). In May 2021, the China Association for Science and Technology, the Publicity Department of CCP Central Committee, the Ministry of Education, and the Ministry of Science and Technology issued 'Opinions on Promoting the Development of Academic Journals', which promotes the construction of 'integrated development platforms' and 'publication clusters and conglomerates', as well as the digitalization of academic journals (Publicity Department of CCP Central Committee, Ministry of Education and Ministry of Science and Technology 2021). The establishment of the joint journal series is an outstanding role model for realizing those goals. Another example is the initiation of the Journal Excellence Action Plan, which aims to optimize the scientific academic journals in

https://doi.org/10.1017/S1062798723000571 Published online by Cambridge University Press

various aspects, the most prioritized of which are professionalism, digitalization, clustering, and internationalization (Ke Dao 2019).

By introducing an *OA system* and charging authors for publishing their articles, the Chinese databases, such as CNKI, can obtain a stable source of funding without charging institutions exorbitant subscription fees. The subscription fees for many Chinese international academic journals have met with objections from foreign institutions, whose efforts to transform the paywall system to an open access system constitute a plausible reference for Chinese academic institutions, journals, and databases. The most common fee models of OA journals are hybrid OA and gold OA. Hybrid OA journals use the paywall/subscription system but allow for authors to publish their articles open access with an article processing charge (APC). Gold OA (Gold Open Access) journals publish all articles open access, and in return producers (authors) are charged processing fees. The University of California (UC) deal with Elsevier serves to make all publications on the database open access to UC and all UC publications on Elsevier open access to the public, which means the new fee model replaces the subscription fees with APC, saving subscription costs while benefiting public education.

The open access movement, for which the UC's deal with Elsevier is a great inspiration, strives to replace the subscription fee with fees paid to open the access to each article. In this way, the result of academic research becomes fully accessible to the public. UC Berkeley's University Librarian, economics professor, and co-chair of UC's publisher negotiation team, Jeffrey MacKie-Mason emphasized that open access is 'fundamental' to the mission of 'a public research university [whose] research is largely funded by public dollars' (Kell 2021). MacKie-Mason also pointed out that research universities and institutions around the world are trying to move in the direction of open access.

UC's success is part of the OA 2020 Initiative established at the 12th Berlin Open Access conference in 2015. Another ground-breaking success in line with the Initiative was achieved by the German project DEAL, a consortium aimed at negotiating 'nationwide transformative "Publish and Read" agreements with the largest commercial publishers of scholarly journals on behalf of German research institutions' (DEAL Konsortium, 2023a). In 2019 and 2020, DEAL secured agreements with Springer Nature and Wiley, allowing authors affiliated with more than 900 German institutions to publish their articles open access, whose publishing fees are covered by 'repurposing former subscription fees via DEAL's transitional cost model of "publish and read"'. In the meantime, institutions have 'unlimited perpetual access for their readers' of more than 4000 hybrid journals fully accessible across the Springer Nature and Wiley portfolio (DEAL Konsortium, 2023b).

Applying the US and European institutions' experience to the Chinese situation, a problem quickly emerges. CNKI does not have its own journals, which are usually affiliated with teaching and research institutes and published by academic presses, and it cannot charge the producers any money for publishing their works. Some Chinese scholars such as Zhu and Li (2022: 81) have identified this issue and proposed an alternative approach to the retrofitting of Chinese journal databases:

https://doi.org/10.1017/S1062798723000571 Published online by Cambridge University Press

providing enhanced and more diverse service to make up for the lost revenue in subscription fees. However, this approach is still in its infancy and faces an uncertain future. The road ahead for Chinese academic journals and databases to go professional and global is still rough, and there will still be many inequities and limitations for scholars to disseminate their scholarship, particularly in the international arena.

In the face of these challenges, Chinese academic journals need to revitalize their strength, avoid unfair practices, and strive for expansion into digital publishing, all while acting in line with international academic conventions. Chinese journals need to form new kinds of collaborations with databases such as CNKI to become an active part of the digitalization process, which will benefit long-term development of the journals and their internationalization. On the other hand, CNKI should also foster new ties with journals, providing better support for them to become professional and international. Recently, the CNKI platform developed an English–Chinese translation service for words, phrases, and even academic articles, based on its large volume of academic bilingual corpora, with the aim of disseminating Chinese scholarship abroad and accelerating mutual communication. The technology has been used in creating the English version of China's Economic and Social Big Data Analysis Platform, *China Data Insights*, which facilitates research on Chinese economic and social development for foreign researchers.

There have been clear indications that efforts have been made by different parties to improve the academic ecosystem in China. Xu et al. (2019) found in their research that 'there has been rapid growth in CELJs (Chinese English Language Journals) between 2006 and 2011 but mostly in the science, technology and medicine disciplines' (Xu et al. 2019: 113). They summarized three approaches to the successful creation of international CELJs: increased visibility, good editorial boards, and international publishing partnerships (Xu et al. 2019: 122–123). These approaches have been embodied by China's 'Journal Excellence Action Plan'. One of the major goals of this plan is to improve the journals' level of internationalization, as a news piece of the *South China Morning Pos*t vividly describes, 'to raise the profile and influence of domestic scientific research' (Feng 2022). It is only through internationalization that experiences of improving academic equity and accessibility of academic resources can be shared and that the global academic community can form a sustainable ecosystem to benefit the production and sharing of knowledge.

