



May 2024

## Barriers to Education: Limited Accessibility of Study Material Used During Facial Plastic & Reconstructive Surgery Fellowship Training

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### Recommended Citation

Boochoon, K., Yousef, A., , Watson, D. Barriers to Education: Limited Accessibility of Study Material Used During Facial Plastic & Reconstructive Surgery Fellowship Training. Graduate Medical Education Research Journal. 2024 Jun 27; 6(1).  
<https://digitalcommons.unmc.edu/gmerj/vol6/iss1/6>

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### Abstract

**Purpose:** The American Academy of Facial Plastic and Reconstructive Surgery (AAFPRS) Fellowship Compendium is an extensive bibliography that serves to prepare fellows for their end-of-year board exams. Access to a current version is variable among fellowship programs. If Compendium articles—current and updated—are made directly available to fellows on the Fellows-In-Training AAFPRS website, then easier access to the preparatory exam material could improve their review of the material and their overall education. This study surveyed past AAFPRS fellows to determine the usefulness of hyperlinks to the Compendium bibliography.

**Methods:** AAFPRS fellows from 2021-2022 and 2022-2023 received a 9-question survey by email inquiring about their access to the Compendium articles, their individual efforts to collect articles, the time taken to search for updated articles, and if any obstacles existed in the process. Participation was voluntary, and survey results were anonymous.

**Results:** A total of 55 survey responses were collected, with a 50% response rate. Fifty-six percent of fellows reported collecting less than 50 articles, and only 9% collected >200, yet 70% stated they rely on the Compendium for board preparation. Over 40% of fellows spent >60 hours collecting articles, and 26% reported spending >100 hours. There was a statistically significant positive association between hours spent by fellows while collecting articles and the perceived impact on their education if links to all articles were made easily accessible on the Fellows-In- Training website (95% confidence interval (CI): 1.07 – 2.28;  $p=0.02$ ). More than 80% of fellows do not expect to collect all the articles, yet 100% predict a positive impact on their fellowship education if the articles are made easily accessible.

**Conclusion:** Access to the Compendium articles lacks consistency across the fellowship programs and requires fellows to spend a significant amount of time searching for Compendium references. Responses from this group acknowledge the positive impact of having the Compendium readily accessible via hyperlinks on the fellows' AAFPRS homepage.

### Keywords

education, fellowship training, disparity, facial plastic surgery

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# Barriers to Education: Limited Accessibility of Study Material Used During Facial Plastic and Reconstructive Surgery Fellowship Training

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<https://doi.org/10.32873/unmc.de.gmerj.6.1.005>

## Abstract

**Purpose:** The American Academy of Facial Plastic and Reconstructive Surgery (AAFPRS) Fellowship Compendium is an extensive bibliography that serves to prepare fellows for their end-of-year board exams. Access to a current version is variable among fellowship programs. If Compendium articles—current and updated—are made directly available to fellows on the Fellows-In-Training AAFPRS website, then easier access to the preparatory exam material could improve their review of the material and their overall education. This study surveyed past AAFPRS fellows to determine the usefulness of hyperlinks to the Compendium bibliography.

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education, fellowship training, disparity, facial plastic surgery

## Introduction

The American Academy of Facial Plastic and Reconstructive Surgery (AAFPRS) provides an extensive Compendium bibliography that helps prepare facial plastic surgery fellows for their end-of-year examinations administered by the American Board of Facial Plastic and Reconstructive Surgery (ABFPRS). The Compendium identifies core skills and knowledge points that are supplemented with over 250 references.<sup>1</sup> The access for fellows to this collection of articles is variable depending on the availability of a complete hardcopy of the Compendium at their fellowship location, accessibility to the necessary online resources to gather the updated references, which are added every 3 years, and the availability of dedicated time to collect the articles.<sup>2</sup>

Depending on the fellowship program, there may be varying provisions for educational databases. If there is a lack of access to necessary online databases, fellows will face more difficulty acquiring the core compendium resources to self-educate themselves during their training. In turn, this could disproportionately affect private practice fellowships, as fellows within this setting may not have access to full articles through an academic institution's library. At this point, there is a paucity of data analyzing the need and availability of Compendium resources for facial plastic surgery fellows. Therefore, the goal of this investigation was to complete a cross-sectional survey-based study to understand the current Compendium usage amongst facial plastic surgery fellows and to evaluate the importance of fellowship education by improving their access to the Compendium.

