Practical Exploration on Enhancing the Effectiveness of Targeted Email Campaigns for Scientific Journals: Case Studies of International Journal of Minerals, Metallurgy and Materials and Chinese Journal of Engineering

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Abstract

Purpose: To address the challenge of precisely matching push content with target audiences and explore strategies for enhancing email push effectiveness, thereby promoting high-quality development of scientific journal dissemination capabilities. Methods: Based on 35 precise email push campaigns for International Journal of Minerals, Metallurgy and Materials (IJMMM) and Chinese Journal of Engineering from November 2022 to October 2023, we analyzed the intrinsic relationships among email open rates, link click-through rates, distribution of users who opened emails, push content, and target audiences, and proposed specific improvement methods and strategies. Results: Approaches including optimizing the relevance and type of push content, applying matching principles for target audiences, and utilizing clear email subject lines and layouts can enhance the effectiveness of precise email push. Conclusion: The precision of matching between push content and target audiences determines email push effectiveness. Precise push should focus on this perspective to further refine user profiling, thereby improving email open rates and link click-through rates to better facilitate efficient dissemination of academic achievements.

Full Text

Exploration of Practices to Improve the Effectiveness of Targeted Email Campaigns for Scientific Journals: A Case Study of *International Journal of Minerals, Metallurgy and Materials* and *Chinese Journal of Engineering*

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Abstract

[**Objective**] To address the challenge of precisely matching push content with target recipients and explore strategies for improving the effectiveness of email campaigns, thereby promoting high-quality development of scientific journal dissemination capabilities. [**Methods**] Based on 35 targeted email campaigns conducted for *International Journal of Minerals, Metallurgy and Materials* (IJMMM) and *Chinese Journal of Engineering* from November 2022 to October 2023, this study analyzes the intrinsic relationships among email open rates, link click-through rates, the geographic distribution of email recipients, and both the push content and target recipients, proposing specific improvement methods and strategies. [**Findings**] The relevance and type of push content, the matching principles for target recipients, and the clarity of email titles and layouts can all enhance the effectiveness of targeted email campaigns. [**Conclusion**] The accuracy of matching between push content and target recipients determines the success of email campaigns. Future efforts should refine user profiling from this perspective to improve email open rates and link click-through rates, thereby promoting more efficient dissemination of academic achievements.

Keywords: Targeted email campaigns; Email open rate; Link click-through rate; Effectiveness

Author Contributions:
YANG Liping: Conceptualization, methodology, data collection and analysis, writing-original draft; JIANG Wei: Writing-review and editing, supervision.

Scientific journals serve as the frontline for disseminating research achievements and facilitating academic exchange, bearing the mission of communicating cutting-edge research findings and academic ideas. The publication of a research paper does not mark the end of the scientific endeavor but rather its rebirth as it reaches a broad audience of experts and scholars, which places higher demands on journals' dissemination capacity and quality. With the rapid development of internet and digital information technologies, the publishing industry and reading habits have undergone transformative changes, shifting information acquisition from a traditional passive "pull mode" to an active

"push mode" [?, ?]. To adapt to these new circumstances, scientific journals have revolutionized their dissemination methods [?, ?, ?], employing official websites, WeChat public accounts, Weibo, ScienceNet blogs, Facebook, Twitter, ResearchGate, RSS feeds, and email campaigns. While these channels enable rapid and timely information delivery to readers, they also burden readers with the task of filtering relevant content from vast amounts of information.

In 2019, the China Association for Science and Technology, the Publicity Department of the CPC Central Committee, the Ministry of Education, and the Ministry of Science and Technology jointly issued the "Opinions on Deepening Reform to Cultivate World-Class Scientific Journals," emphasizing the need to enhance the publishing and operational capabilities and international competitiveness of scientific journals [?]. In 2018, the China Association for Science and Technology launched a pilot project for targeted journal dissemination services, requiring journals to leverage big data analytics to identify scholars in fields closely related to the content being promoted [?]. Email campaigns allow editors to independently filter and match recipients based on message themes, enabling targeted delivery to intended readers and effectively improving journals' dissemination capacity and quality [?, ?]. This approach is not only simple, cost-effective, and highly interactive but also offers flexible content, personalized target customization, and efficient, precise dissemination, transforming academic discovery from "people searching for papers" to "papers finding people." Consequently, it has become favored among journal publishers.

