

## Discussion: The Implications of Virtual Learning on Plastic Surgery Education: A National Survey of Plastic Surgery Residents and Fellows

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**W**e read with great interest the article by Arora et al entitled, “The Implications of Virtual Learning on Plastic Surgery Education: A National Survey of Plastic Surgery Residents and Fellows.”<sup>1</sup>

In the wake of the coronavirus disease 2019 pandemic, medical education witnessed a significant shift toward virtual platforms.<sup>1,2</sup> Even as in-person activities have resumed, a considerable portion of the educational curriculum in the medical field, particularly in plastic surgery, continues to leverage virtual learning.<sup>1-3</sup> However, there is a gap in understanding how residents and fellows have transitioned from traditional study methods to this new virtual paradigm.<sup>1-3</sup> Recognizing the enduring presence of virtual education in plastic surgery, Arora et al embarked on a study to evaluate its perceived strengths and limitations in comparison with conventional, in-person training.<sup>1</sup>

Their results revealed a complex understanding of virtual learning; participants valued its efficiency and the relative ease of participating in discussions. Yet, they noted its shortcomings in fostering collaborative learning experiences, with their participants experiencing challenges in maintaining high learning proficiency in a virtual environment.

In a similar vein, Shen et al previously introduced a 4-week educational program using the flipped classroom methodology.<sup>4</sup> This approach necessitated that participants initially study the material independently, followed by engagement in small group discussions to reinforce the learned content.<sup>4</sup> The outcomes, as captured through a postcurriculum survey, indicated a marked enhancement in the participants’ comprehension of plastic surgery principles. Moreover, individuals reported a heightened sense of confidence in navigating clinical discussions and case preparations, and exhibited an improvement in their suturing techniques subsequent to their participation in the virtual workshops. A distinctive aspect of this

methodology was the incorporation of the flipped classroom model coupled with small group interactions, which fostered a greater sense of peer connection.<sup>4</sup>

Furthermore, the advent of virtual reality (VR) in healthcare, a technology once primarily associated with video games, has marked a significant shift toward virtual surgical education, overcoming the constraints of traditional educational frameworks. Since its introduction in the 1990s, VR has evolved into a crucial tool for surgeons, enabling the planning of complex surgical procedures and heralding a new era in surgical training by offering adaptable and immersive learning experiences.<sup>5</sup> This technological leap not only enhances training methodologies but also extends its benefits to global health initiatives by equipping trainees in underprivileged regions with cutting-edge educational tools. However, the integration of VR into plastic surgery training underscores a blend of challenges and opportunities. The lack of tactile feedback and the intricacies inherent in surgical procedures present significant hurdles, highlighting the limitations of virtual platforms in replicating real-life surgery.<sup>5</sup> This may lead to potential isolation and a shortfall in developing critical soft skills due to reduced interpersonal interactions. Despite these challenges, virtual education stands out for its flexibility; accessibility; and the potential to democratize learning by breaking geographical barriers, offering an enriched blend of resources, collaborative opportunities, and global networking that collectively broaden the educational horizon and cultural understanding of students.

The study by Arora et al underscores the criticality of incorporating trainee feedback to refine the plastic surgery curriculum, revealing insights to improve virtual learning for various learner types.<sup>1</sup> Despite its constraints, the study advocates for a hybrid curriculum that merges virtual learning’s temporal flexibility and resource accessibility with traditional hands-on experiences. On an anecdotal level, we valued attending conferences in person before the pandemic. We wish that there would be a way to assess the impact of in-person versus virtual learning. There really is no substitute for an in-person learning experience from a teacher and learner interaction that has been modeled from the earliest of time. In this current time, we may never go back to all in-person conference, as our educational program continues to be hybrid to this day. We see that the hybrid option garners better attendance than the prior in-person conference, but the learning environment is different and distinctly

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postpandemic. Having mandatory in-person conference would likely return to decreased attendance overall. On the other hand, the hybrid option certainly has brought all of us closer, using virtual platforms. This proposed model aims to address virtual education's challenges while leveraging its benefits, promising a more enriched and effective educational journey for aspiring plastic surgeons.

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#### DISCLOSURE

*The authors have no financial interest to declare in relation to the content of this article.*

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