Improvement of Subscription Adequacy Evaluation for E-resources and Journals Subscriptions

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초록(Abstract)

서울대학교 중앙도서관은 전자자료 평가의 다변화를 통한 학문 주제별 핵심 자료의 지속적 구독과 자구적 예산 절감 노력을 통한 신규 자료 구독을 추진하고자 매년 전자자료 및 학술지의 구독 적정성 평가를 추진하고 있다.

중앙도서관은 단순 정량평가 방식에서 정량, 정성평가 방식으로 구독 자료 적정성 평가 항목을 다변화하였고, 평가항목별 배점 및 가중치 부여 등의 안정적인 평가체계를 구축하였다. 특히 학과별 핵심 자료가 구독에서 제외되지 않도록 평가 방법을 개선하였으며, 이용자 설문조사 및 구독 중단 대상 자료에 대한 학내 기관 의견 조회 등을 통해 학문별·이용자 그룹별 핵심 연구 자료에 대한 구독 수요가 누락되지 않도록 하고 또 구독 적정성이 떨어지는 자료의 구독을 최소화하고자 노력하고 있다.

다만 2020년 전자자료 구독 예산 부족으로 다수의 구독자료를 중단하면서 연구자의 수요를 현행화하였고 이에 따라 2021년 평가부터는 중단까지 이어지는 사례가 극히 드물게 발생하고 있다. 이는 평가에 소요되는 노력과 결과 간 균형이 맞지 않는 상황이다. 더불어 2023년 부터 오픈액세스 출판을 지원하는 전환 계약을 체결함에 따라 현재 구독료 중심의 평가에서 논문 출판 비용(APC; Article Processing Charge)을 반영하는 것도 고려할 필요가 있어 보인다.

본 고에서는 우리 도서관에서 실시해 온 전자자료 및 학술지 구독 적정성 평가의 사례를 소개하고 평가 초기 나타난 문제 사항, 개선 사항 등 실제 업무 사례를 공유하고자 한다.

1. Introducing Subscription Adequacy Evaluation

The Seoul National University Library is striving to enhance the research competitiveness of the university by expanding foundational academic resources essential for both educational and research endeavors. However, the library operates within a limited budget, and subscription fees for materials continue to rise each year. The escalating subscription fees for electronic journals, in particular, are placing a significant burden on the library's budget. The longstanding issue of accumulated deficits in the library is also largely attributed to the continuous increase in subscription fees for electronic journal packages, including ScienceDirect. Despite allocating 70-80% of its acquisition budget to electronic resource subscriptions, the library still faces challenges in meeting the diverse demands of its members

due to recurring increase rates.

Moreover, there continues to be a demand for new materials stemming from newly developed academic subject areas. Consequently, some of the new materials requested for subscription to the library each year are dependent on the budget situation. The additional costs for subscribing to new materials also pose a significant burden on material subscription and budget management. In addition to managing materials within a limited budget and responding to the demand for new materials, the library also needs to identify and efficiently manage materials with low utility. However, such judgments cannot be made arbitrarily by the library.

Accordingly, the library is implementing various evaluation methods to manage subscription materials. In this chapter, we aim to explore the development of the evaluation methods employed by the library and investigate the direction for managing and evaluating electronic resources.

2. Development of Subscription Adequacy Evaluation Tool

To ensure the efficient evaluation and management of subscription materials, the library has implemented various methods over an extended period. For electronic resources, this can be broadly categorized into three stages, while for individual print and online academic journals, it can be divided into two stages.
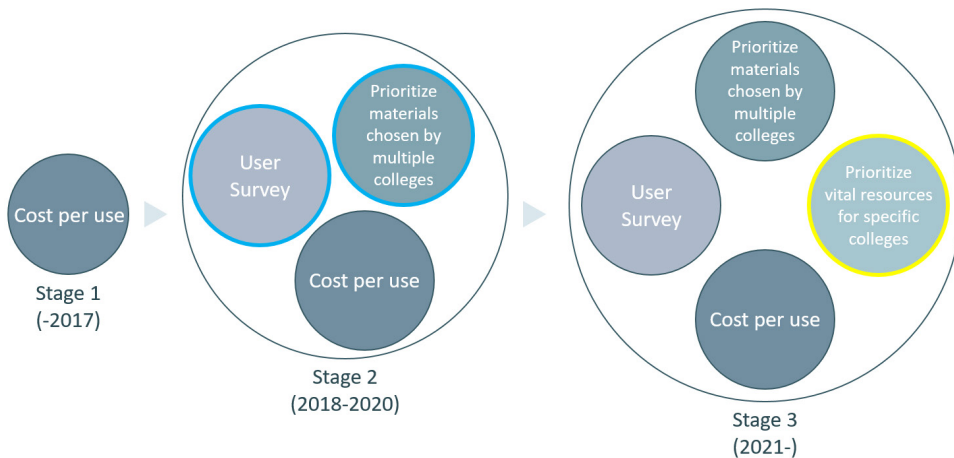