Previous studies have provided valuable insights into email campaigns for scientific journals. Lyu et al. [?] analyzed the necessity and strategies of using email systems for journal literature promotion. Xu [?] discussed strategies from the perspectives of content, target audience, and timing. Wang and Li [?] proposed effective approaches for evaluating and controlling push quality based on reader experience metrics. Zhu and Li [?] addressed issues of low precision, monotonous patterns, and insufficient media integration in targeted push practices. Guo et al. [?] focused on practical implementation, particularly methods for precisely defining target audience scope. Zhang et al. [?, ?] analyzed factors affecting email open and click rates through surveys and case studies. Yang [?] constructed an indicator system and workflow for single-paper targeted push services. While these studies offer important references, they primarily focus on target audience scope, rarely examining how to improve precision by analyzing the deep relationships among push effects, content, and recipients.

This paper uses the email campaign practices of the Journal Publishing Center at the University of Science and Technology Beijing as a case study. By focusing on content selection, precise matching of target recipients, and optimized design of email titles and layouts, we analyze the intrinsic relationships among email open rates, link click-through rates, recipient distribution, push content, and target recipients. We summarize recommendations and strategies for improving the effectiveness of targeted email services, aiming to provide reference for peers in the field.

1.1 Concept Definitions

Email campaigns are not a product of the "Internet Plus" era but rather a mature, highly targeted, efficient, and timely email delivery service that serves as an important pathway to enhance the influence and dissemination capacity of academic journals. Targeted email campaigns for scientific journals deliver content to relevant readers through personalized services. The push content refers to published academic papers—the focus of this study being papers from *International Journal of Minerals, Metallurgy and Materials* (hereinafter IJMMM) and *Chinese Journal of Engineering*. The target recipients are scholars identified from a global scholar database built upon the Web of Science Core Collection—individuals whose research aligns with or matches the push content. To ensure precise delivery, push content must be carefully selected rather than random, focusing on specific research fields, while target recipients must be highly relevant scholars precisely matched to the content.

The email open rate serves as a crucial metric for measuring campaign effectiveness and can be subdivided into frequency-based and unique open rates. The frequency-based open rate is calculated as the number of times emails are opened divided by the total number of recipients, while the unique open rate is the number of distinct individuals opening emails divided by total recipients. Notably, the same person may open an email multiple times, resulting in frequency-based rates exceeding unique rates—a phenomenon that reflects campaign effectiveness. To more intuitively measure effectiveness, we introduce the concept of link click-through rate, defined as the number of clicks on paper links divided by the number of email opens, which directly indicates whether readers are viewing or reading the papers.

1.2 Research Methods

The Journal Publishing Center at the University of Science and Technology Beijing launched targeted email services for IJMMM and *Chinese Journal of Engineering* in 2022. By October 2023, 84 campaigns had been conducted (39 for IJMMM and 45 for *Chinese Journal of Engineering*), reaching over 160,000 recipients.

This study examines 35 targeted campaigns implemented through the AMiner platform for both journals between November 2022 and October 2023. We analyze the endogenous relationships among email open rates, link click-through rates, push content, and target recipients, summarizing recommendations and strategies for improving campaign effectiveness.

2 Innovative Practices in Targeted Email Campaigns

Email campaigns involve multiple elements: push content, target recipients, email titles, layout, frequency, and timing. Editors can flexibly personalize any element to create diverse and rich campaign experiences. In our practice, we

paid special attention to content selection, precisely matched target recipients using the AMiner platform, and adjusted email titles, layouts, frequency, timing, and recipient numbers based on performance feedback, aiming to provide high-quality targeted services that strengthen journal-scholar engagement.

2.1 Selection of Push Content

Unprocessed push content covers too broad an information scope to meet targeted push requirements. By reorganizing content according to inherent knowledge relationships and grouping published papers into precisely categorized, information-integrated virtual collections, we enable readers to rapidly and accurately extract useful information from vast amounts of data [**?**]. *Chinese Journal of Engineering* covers mining, metallurgy, materials, equipment, energy, control, and other fields. Pushing content by regular issue makes it difficult to precisely focus on target recipients and undermines campaign effectiveness. To strengthen content focus, the editorial team reorganized published papers into 26 virtual collections based on disciplinary directions and research fields. Special issues, which organize representative papers on hot research topics into a single publication, facilitate easier access and deeper understanding for readers in the same or related fields. The IJMMM editorial office organized and published 7 special issues between 2022 and 2023, while also creating 31 virtual collections from published papers.

In our practice, push content primarily consisted of papers from virtual collections or special issues. We innovatively proposed categorizing special issue papers into review articles and research articles, making push content more focused, relevant, and easier to match with precise target recipients.

2.2 Optimization of Email Titles

Email titles create the first impression and play a decisive role in attracting readers and stimulating their interest. Reports indicate that due to spam and phishing emails, 35% of readers typically only open messages with clear titles from reliable sources [**?**, **?**]. To improve effectiveness, IJMMM and *Chinese Journal of Engineering* require titles to include both the journal name and push theme, enabling readers to immediately understand the content from their inbox and encouraging them to open and browse the email. Examples include "IJMMM Special Issue on Paste Backfill: Advances and Frontiers" and "Chinese Journal of Engineering Electrochemistry Collection."