Conclusion

As Zhu (2022: 45) bravely calls for 'stepping out the CNKI model to win the academic future', it is of great necessity and urgency to reconsider and revitalize the academic ecosystem, viewing it as a network where all relevant parties are actors exerting influence on each other and on the system as a whole. Thus, they all must take action to make progress in academic publication, dissemination, and evaluation. The future of Chinese scholarship is largely dependent on the progress

https://doi.org/10.1017/S1062798723000571 Published online by Cambridge University Press

of Chinese journals and databases, as well as on the services provided by international academic journals and databases. Currently, with more and more Chinese scholars publishing in international academic journals, along with international journals' shift to OA and publication fees paid by authors, Chinese scholars will be required to pay higher publication fees, which could trigger a series of new problems. Additionally, it is foreseeable that there will be both cooperation and competition between the Chinese and international databases, so it remains to be seen what impact this will have on authors, especially in China.

For service-oriented databases to expand, they should first balance the seemingly paradoxical nature of public service with profitability. For scholars to obtain copyright security and for users to get open access to database resources would require government intervention and legal protection. When it comes to CNKI, it should serve the public and protect intellectual property rights. However, it is not yet quite clear to Chinese scholars what measures CNKI will take to improve its services and to upgrade its business model in the near future. Our expectations will be that academic databases, including CNKI, and digital publishing, which are inevitable, and in many ways very helpful, can be conducive to a better future of a new academic ecosystem for all of us.

Notes

a. Article 27 of Copyright Law of People's Republic of China regulates:

> The rates of remuneration for the exploitation of a work may be agreed upon by the parties and may also be paid in accordance with the rates fixed by the administrative department for copyright under the State Council in conjunction with the other departments concerned. In the absence of an explicit agreement in the contract, the remuneration shall be paid in accordance with the rates fixed by the said department under the State Council in conjunction with the other departments concerned.

References

Chen C (2021) The 89-year-old professor who sued CNKI: I still have a 'big case' with CNKI. *Pengpai*, 11 December 2022.

Chengdu (2022) CNKI responds to penalties, announcing 15 rectifying measures [知网回应被罚, 公布15项整改措施]. *Chengdu.cn*, 26 December 2022. Available at https://baijiahao.baidu.com/s?id=1753265604457184472 (accessed 14 July 2023).

China News (2022). CAS cannot tolerate CNKI's raising subscription fees? It isn't that simple! [中科院也受不了知网的涨价?没那么简单!] *China News*, 19 April 2022. Available at https://www.chinanews.com.cn/m/cj/2022/04-19/9732754.shtml (accessed 30 September 2023).

DEAL Konsortium (2023a) About DEAL. Available at https://deal-konsortium.de/en/ (accessed 14 July 2023).

DEAL Konsortium (2023b) Agreements. Available at https://deal-konsortium.de/en/agreements (accessed 14 July 2023).

Else H (2018) Dutch publishing giant cuts off researchers in Germany and Sweden. *Nature*, 19 July 2018. Available at https://www.nature.com/articles/d41586-018-05754-1 (accessed 14 July 2023).

Fang X (2022) Launch the open access movement with Chinese characteristics [开启中国特色的开放存取运动]. *Blog China*, 23 May 2023. Available at https://fxd.blogchina.com/920801469.html (accessed 14 July 2023).

Feng C (2022) China plans sweeping makeover of academic journals to raise the profile and influence of domestic scientific research. *South China Morning Post*, 7 June 2022. Available at https://www.scmp.com/tech/policy/article/3180640/china-plans-sweeping-makeover-academic-journals-raise-profile-and (accessed 14 July 2023).

Jiupai News (2022) CNKI ordered to pay 196,000 yuan compensation for copyright infringement [未经许可收录作品并提供下载, 知网侵权被判赔19.6万]. *Jiupai News*, 5 August 2022. Available at https://baijiahao.baidu.com/s?id=1740311534262714114 (accessed July 14, 2023).

Ke L (2021) Expert: The old professor won the rights defense and questioned the legitimacy of the operational model of CNKI and other databases [专家: 老教授维权获胜, 拷问知网等运营模式合法性]. *Changjiang Ribao*, 9 December 2021. Available at https://baijiahao.baidu.com/s?id=1718591434587352981&wfr=spider&for=pc (accessed 14 July 2023).

Ke L (2022) Hu Gang, a member of the Lawyer Team of the China Consumers Association, proposes separation of CNKI from the listed company's business in accordance with the law [中国消费者协会律师团成员胡钢: 依法将知网从上市公司业务中有序剥离]. *Changjiang Ribao*, 17 May 2022. Available at http://news.cnhubei.com/content/2022-05/17/content_14757346.html (accessed 14 July 2023).