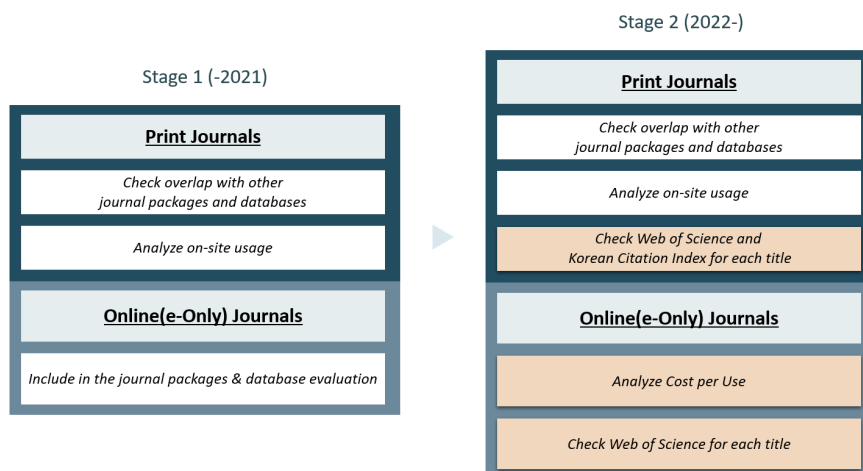**Figure 1** Development of Subscription Adequacy Evaluation Method for Electronic Resources

Stage 2 (2022-)

Stage 1 (-2021)

Print Journals

Check overlap with other journal packages and databases

Analyze on-site usage

Online(e-Only) Journals

Include in the journal packages & database evaluation

Print Journals

Check overlap with other journal packages and databases

Analyze on-site usage

Check Web of Science and Korean Citation Index for each title

Online(e-Only) Journals

Analyze Cost per Use

Check Web of Science for each title

Figure 2 Development of Subscription Adequacy Evaluation Method for Single Journals

2.1. Evaluation of Electronic Resources

1) Stage 1 (−2017)

Our primary focus during the first phase in the development of electronic resources evaluation was on assessing the cost per use.

$$Cost\ per\ use = \frac{Subscription\ fee}{Times\ used}$$

- Subscription fee: The yearly payment made by the library to the publishers
- Times used: Either search or download(read) usage, depending on the resource

This methodology, likely familiar to most librarians, involves dividing the library's annual payment to the publishers for each resource by the number of times the resource is utilized, either through yearly searches or downloads. While this approach provides a straightforward means of gauging the cost-effectiveness of a resource, it is crucial to acknowledge its limitations, particularly the difficulty in considering non-quantifiable factors such as the significance of a resource to specific research or educational requirements. Recognizing these constraints propelled the progression of our analysis to the subsequent stage.

2) Stage 2 (2018–2020)

In Stage 2 for electronic resources evaluation, a comprehensive framework was developed integrating a prioritization process and a user survey alongside a cost per use analysis. In order to adopt a new evaluation methodology, a literature review on evaluation methods was conducted. In the first stage of the two-stage evaluation model developed by Sutton(2013), all resources were evaluated based on the most heavily used resource as a baseline. Subsequently, in the second stage, resources requiring additional analysis based on the results of the first stage analysis were evaluated using criteria such as overlap data, citation, usage, and JIF(Journal Impact Factor). Moisil(2015) proposed a stepwise model rather than a complex ranking system, considering five factors(pertinence, availability, value, price, and usage) at each stage. This approach led to the development of a final model in the form of a decision tree. Sheldon(2018) developed a process and workflow for evaluating subject databases at small-scale universities with limited staff and resources. The workflow consists of three stages: evaluating CPU in the first stage, identifying journal duplicates and unique titles in the second stage, and assessing usefulness in the third stage. Although additional evaluation methods were considered(Xu, 2010, Nagra, 2009), it was difficult to find an approach that aligned with the needs of the SNU library at the time. Therefore, the library developed its own evaluation method for assessing Seoul National University's subscribed materials. Implementing these methodological advancements marked a significant progress in our evaluation protocol, aiming to comprehensively assess the utility and preferences of academic resources within our university setting.