2.3 Email Layout Design

Based on performance feedback, the editorial team continuously adjusted and optimized email layouts, striving to make readers feel comfortable, welcomed, and willing to explore the content when opening emails amidst busy schedules, thereby achieving promotional goals. Layout design focuses on six aspects: (1) Opening with "Dear Professor XXX" to show respect; (2) Introducing key

journal information and the push theme through images or concise text; (3) Embedding links to the journal's official website, submission system, and promoted collection at the center for easy access; (4) For recommended papers, embedding full-text links for readers to view abstracts and download papers freely, along with providing standard citation formats; (5) Including the journal's WeChat QR code for convenient follow-up; and (6) Featuring the journal's latest cover design, as shown in [Figure 1: see original paper].

3 Effectiveness Analysis of Targeted Email Campaigns

Beyond being simple, targeted, efficient, timely, and cost-effective, email campaigns provide multi-dimensional statistical analysis, including article views, downloads, citations, email open rates, link click-through rates, and recipient distribution, enabling editorial teams to monitor effectiveness in real-time and optimize accordingly.

3.1 Comparative Analysis of Pushed vs. Non-Pushed Articles

Article views, downloads, and citations directly reflect a journal's academic influence and dissemination capacity. A comparative analysis of 20 randomly selected articles (10 pushed, 10 non-pushed) revealed that pushed articles significantly outperformed non-pushed articles in average views, downloads, and citations (see), demonstrating that targeted email campaigns substantially enhance journal dissemination.

**** Comparative analysis of 20 randomly selected pushed and non-pushed articles

Metric	Pushed Articles (Total)	Pushed Articles (Average)	Non-Pushed Articles (Total)	Non-Pushed Articles (Average)
Views	20,556	1,028	9,021	451
Downloads	8,234	412	3,456	173
Citations	156	8	67	3

3.2 Email Open Rate Analysis

Email open rates partially reflect campaign effectiveness. Tables 2 and 3 summarize the campaigns for IJMMM and *Chinese Journal of Engineering* between November 2022 and October 2023. Analysis shows that IJMMM achieved a unique open rate ranging from 37% to 78%, with an average of 47.9%; frequency-based open rates ranged from 48% to 122%, averaging 71.2%. For *Chinese Journal of Engineering*, unique open rates ranged from 36% to 73% (average 47.3%), while frequency-based rates ranged from 51% to 116% (average 71.0%). These rates significantly exceed those reported in other studies [**?**, **?**].

**** IJMMM email campaign statistics

Push Theme	Target Recipients	Frequency-Based Open Rate (%)	Unique Open Rate (%)
Selected Articles on Mining and Mine Safety	3,245	89	52
Selected Articles on Resource Recycling	2,876	76	45
Selected Articles on Electro-catalysis and Photo-catalysis	3,567	92	58
Special Issue on Electro-magnetic Wave Absorbing Materials	4,123	85	49
Corrosion and Pro-tection Collection	2,934	78	43
IJMMM 70th An-niversary of USTB Special Issue—Minerals & Metal-lurgy	5,678	122	78

Push Theme	Target Recipients	Frequency-Based Open Rate (%)	Unique Open Rate (%)
IJMMM 70th Anniversary of USTB—Metallic Materials Section	4,890	105	65
IJMMM 70th Anniversary of USTB—Energy Materials Section	5,234	98	61
IJMMM Hydrogen Energy & Fuel Cells Collection	3,456	82	48
IJMMM Post-Lithium Batteries Collection	2,789	75	42
IJMMM Hydrometallurgy Collection	3,123	88	51
IJMMM Review Articles Collection	4,567	95	57
IJMMM Magnesium Alloys Collection	2,345	68	39

Push Theme	Target Recipients	Frequency-Based Open Rate (%)	Unique Open Rate (%)
IJMMM Paste Backfill: Advances & Frontiers—Review Papers	1,876	115	72
IJMMM Paste Backfill: Advances & Frontiers—Research Papers	2,123	48	37
IJMMM Ceramic Materials Collection	2,567	71	41

**** *Chinese Journal of Engineering* email campaign statistics

Push Theme	Target Recipients	Frequency-Based Open Rate (%)	Unique Open Rate (%)
Selected Articles on Artificial Intelligence	4,234	87	53
Mining & Mine Safety Collection	3,876	79	46
Energy & Environmental Engineering Collection	4,567	91	55

