An Exploration of AI Aid to the First Review of Academic Journals

Yanqing Jiang

Sichuan Journal of Communication and Information Technology, Co, Ltd., Chengdu, Sichuan, China

Abstract: This article delves into the current landscape of the first review in academic journals, highlighting prevailing challenges. Employing literature analysis approach, it synthesizes and scrutinizes pertinent research on Artificial Intelligence (AI) within the editing and publishing domain. Furthermore, it investigates AI's potential impact on the first review phase. Leveraging AI's extensive database and advanced learning capabilities, it indicates that artificial intelligence can help evaluate the novelty of manuscripts, standardize formatting, recommend expert reviewers, and cultivate more objective opinions. These advancements hold promise for enhancing the quality of manuscripts published in academic journals.

Keywords: First Review; Artificial Intelligence (AI); Big Data; Advanced Learning Capabilities; Review Patterns

1. Introduction

The quality of journals is the lifeline of journals, and the three-tier review system of academic journals is crucial, which determines the quality of the manuscripts. The first review is a crucial part, which is the first step to check the quality of manuscripts. The traditional review model has been difficult to meet the strong demand of academics for openness, freedom, transparency and sharing of information [1]. Recently, CNKI has built a new generation of digital publishing platform based on the Huazhi large model and relying on massive high-quality corpus data, integrated AI technology into the review process, and began to explore a new review model.

AI has become an important driving force to lead the new round of scientific and technological revolution and industrial change, and is profoundly affecting the development of the media industry. AI is mainly virtual simulation, learning the wisdom and logic of the human brain, which emulates or even beyond the powerful performance of human beings [2]. AI has brought convenience to life, and many scholars have begun to discuss the use of AI to help academic journal publishing. Casal J.Elliott,Kessler Matt discussed future research directions involving AI tools and academic publishing [3]. Lubowitz James H.said that AI use by reviewers and editors is not permitted and violates confidentiality and proprietary rights and may breach data privacy rights [4].Conroy Gemma talked about a world of AI-assisted reviewing might transform the nature of the scientific paper [5]. Flanagin A, Kendall-Taylor J, Bibbins-Domingo K. released guidance on the responsible use of AI by authors and researchers in scholarly publishing [6].

Scholars focus on the future research directions, ethicality of AI review, guidance on the use of AI for publications etc. The paper analyzes the importance of the first review of journal publication and the disadvantages, and puts forward the AI to help the first review.

2. First Review by the Editorial Department

The editorial department of the journal can decide whether the manuscript is accepted, retracted or withdrawn after third reviews of the manuscript. If the content of the manuscript involves some professional issues that the editorial department cannot judge, the manuscript also needs to be sent to the relevant experts to review. The third review system is a basic system to ensure the quality of journal. The value of a manuscript can only be judged after the third review. The three links are indispensable, and any two links of the review work can not be performed by one person at the same time. Through such cross-reviewing to reduce the error of review and improve the quality of journals. The first review is the first

part of the three reviews. Heavy wordload at the first review, it not only to read through the manuscript, but also need to put forward their own opinions for second review, final review , e.g., Figure 1.
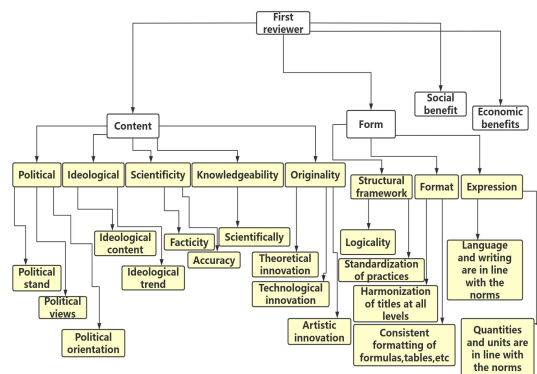

Figure 1. Elements of Work at First Review

The first review receives the manuscript from the editorial system, they should not only review whether the content of the manuscript is in line with the scope of the journal, but also review the textual expression of the manuscript, reference citation format and other normative. The first review is the first gate, and the opinion of the first review is crucial, because the second review and the final review should judge the manuscript again on the basis of the first review. However, the academic background, academic level and academic vision of different editors are different, and it is difficult for the opinions on the same manuscript to be completely consistent, or even quite different [7].