Ke L and Li Y (2021) Fang Xingdong and other experts and scholars analysed the source of CNKI problems: Imbalance of power and profit [方兴东等专家学者剖析知网'病根': 本质是权力和利益的失衡]. *Changjiang Ribao*, 21 December 2021. Available at https://baijiahao.baidu.com/s?id=1719762724651430885&wfr=spider&for=pc (accessed 14 July 2023).

Ke Dao (2019) China Science and Technology Journal Excellence Action Plan (2019-2023) [中国科技期刊卓越行动计划实施方案 (2019-2023年)]. Available at http://www.chinathird.cn/index.php?m=information&a=detail&id=583&cate=4 (accessed 15 July 2023).

Kell G (2021) UC's deal with Elsevier: What it took, what it means, why it matters. *University of California news*. Available at https://www.universityofcalifornia.edu/news/ucs-deal-elsevier-what-it-took-what-it-means-why-it-matters (accessed 14 July 2023).

Latour B (2006) *Reassembling the Social: An Introduction to Actor-Network-Theory*. New York: Oxford University Press.

Li Y (2022) Li Shunde, a researcher at the Chinese Academy of Social Sciences says: CNKI's problems should be solved from the roots [中国社科院研究员李顺德: 知网问题不能只'头痛医头, 脚痛医脚']. *Changjiang Ribao*, 15 May 2022. Available at https://baijiahao.baidu.com/s?id=1733086048873750527&wfr=spider&for=pc (accessed 14 July 2023).

Publicity Department of CCP Central Committee, Ministry of Education and Ministry of Science and Technology (2021) Opinions on Promoting the Development of Academic Journals [中共中央宣传部 教育部 科技部印发《关于推动学术期刊繁荣发展的意见》的通知]. Publicity Department of CCP Central Committee Working Paper No.17. Available at https://journals.xmu.edu.cn/download/xggf/guanyutuidongxueshuqikanfanrongfazhandeyijian.pdf (accessed 14 July 2023).

SAMR (2022) The State Administration for Market Regulation Imposed Administrative Penalties on CNKI [市场监管总局依法对知网滥用市场支配地位

https://doi.org/10.1017/S1062798723000571 Published online by Cambridge University Press

行为作出行政处罚并责令其全面整改]. Available at https://www.samr.gov.cn/xw/mtjj/art/2023/art_89bb76f1dd2646a18065e693d878e680.htm (accessed 14 July 2023).

Specialized Series of University Journals in China (2013) Introduction of the journal. Available at http://www.sju.cnki.net/sju/info.html (accessed 14 July 2023).

The Standing Committee of The National People's Congress of PRC (2020) Copyright Law of People's Republic of China [中华人民共和国著作权法].

Wang Y (2019) Publish or perish: How China's Elsevier made its fortune. *Sixthtone*, 24 July 2019. Available at https://www.sixthtone.com/news/1004345 (accessed 14 July 2023).

Xu J, Wang J, Zhou L and Liu F (2019) Internationalization of China's English-language academic journals: An overview and three approaches. *Learned Publishing* **32**, 113. Available at https://doi.org/10.1002/leap.1198

Yue H (2022) CNKI investigated for monopoly; scholars suggested CNKI be separated from the listed company's business [知网涉嫌垄断被查, 学者建议依法将知网从上市公司业务中剥离]. *Pengpai*, 18 May 2022. Available at https://www.thepaper.cn/newsDetail_forward_18145462?commTag=true (accessed 14 July 2023).

Zhang H (2022) Copyright compliance construction and social co-governance of knowledge resource platforms: Taking the 'CNKI Model' as an example [知识资源平台的版权合规建设与社会共治 ——以'知网模式'为例]. *Copyright Theory and Practice* **6**, 3.

Zhu J (2022) About the relationship between CNKI and the magazines as well as the authors acceding to CNKI [中国知网与入编期刊及其作者关系十论——从赵德馨教授诉中国知网侵权案说起]. *Journal of Tsinghua University (Philosophy and Social Sciences)* **37**(2), 25–47. doi: 10.13613/j.cnki.qhdz.003133.

Zhu H and Li J (2022) Dilemma and business model innovation of academic journal databases: 'Double dipping' in the case of CNKI [学术期刊数据库的深层困境与商业模式革新——由知网诉讼案看'双重浸入'问题]. *Modern Publishing* (**01**), 81.

About the Author

Chengzhou He is Visiting Professor of Shanghai Jiao Tong University Institute of Arts and Humanities, and Yangtze River Distinguished Professor of English and Drama at Nanjing University School of Arts and School of Foreign Studies. His research focuses on modern drama, performance studies, comparative literature, and critical theory. He is the former President of the International Ibsen Committee and Foreign Member of Academia Europaea. He is the author of *Henrik Ibsen and Modern Chinese Drama* (2004) and *A Theory of Performativity* (in Chinese, 2022).