## Methods

We performed a cross-sectional survey-based study assessing the accessibility of Compendium articles, individual effort to collect articles, the time taken to search for updated articles, and the current obstacles that AAFPRS fellows experienced from 2021-2023. This study was submitted to the University of California-San Diego Institutional Review Board and was granted an exemption.

## Survey Design

A nine-question Qualtrics survey was designed and sent to facial plastic surgery fellows via email. The survey inquired about the estimated time it took for each fellow to collect Compendium articles, the approximate number of articles that were collected, and what obstacles were encountered during their collection effort. The survey also queried about the accessibility of Compendium articles and what impact this would have on their education if direct access were made available on the AAFPRS fellowship homepage. Furthermore, the survey assessed whether fellows used the Compendium to prepare for their board examination.

## Data Collection

Data collection was obtained with a 9-question Qualtrics email survey to 2021-2022 and 2022-2023 fellows (Supplemental Figure 1). This was sent to a total of 110 fellows. All fellows were provided a one-week reminder email to complete the survey. Participation was voluntary, and all survey results were collected anonymously over a two-month period.

## Statistical Analysis

For descriptive statistics, means, medians, and frequencies were calculated as appropriate. We assessed fellows' current experience with gathering Compendium articles and determine if there was an association between time spent collecting articles and suspected impact on their education. Categorical data was analyzed using a Chi-square test, and ordinal variables were compared using ordered logistic

regressions. Stata v17 was used for all analyses, and statistical significance was taken at  $p < 0.05$ .<sup>3</sup>

## Results

A total of 55 out of 110 fellows responded to the questionnaire, leading to an overall 50% response rate, with 39 fellows (70%) stating that they use the Compendium for board preparation (Table 1). It was found that more than 80% of fellows do not expect to collect all the articles, yet 100% predict a positive impact on their fellowship education if the articles are made easily accessible.

### Current Experiences with the Compendium

The fellows' current experience with the Compendium was assessed. Fifty-six percent of fellows collected less than 50 articles, and only 9% collected more than 200, yet 70% of fellows stated they rely on the Compendium content for board exam preparation (Figure 1). Over 40% of fellows spent more than 60 hours collecting articles, while 26% of fellows reported spending over 100 hours (Figure 2).

Barriers to collecting articles from respondents included inability to find the article (34%), paying online fees for access (36%), and time constraints (25%). Furthermore, 45% of fellows required external help (which included office staff, acquaintances, and family members) to obtain the Compendium articles.

### Perceived Impact on Education

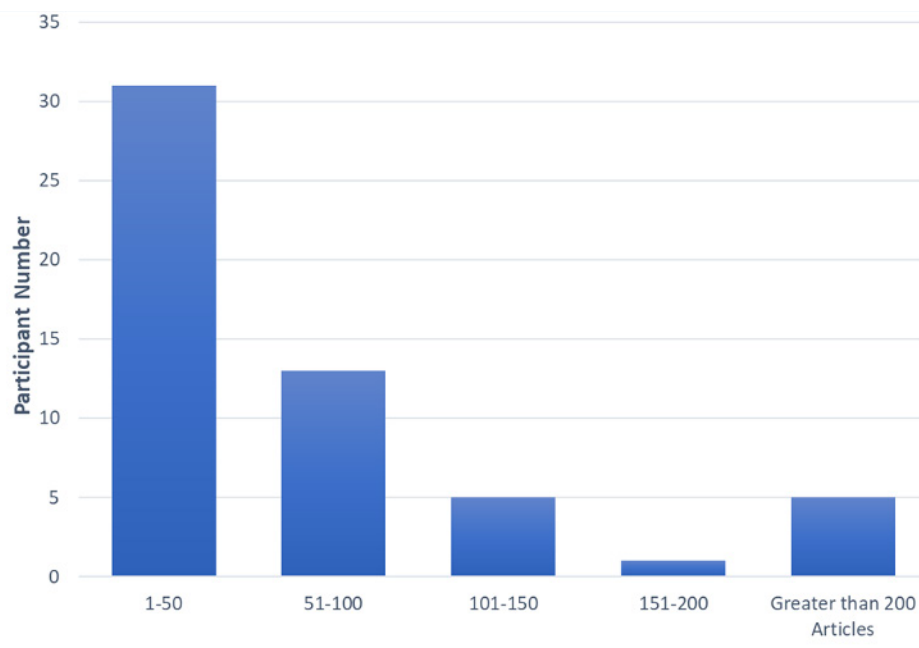
The survey inquired about the impact of accessibility to Compendium articles. Thirty-five fellows (63%) claimed they would save over 50 hours if they had access to Compendium articles. Of those 35 fellows, 43% reported that they would save over 100 hours with direct access to Compendium articles. There was a statistically significant positive association between increased hours spent collecting articles and the increased amount of estimated time they would save if links to the articles were accessible (95% confidence interval (CI): 1.07 – 2.28;  $p < 0.001$ ).