Central to this stage was the introduction of a prioritization process, strategically designed to distinguish the resource preferences of individual college. This approach involved soliciting formal submissions from each college, where faculty members and researchers were requested to outline their top 20 preferred resources along with corresponding rankings. The prioritization was meticulously designed to be in line with the university's administrative procedures, ensuring adherence to institutional norms. Notably, the prioritization process highlighted the significance of departmental consensus, necessitating approval from college deans to ascertain the validity of resource rankings.
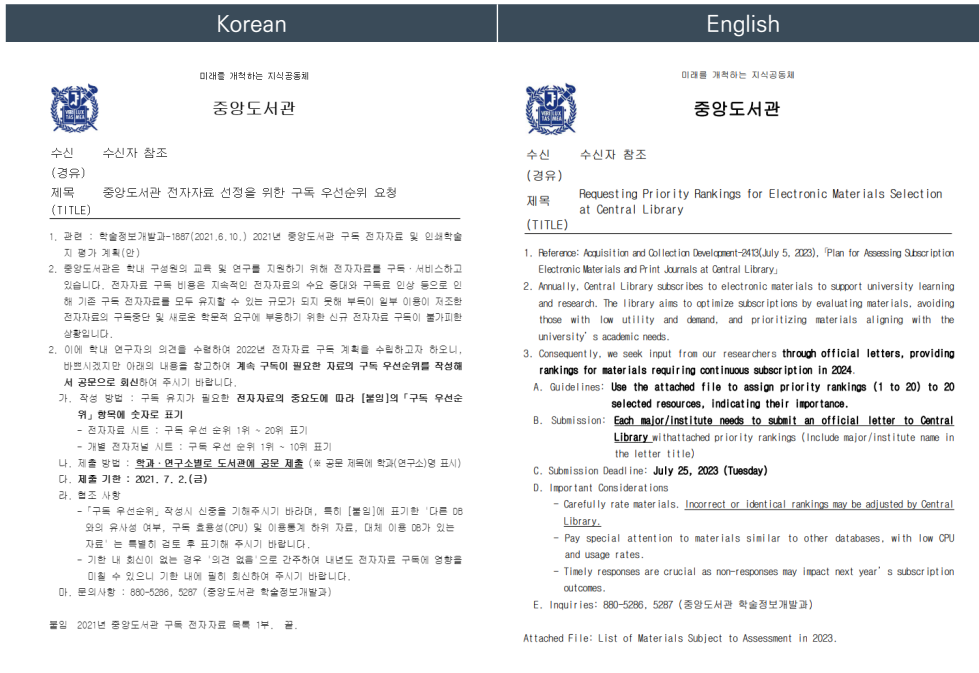
Korean	English

Figure 3 Priority Request Letter for Subscription Electronic Resources

The official letter in Figure 3 was accompanied by an appended table in Figure 4. Certain details within the table were removed to ensure confidentiality since they were not intended for public disclosure. In the table, each college was prompted to indicate their priority rankings for subscriptions, by selecting and evaluating 20 resources, and assigning them a rating on a scale from 1 to 20 to indicate their order of preference. Overall, a resource consistently included in the top 20 selections from each college would be assigned a higher score. To help the colleges make more informed decisions, our table included detailed information, such as the estimated subscription fee for the following year and its CPU. Later, it was decided to remove the subscription fee information since the budget complications had been resolved.