2.1 The Detection Results of Academic Misconduct Are Diversified, and the Academic Misconduct Such as Xigao cannot be Identified

Most of the editing systems currently used by the journals come from Beijing Renhe Huizhi Information Technology Co, LTD., Xi'an Sancai Technology Industry Co, LTD, CNKI, one of the three companies to provide technical support. The manuscripts from the editorial system are detected for academic misconduct with the help one of the three databases. Recently, the same paper was tested for academic misconduct on CNKI, Wan Fang Data, Chao Xing Data, China Science and Technology Journal Database, the results were as follows: CNKI: 0.9%, Wan Fang Data: 4.68%, Chao Xing Data: 3.28%, China

Science and Technology Journal Database: 8.6%. Most of the journals take the review results of the CNKI as reference, and some journals synthesize the reports of various platforms and make judgments based on the opinions of the first review. The whole process is time-consuming and laborious. The academic misconduct literature detection system can only be used as a reference for the value judgment of the manuscript, and cannot even make a judgment for some of the Xigao manuscript.

2.2 The Results are not Objective

At present, the number of manuscripts in emerging disciplines is increasing, and the workload of the first review is large, which cannot be reviewed objectively due to their own knowledge, professional and other reasons. It is not easy to fully align with the direction of the pending manuscript. Due to limited cognition or a lack of in-depth research on the content of the manuscript, the objectivity opinions has decreased [8].

3. First Review Under AI

Currently, AI is in a stage of rapid development, and its essence is an interactive AI application program of big data + machine learning + simulation exercise + fine-tuning transformation + processing output [9]. The essence of AI is fed by data, and data processing is the most basic application of AI. The rise and application of AI had brought about innovation and change in the industry, and it can be used to answer and process questions, and help first editors process manuscripts in the areas of academic misconduct literature detection and review. On the morning of April 26, 2024. CNKI and Huawei Cloud held the "Artificial Intelligence +" Industry Development Forum. Which begins to explore the development trend and application prospects of AI big model in the field of publishing.

3.1 Integrate the Data Knowledge Service Platforms to Improve the Quality of the Review

At present, most of the journal review is realized with the help of the editorial system. The journal editorial system belongs to the data knowledge service platform, and its help

to the first review is mainly to identify academic misconduct articles and proofread the format of references. Due to the incompatibility of these data knowledge service platforms, the first review need to use the help of multiple platforms to judge the manuscripts when reviewing.

3.1.1 Detecting the originality of manuscripts and identifying academic misconduct

When testing academic misconduct literature, the first review either refer to the detection results of one platform or multiple platforms and then make a comprehensive judgment, which is not conducive to improving the efficiency and quality of the review. AI can rely on big data and coordinate the functions of various platforms to detect academic misconduct and judge manuscripts. Current academic misconduct detection platforms sometimes fail to recognize Xigao. Xigao is realized with the help of software with AI function, so it is more efficiently to identify academic misconduct manuscripts with the help of AI.

Academic misconduct such as multiple submissions by authors can be tracked by tracking the submission of manuscripts. At present, the editorial system used by journal is different, and the tracking of manuscripts is also different .AI can use the advantages of its data to track manuscripts, and then identify academic misconduct authors, so as to avoid the editorial department to do nothing for the subsequent work.

3.1.2 Review the format and novelty of references

The format of manuscript references is relatively fixed. In order to confirm the source of the reference and the standardization of the format, the first review must consult many platforms to understand the source of the literature, which takes a lot of time.AI can judge the correctness of the reference format by using the format specification of deep learning references. The novelty of references is an indicator of innovative evaluation of journal manuscripts. The novelty of a reference is whether the cited document is from the last 3 years. AI can make use of advanced learning capabilities and extensive database to judge the old and new of the references.

3.1.3 Judging the subject categories and recommending review experts

The first editor must find the right reviewer for the manuscript to avoid the situation of layman reviewing expert when reviewing a manuscript. The academic quality of journals can only be improved by finding accurate peers. However, the expert database of scientific and technological journals is small in scale, incomplete in information and slow in updating, which makes it difficult for editors to find peers with matching research direction and high correlation degree.