The access to articles had a positive perception on the fellows' education; 96% of fellows reported that increased access would at least have a moderate impact on their education, and 62% reported at least a significant impact on their education by having access to the Compendium articles on the AAFPRS fellow's website (Table 2). There was a statistically significant positive association between increased hours spent collecting articles and

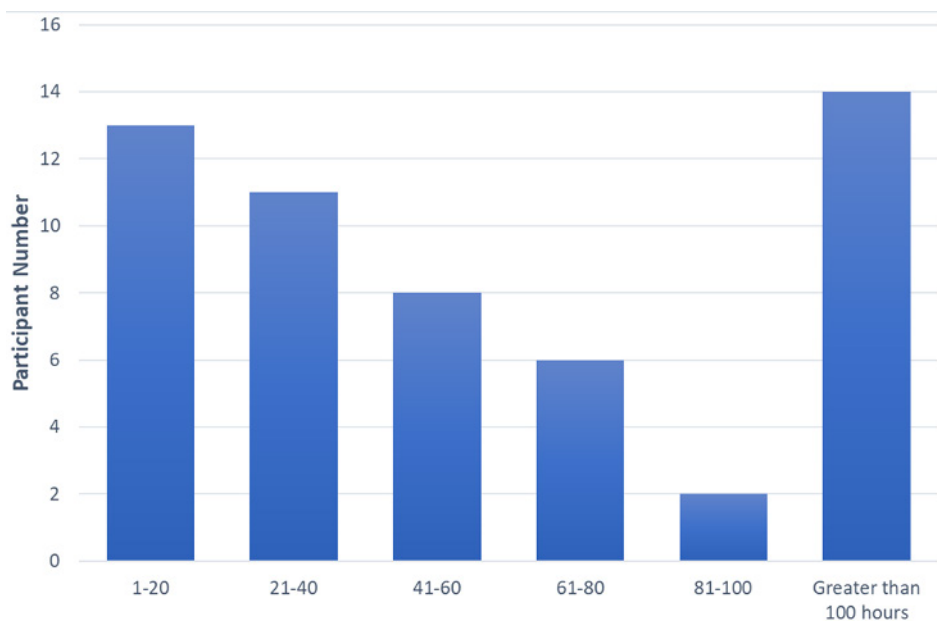
**Table 1.** Current experiences with AAFPRS Compendium.

	2019-2021 (%)
Sample Size	55
Fellows using Compendium to Prepare	39 (69.6%)
Range of Median Number of Articles Collected*	0-50
Range of Median Hours Spent Collecting Articles (Hours)*	41-60

\*Findings are in range medians due to results being from a series of ordinal data that were presented as a range (Supplemental Figure 1)



**Figure 1.** Number of articles collected by fellows, with most fellows collecting  $\leq 50$  articles.



**Figure 2.** Hours needed to collect Compendium articles, with 25.9% of fellows requiring more than 100 hours to collect articles.

**Table 2.** Impact on education from direct and easy access to Compendium articles.

Fellow Response	N (%)
No Impact	0 (0)
Little Impact	2 (3.6)
Moderate Impact	19 (34.6)
Significant Impact	34 (61.8)

the increased impact of education if links to all articles were made easily accessible on the Fellows-In-Training website on ordered logistic regression (95% CI: 0.12 – 1.93;  $p=0.023$ ).