Figure 4 Example of Priority Ranking for Subscription Submitted by College

To acquire insights into user behaviors, preferences, and perceptions of subscribed resources, a user survey was newly administered in Stage 2. Utilizing the university's mass mail system and offering incentives such as a coffee coupon giveaway event encouraged widespread participation among the student body. The survey was meticulously designed to gather detailed feedback, covering various issues including resource utilization patterns, preferred access methods, and areas for improvement. Additionally, respondents were prompted to evaluate the utility of subscribed resources using a Likert scale, thereby providing invaluable qualitative assessments.
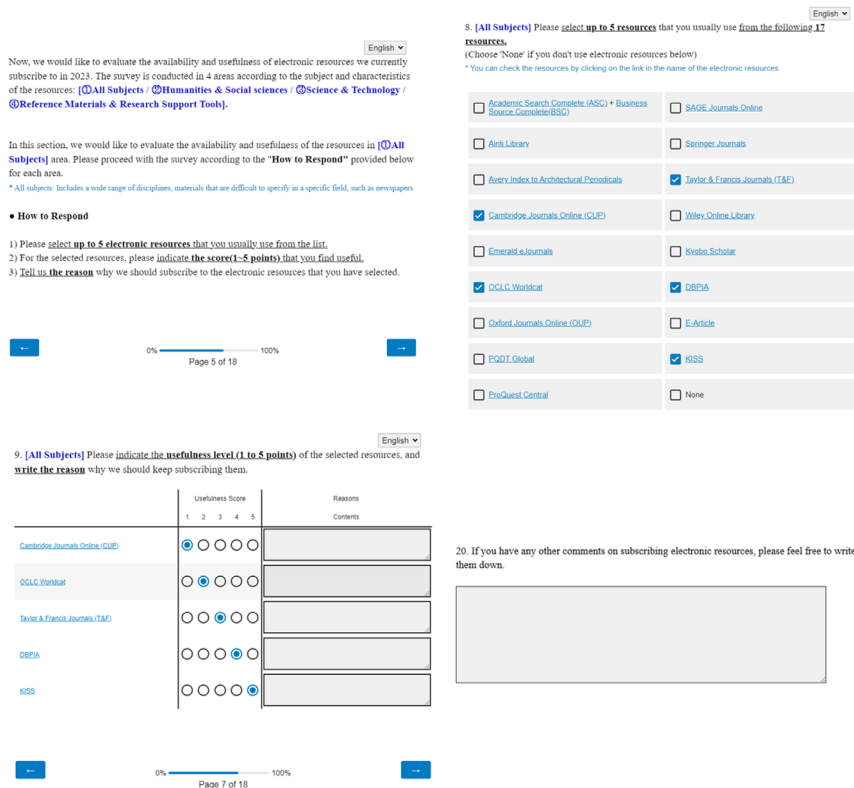
Figure 5 Sections in the User Survey for Evaluation of Electronic Resources

In the survey, short instructions were provided to collect personal details from each respondent including their current status, affiliation and email address. This was done in order to filter out irrelevant respondents and understand the behavior of users with similar backgrounds. Respondents were also asked to respond to the questions on the frequency of resource utilization, preferred methods for accessing resources, and aspects that they found less favorable about the resources.

To evaluate the usefulness of each resource, which was the main purpose of the survey, respondents were instructed to select and rate the materials they used most frequently from our subscribed resources. Additionally, towards the end of the survey, respondents were asked to provide opinions they would like to share with the library about the resources subscription. The responses from 'Other Comments' section of the survey also contained a significant amount of feedback on other services provided by the library besides electronic resources. These opinions were analyzed at our end then shared with the respective departments. This, as a whole, enabled the library to ascertain the substantive resources desired by the users and gain information on the areas that required improvements.

In Stage 2, the evaluation process was enhanced by incorporating the non-quantifiable factors that were previously overlooked in Stage 1. However, these two new measures had drawbacks. The prioritization approach often overlooked materials listed in the top 20 submissions from a smaller number of colleges, as it primarily focused on the frequency of appearance for each resource within these lists. This approach proved demanding and time-consuming, involving the distribution of letters to all colleges and subsequent analysis and consolidation of results. The response rate for the user survey also fell short of our expectations. While the results were valuable, they could not fully represent the entire university community. In conclusion, it was acknowledged that these methodological innovations required ongoing adjustments to address inherent limitations and maintain the integrity of our evaluation framework.
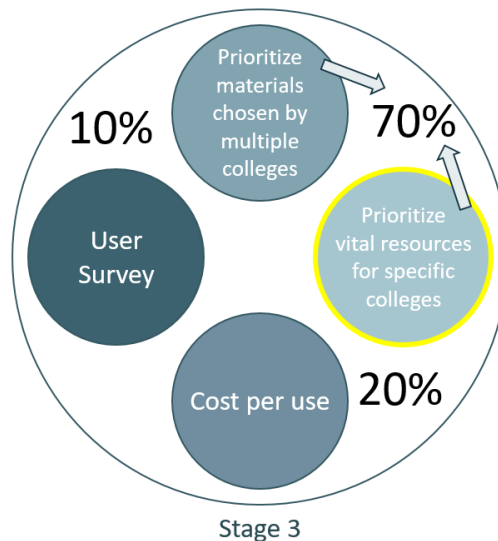