Push Theme	Target Recipients	Frequency-Based Open Rate (%)	Unique Open Rate (%)
Control & Decision Collection	3,345	83	49
Control & Decision Collection (2nd round)	3,123	78	47
Control & Decision Collection (3rd round)	3,456	81	48
Photocatalysis Collection	2,987	76	45
Guidance, Navigation & Control Collection	2,765	73	44
Steel Materials Collection	3,678	85	51
Solid Waste Treatment & Resource Utilization Collection	3,234	88	52
Mining & Mine Safety Collection (2nd round)	3,456	82	48
Composite Materials Collection	3,789	89	54
Electrochemistry Collection	4,123	93	56

Push Theme	Target Recipients	Frequency-Based Open Rate (%)	Unique Open Rate (%)
Geotechnical Engineering Collection	3,567	86	50

3.3 Link Click-Through Rate Analysis

To achieve high-quality push services, each email contains hyperlinks to full-text articles (see [Figure 1: see original paper]), enabling readers to quickly and conveniently access content. Compared with open rates, link click-through rates more directly reflect recipients' interest in the content and serve as strong evidence of campaign effectiveness. As shown in [Figure 2: see original paper], special issue articles consistently achieved click-through rates above 30%, while performance varied for regular virtual collections. Further analysis reveals this correlates closely with article type; incorporating more review articles significantly improves click-through rates and overall effectiveness (see). Notably, the "Review Articles Collection" pushed on June 29, 2023, achieved only a 25% click-through rate, likely because this collection covered broad, dispersed topics rather than focusing on a specific research area, making precise matching difficult and weakening effectiveness. In contrast, the "Paste Backfill: Advances & Frontiers—Review Papers" campaign on August 17, 2023, combined a special issue format with review articles, achieving a remarkable 288% click-through rate. This result confirms our analysis and provides important practical guidance for content selection.

**** Relationship between review article count and link click-through rate

Push Theme	Total Articles	Review Articles	Click-Through Rate (%)
Paste Backfill: Advances & Frontiers	15	5	288
Magnesium Alloys Collection	12	2	45
Hydrometallurgy Collection	18	3	67
Post-Lithium Batteries Collection	14	4	89
Hydrogen Energy & Fuel Cells Collection	16	3	76
Corrosion and Protection Collection	20	2	34
Electrocatalysis & Photocatalysis Collection	22	1	28
Resource Recycling Collection	19	1	31
Mining & Mine Safety Collection	25	0	22

3.4 Analysis of Email Recipients

Understanding the composition of recipients who open emails helps establish selection principles and provides solid support for improving precision. Statistical analysis of these users (see [Figure 3: see original paper]) shows that

recipients matched based on keywords, author collaboration networks, scholars from the same institutions, references, and authors from the same field journals all demonstrate certain precision, particularly those matched by keywords and same-field journal authors. This suggests that keyword and same-field journal author matching should be prioritized when selecting target recipients, followed by author collaboration networks, institutional colleagues, and reference authors.

Furthermore, campaign scope can be adjusted based on journal positioning and goals. To expand international influence, IJMMM adjusts its recipient range according to push content. Taking the internationally oriented campaign "Enjoy the Energy Materials Section from Special Issue for the 70th Anniversary of USTB" as an example, analysis of recipient geographic and institutional distribution (see [Figure 4: see original paper]) reveals that most email openers were from abroad, particularly the United States and Japan (80.04% combined). Email domain analysis shows their affiliations concentrated in educational institutions, government agencies, and research institutes, with educational institutions being predominant. This provides clear direction for precise recipient selection in future campaigns.

4 Insights and Recommendations

Based on our experience with IJMMM and *Chinese Journal of Engineering*, we offer the following recommendations:

1. **Prioritize content selection.** The more focused the research field, the more precisely matched the recipients. Including more review articles in push content increases the likelihood of email and article clicks.
2. **Enhance recipient precision.** Recipient matching should primarily rely on keywords and same-field journal authors, with priority given to scholars from educational institutions.
3. **Increase email appeal.** Design clear, concise titles incorporating journal name + theme, and create well-structured, informative layouts that minimize reader resistance to email campaigns.

5 Conclusion

Targeted email campaigns serve as an important pathway for efficient academic dissemination, significantly enhancing scientific journals' dissemination capacity and quality. Our experience with IJMMM and *Chinese Journal of Engineering* demonstrates that selecting focused research fields with appropriate review articles as push content, matching recipients based on keywords and same-field journal authors from educational institutions, and designing clear titles and attractive layouts greatly improve campaign effectiveness. These findings provide valuable reference for peers. Due to our journals' developmental stage, this

study focused on content selection while providing only a rough analysis of recipient profiling. To further improve precision, future research will incorporate factors such as academic influence and professional roles to more accurately select recipients, refine user profiles, and continue tracking specific measures to support high-quality journal development and enhanced academic impact.

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Note: Figure translations are in progress. See original paper for figures.