## Discussion

The results demonstrate that the Compendium is one of the critical tools in AAFPRS fellowship education and ABFPRS exam preparation. For most fellows, the Compendium is routinely reviewed as part of their education. Unfortunately, our survey demonstrates that they are spending excessive amounts of time trying to access and update key articles that are found within the Compendium. Archiving these articles on the fellows' homepage would save substantial time in procuring the articles and allow a greater focus on other critical aspects of their education.

Historically, it has been expected that fellows collect or update the Compendium articles during their fellowship year to supplement their education. However, this presents inequitable situations for some fellowship programs that may not have institutional account-specific access to some of the online references; this appears to be the case with some of the private practice training programs. Based on the findings of this study, many fellows rely on the Compendium despite not being able to access the majority of the articles contained within it. Apparently, many fellows are using external assistance to acquire articles, as some of the landmark and original source papers are too old to be accessed electronically. The major educational benefit of the Compendium is the content contained within the numerous articles; it supplements the core skills and knowledge points that fellows are expected to learn. Without equitable access to the articles contained within the Compendium, the intended educational benefit is compromised. Adding the entirety of the Compendium articles to the fellows' homepage would eliminate this disparity.

Other studies have identified barriers to post-graduate medical education. One in particular evaluated the barriers to research among

otolaryngology residents and found that the most frequent obstacles were limited dedicated time (64%), lack of financial resources (55%), and insufficient education in research (45%).<sup>4</sup> The authors concluded that otolaryngology training programs should focus on integrating more research into resident's clinical curriculum by giving residents more time and resources to assist with research projects. Other groups have recognized similar barriers to the resident research experience at different residency programs and found that limited resident time, lack of research skills, absence of a research curriculum, and inadequate funding played a role in decreased research output.<sup>5-7</sup> The authors were able to improve the resident research experience by providing more time to conduct research, providing technical support, and improving mentorship guidance. Taken together, both studies underscore the importance of access to resources, improvement in education, and heightened attention to these issues to eliminate educational barriers.

Other work has been published demonstrating the importance of access to educational material for fellowship education. A study by Sarva et al. evaluated graduate medical education exposure in Neurology.<sup>8</sup> It highlighted the importance of having balanced educational content and an appropriate level of exposure to this subspecialty as part of a comprehensive fellowship educational experience.<sup>8</sup> Another study evaluated educational barriers for fellows in Neonatal-Perinatal Medicine. The study demonstrated that both fellows and program directors had significant concerns about maintaining quality educational materials, and any deficiency in this goal was identified as an educational barrier to the fellows' education.<sup>9</sup> Both of these groups affirm the importance of having standardized access to core curriculum materials. Our study validates this point from our survey results. Fellowship programs need to provide equal access to all forms of educational content that are listed in their curriculum.

Based on the results of our study, previous fellows confirmed that having direct access to valuable educational materials would lead to an overall improvement in their education.

This work draws attention to educational barriers whereby all fellows do not have equal access to various online journal resources, and it appears to limit their ability to self-educate during their training year. The importance of universal access to educational resources cannot be stressed enough because it can impact the experience during fellowship training and academic success.

## Conclusion

Access to a complete and updated collection of Compendium bibliography articles for AAFPRS fellows tends to be variable across the different AAFPRS fellowship programs. Versions of the Compendium at different fellowship programs can lack consistency if updated articles have not been included. Fellows would be tasked to spend a significant amount of time searching for or updating any missing references. This study emphasizes the educational barrier of limited access to study material for board exam preparation. Responses from this group acknowledge the significantly positive impact of having the Compendium bibliography readily accessible on the fellows' AAFPRS homepage. By lifting this barrier to educational material and providing updated additional hyperlinks to articles, fellowship education would be enhanced. The time-consuming process of searching for Compendium articles would be eliminated, and a redirected focus toward fellowship education and board exam preparation could be expected. ■

## Financial Disclosure

The authors have no financial disclosures.

## Conflicts of Interest

The authors report no conflicts of interest.

## IRB Approval

University of California San Diego, Office of IRB Administration. This study was granted an IRB exemption, no number was assigned due to the anonymity of the survey.

## Acknowledgement and in Memory

The authors would like to acknowledge and remember Fatima Porter-El, who consistently supported our efforts with this study, the education of our fellows, and our fellowship programs. She will be dearly missed.

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