Stage 3

Figure 6 Components of the Stage 3

3) Stage 3 (2021-)

Continual refinement of our evaluation framework remained a primary focus, with particular attention paid towards addressing the limitations previously disregarded. In Stage 3, the prioritization process was further enhanced, building upon the foundations laid in Stage 2. Our analysis in the previous stages revealed that certain core materials, although preferred by a smaller subset of colleges, were unintentionally marginalized in the earlier prioritization model. Consequently, our strategic refinement involved assigning heightened significance to resources with priority scores ranging from 1 to 3, regardless of their endorsement by multiple colleges. This approach does not require any additional administrative procedures, and up to this point, this approach has effectively ensured that each college has access to the core resources they need.

The evaluation outcomes are illustrated in Figure 7. 70% of the total score is assigned based on priority ranking, 20% on CPU analysis, and the remaining 10% on user survey responses. Subsequently, resources are arranged in descending order according to their total score, determining their respective rankings. Resources at the higher end of the hierarchy are selected for subscription in the subscription list for the following year, while those lower down are assessed for possible subscription discontinuation.

Evaluation Ranking	Resource	Subscription fee (2024)	Priority ranking score (70%)	CPU score (20%)	User survey score (10%)	Total
1	A	$270,000	70	20	10	100
2		Continue in the upcoming year				95
3	C	$100,000	67	17	9	93
4	D	$70,000	63.5	19	9.5	92
5	E	$170,000	62.5	18.5	10	91

...

Evaluation Ranking	Resource	Subscription fee (2024)	Priority ranking score (70%)	CPU score (20%)	User survey score (10%)	Total
119	F	$50,000	4.5	6	4.5	17
120		Include in the list of resources which should be assessed for subscription discontinuation				15
121						12
122						11
123	J	$90,000	1	5	4	10

Figure 7 Evaluation Result (Example)

1.2. Evaluation of Single Journals

In Stage 1, our evaluation of print journals involved a thorough analysis of overlap with existing journal packages and subscribed databases, as well as an assessment of their utilization within the library. In contrast, e-only subscription journals did not undergo a separate evaluation during this initial phase.

During the assessment of each print title for potential overlap with other journal packages and databases, their electronic availability was also assessed. Moreover, their electronic coverage was examined to determine whether the electronically available titles included only current issues or if perpetual access issues were also provided. Additionally, their Open Access availability was evaluated. Titles with electronic substitutes or those designated as OA titles were included in the list of journals to be considered for potential discontinuation in the following year. Lastly, on-site usage and interlibrary loans history were taken into account. If a title was identified as being less frequently utilized based on the analysis, it was considered for subscription discontinuation.

Similar to the evaluation of electronic resources, the methodologies introduced in Stage 1 primarily focused on quantifiable factors. In response to this, additional measures were introduced in Stage 2. In the case of print journals, we initiated a cross-referencing process with Web of Science and the Korean Citation Index. For e-only journals, distinct evaluations were conducted, including an analysis of the cost per use and cross-referencing of titles with Web of Science.

While the cost per use analysis has been previously discussed before and does not require clarification, the cross-referencing process was designed to offer insights into the impact and relevance of each journal. This, in turn, aided in the evaluation of their suitability for subscription.

Following the evaluation, print and online journals are categorized, and a table is generated as depicted in Figure 8. This process determines which journal titles should be discontinued from our subscription for the upcoming year. Nevertheless, to ensure continued access to essential academic resources for the university community, subscriptions for certain journals may be retained if there is expressed need from any college.
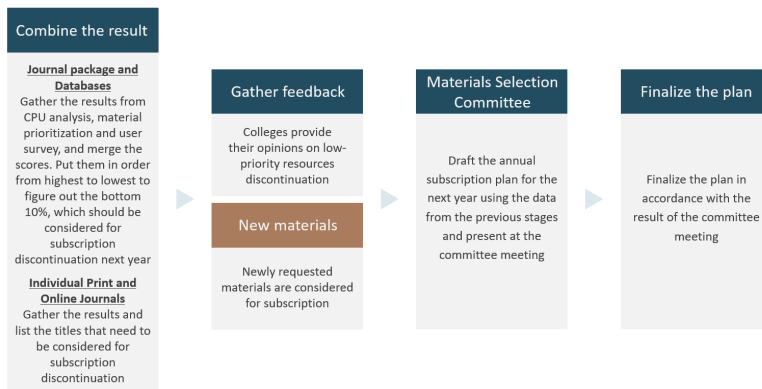
Figure 8 Evaluation Results and Subsequent Procedures

3. Evaluation Results and Significance

After assessing the evaluation outcomes for electronic resources and individual journals, the library seeks opinions from colleges. Subsequently, colleges provide their opinions on retaining low-priority resources. Simultaneously, any newly requested materials are added to the list for potential subscription in the upcoming year. Upon completing this series of steps, a subscription plan for the following year is developed based on the data gathered from the previous stages. The plan is then presented to the library's materials selection committee, which includes the library's general director and faculty members from the university. Once approved, the plan is formalized, and negotiations with relevant publishers commence.