Through big data aggregation, classification and automatic screening, AI can accurately judge the disciplines of the manuscripts, and match the appropriate reviewer selection. So that, the first editors can accurately find suitable reviewers for the manuscripts that the editorial department cannot grasp, and make a relatively objective judgment on the manuscripts.

3.2 Identify the Innovative of the Manuscript

When reviewing the innovation of the manuscript, the first review must know the current research status of a manuscript topic through various platforms, and then judge the innovation and research significance of the manuscript. If the first review editor has a weak sense of responsibility, lack of business knowledge, and lack of thinking and identification ability, it is easy to kill and reject some papers with real innovative and published value.

The new generation of AI is an intelligent system based on theories, technologies and methods based on big data and brain-like intelligence. AI can accurately and quickly recognize and verify the novelty and authenticity of manuscript by using big data and advanced learning capabilities. AI technologies are based on massive information analysis, providing a strong guarantee for the novelty identification of manuscripts.

Judge on the innovation and research progress of the manuscript. AI uses big data and advanced learning capabilities to accurately recognize and verify the novelty and authenticity of the manuscripts. Based on advanced learning capabilities, whether the internal law and development context of cognitive facts can be correctly reflected from

the whole and local aspects.

AI can automatically recommend relevant articles according to the topics, keywords, abstracts, and then summarize and analyze the relevant literature, which can be used to help editors understand the current progress of relevant research.

3.3 Assist in Reading to Form more Objective Opinions

When judging the manuscript, the first review must read through the full text, and then make a comprehensive judgment on the content and form of the manuscript to form the conclusion of the review. For the accepted manuscripts, the opinions of the first reviewers usually include: the basic information of the author and the manuscript, the main content of the manuscript, the value evaluation of the manuscript, the difficulties during the review, the problems to be solved, and the revision suggestions that need to be revised.

By virtue of its range of knowledge data and advanced learning capabilities, AI can form its opinions on the manuscript through the study of the review mode and the comparison of the knowledge database. The first review editor forms objective review comments to the second review and final review, which incorporate the review comments of both the AI and the first review .It can avoids non-objective of review comments.

4. Conclusion

At present, most of the review of academic journals is realized by the journal editing and editing system, which can provide some help in the detection of academic misconduct, reference format review and other aspects. However, due to the limited databases of various systems and the unintegration of resources, the ability to help the editing is limited, and the content of the manuscript can not be well judged and grasped, and the academic misconduct such as Xigao cannot be identified.AI has a strong knowledge database and advanced learning capabilities, and It can help first review to save time and improve the quality of reviewing manuscripts. In the era of AI, the publishing industry has both opportunities and challenges. With the continuous development of technology, the human-machine collaboration model will be a new interdependent publishing model and business model.

References

[1] Cyranoski D. Artificial intelligence is selecting grant reviewers in China. Nature. 2019, 569(7756): 316-317.

[2] England JR, Cheng PM. Artificial Intelligence for Medical Image Analysis: A Guide for Authors and Reviewers. AJR Am J Roentgenol. 2019, 212(3): 513-519.

[3] Casal J. Elliott, Kessler Matt.Can linguists distinguish between ChatGPT/AI and human writing. Research Methods in Applied Linguistics,2023.

[4] Lubowitz James H.Guidelines for the Use of Generative Artificial Intelligence Tools for Biomedical Journal Authors and Reviewers. Arthroscopy: the Journal of Arthroscopic & Related Surgery, 2023, 3:651-652.

[5] Conroy Gemma.How ChatGPT and other AI tools could disrupt scientific publishing. Nature, 2023:234-236.

[6] Flanagin A, Kendall-Taylor J, Bibbins-Domingo K. Guidance for Authors, Peer Reviewers, and Editors on Use of AI, Language Models, and Chatbots. JAMA. 2023, 22, 330(8): 702-703.

[7] Van Noorden R. The researchers using AI to analyse peer review. Nature. 2022, 609(7927): 455.

[8] List A. Reviewers' reports should in turn be peer reviewed. Nature. 2006, 442(7098): 26.

[9] Dhombres F, Bonnard J, Bailly K, Maurice P, Papageorghiou AT, Jouannic JM. Contributions of Artificial Intelligence Reported in Obstetrics and Gynecology Journals: Systematic Review. J Med Internet Res. 2022, 24(4): e35465.