Additionally, it is also essential to briefly discuss the significance and limitations of the evaluation. In terms of significance, the evaluation has provided valuable insights into researchers' educational and research needs, aiding in the responsible management of university budgets and facilitating improved material spending. It also serves as an excellent tool for subscription management, providing solid evidence for maintaining or discontinuing subscriptions.

In terms of limitations, while the proportion of discontinued subscription resources has been minimal considering the effort and input, challenges persist as the results and rankings may not always correspond to everyone's preferences. For instance, based on the evaluation findings from 2020, the final year of Stage 2, subscriptions to 28 electronic resources had to be cancelled. However, significant feedback from university researchers, especially regarding core materials deemed essential for departments, led us to maintain 15 subscriptions while discontinuing 13 others. Despite adjustments, this represented a 10% decrease in library subscription resources compared to the previous year. Following Stage 3, there have been

fewer direct subscription terminations, partly due to the substantial cancellations during the previous stage. Upon reviewing electronic resources post Stage 3 (2021), it was noted that, over a three-year period, only 3 out of 21 resources were terminated (7 in 2021, 8 in 2022, and 6 in 2023 were maintained), following consultations with colleges and the Material Selection Committee. Lastly, the demanding and time-consuming nature of the evaluation process necessitates the development of a more sustainable approach to alleviate its burdens.

4. Future Tasks

SNU Library has initiated various efforts to provide essential materials for researchers at Seoul National University. The evaluation of subscription materials is also part of the library's ongoing commitment to meeting research demands within the university's constrained budget.

However, managing the extensive list of subscription materials at Seoul National University, along with the thorough evaluation of each resource, demands a considerable investment of time and effort. Particularly, ensuring cooperation from faculty members and researchers is of crucial importance. Encouraging their active participation in discussions regarding priority rankings requires careful consideration, especially given potential limitations in their understanding of library subscription materials. As a result, an annual commitment is necessary to maintain a seamless and effective collaboration with the faculty members and researchers.

Furthermore, despite discontinuing materials based on evaluation results, there is a practice of respecting researchers' opinions and maintaining subscriptions if there is a consensus in favor of retention during internal consultations. While this evaluation is crucial for a thorough analysis of subscription materials both quantitatively and qualitatively to deepen understanding, the operational effort exercised during the third stage of the evaluation is deemed excessive considering the outcomes. Therefore, it is suggested that seeking opinions from the faculty members and researchers regarding materials falling within the lower ranks of CPU could be one method to enhance efficiency in evaluation.

Moreover, the Library has entered into contracts to support Seoul National University researchers in publishing papers with open access options, including a transition agreement with Springer in 2023. In addition to Springer, the library has expanded its support for open access publishing by establishing additional agreements with publishers such as Wiley and ACM. As a result, SNU researchers can now publish open access when submitting to 14 publishers. This represents a shift in the library's contract model, incorporating publishing

costs into subscription fees. However, the current evaluation approach focuses solely on the reading attributes of materials. In the future, Article Processing Charges (APCs) are anticipated to hold more significance than reading fees, and this shift highlights the necessity for libraries to adjust their evaluation methods, moving from a sole focus on subscriptions fees to encompass publishing costs. Notably, a current trend among publishers involves transitioning hybrid journals to fully open access. In conclusion, there is an increasing need to examine journal subscription policies that comprehensively cover both subscription and publishing costs, supported by corresponding evaluation methods. This preparation is crucial in response to the growing prevalence of fully open access publications.

※ This article has been revised using the content from the presentation titled 「Cases of Improvement of Subscription Adequacy Evaluation and Evaluation Method for E-resources and Journals Subscription at Seoul National University Library」, which was delivered at Pacific Rim Research Libraries Alliance (PRRLA) 2023 Meeting in Shenzhen, China on October 19, 2023.

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