

Telelecture Educational Series in Facial Plastic and Reconstructive Surgery

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Abstract

We sought to evaluate the usefulness of a monthly telelecture educational series in facial plastic and reconstructive surgery for resident education and to identify potential areas for improvement. A monthly series of facial plastic and reconstructive surgery telelectures were hosted at our institution between 2016 and 2018. A web-based survey was sent to 13 residents and 7 invited faculty presenters. Resident survey questions included rating of presentation topics, interface, networking opportunities, and educational value. Faculty survey questions included satisfaction, temporal convenience, likelihood of future telelecture participation, and likelihood of telelecture series implementation at speaker's home institution. The survey response rate was 100%. All of the residents expressed satisfaction with topics presented, lecture duration, perceived enhancement of education, and overall satisfaction with the telelecture series. 46% of residents indicated that the telelecture format limited networking opportunities. 72% of faculty reported they would participate in a future telelecture, and 86% indicated interest in integrating telelectures into their home institution educational curriculum. Live virtual telelectures effectively allow experienced facial plastic surgeons to share their operative techniques and management pearls in an interactive and practical format. This is a contemporary solution to bridging knowledge gaps between expert facial plastic surgeons from all corners of the world and the next generation of surgeons.

Keywords

- education
- telecommunication
- resident
- videoconferencing

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Facial plastic and reconstructive surgery (FPRS) is a relatively small subspecialty with many niche topics where expertise is often not locally available. Conventional means of sharing such highly specialized knowledge such as journal publications and national conference presentations are not always feasible for all surgeons. Cost of travel, time, and overall inconvenience are potential roadblocks to having invited guest lecturers deliver live presentations to audiences across the country. Moreover, temporal and financial restraints render conference attendance impractical for many residents.¹ While online streaming media like YouTube (Google Inc.) are becoming increasingly

popular as an alternative FPRS educational source, previous studies have raised concerns regarding the quality and accuracy of such content as they are not curated.^{2–4} Videoconferencing serves as a valuable alternative to bridge geographical and financial barriers, allowing efficient exchange of information between expert and novice.

The use of telecommunication platforms in health care can be traced back as early as 1963.⁵ Now, telemedicine provides real-time specialized education in rural settings, engages interprofessional teams during grand rounds, and aids in undergraduate medical education.^{6–9} However, there

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are few reports of postgraduate tele-education seminars and no prior studies specifically within the otolaryngology literature.^{9–11} Additionally, speakers have not been assessed on their experience in this process in any codified manner. The objectives of this study were to evaluate a monthly educational FPRS telelecture series, assess both resident- and lecturer-perceived satisfaction levels, and identify any perceived areas for improvement.

Materials and Methods

A monthly series of FPRS telelectures were hosted by the Department of Otolaryngology–Head and Neck Surgery at our institution between 2016 and 2018. This is part of an ongoing educational series which started in 1979. Invited speakers included experts in specific subareas of FPRS from around the United States. Special attention was given to topics which would take advantage of speakers' unique expertise and which would complement gaps in the FPRS curriculum at our institution.

Sixty-minute PowerPoint (Microsoft Corp.) presentations were hosted using the Zoom (Zoom Video Communications, Inc.) telecommunications platform, which permits Health Insurance Portability and Accountability Act-compliant, live, high-speed network-based audiovisual (AV) interaction between remote presenters and attendees. Presenters used their laptop or computer microphones and a webcam. Presenters were able to interact live with attendees by means of an auditorium camera and wireless microphones. Each presenter was provided with photographs of the resident cohort and year of training, and they were encouraged to make their presentations interactive. An experienced AV technician was present or available on-demand on the audience side, and aided in Zoom setup and troubleshooting, as needed.

At the end of each presentation, guest lecturers and residents were asked to complete separate web-based surveys to assess their satisfaction with the telelecture format on a Likert scale of 1 (strongly disagree) to 5 (strongly agree) and to recommend areas of improvement (Fig. 1). Both surveys were modified from previously published studies that had similar assessments in this setting.^{7,10,12–14}

Results

The survey response rate was 100%, including 13 residents and 7 invited guest faculty speakers. Ten (77%) residents indicated having a personal interest in FPRS prior to the lecture series. All residents expressed satisfaction with topics presented, lecture duration, perceived educational enhancement, comprehension of topics, and overall satisfaction with the telelecture series. All residents indicated they would recommend the lecture format to other residency programs (Fig. 2). Six (46%) residents reported inadequate networking opportunities, two (15%) residents endorsed insufficient interaction and discussion, and two (15%) residents identified technical malfunctions as disadvantages of the arrangement. One (7.7%) resident preferred in-person lectures over the telelecture series.

Five (71%) guest lecturers reported they would participate in a telelecture again in the future and that this platform saved them time and cost. Three (43%) presenters also reported that this lecture format improved overall convenience. Six (86%) presenters indicated they would be interested in integrating telelectures into their home institution curricula (Fig. 3). Six (86%) presenters endorsed that a disadvantage of the telelecture series is the limited face-to-face interaction with attendees and one (14%) reported the system does not give invited faculty members the appropriate recognition for their effort.

Six (46%) residents offered suggestions for improvement including expanding the platform to other subspecialties ($n = 1$), hosting a video-based expert panel ($n = 1$), having more frequent telelectures ($n = 2$), and incorporating more interactive opportunities ($n = 2$). Four (57%) guest lecturers made recommendations for future sessions including improved technical support ($n = 3$) and a flipped-classroom approach wherein residents present clinical cases ($n = 1$).

Discussion

The rapid evolution of scientific knowledge and technical expertise necessitates advancements in information dissemination. This study shows that live telelectures can serve as an effective adjunct in FPRS resident education. Both residents

RESIDENT SURVEY	GUEST LECTURER SURVEY
Rating scale: Strongly disagree, Disagree, Neutral, Agree, Strongly agree	Rating scale: Strongly disagree, Disagree, Neutral, Agree, Strongly agree
1. Overall satisfaction 2. Satisfaction with topics presented 3. Duration of lecture 4. Telelecture versus in-person lecture 5. Quality of technology 6. Presentation interface 7. Sufficient interaction & discussion 8. Networking opportunities 9. Comprehension of topic 10. Enhance resident education 11. Personal interest in FPRS 12. Recommend telelecture to other programs	1. Improved overall convenience 2. Improved lecture planning/preparation time 3. Any time saved? How much? 4. Overall quality of telelecture 5. Technical issues (list, if any) 6. Likelihood of participation in telelecture compared to in-person lecture 7. Likelihood of participation in telelecture in future 8. Interest in integration of telelecture series into speaker's home institution curriculum 9. Advantages 10. Disadvantages

Fig. 1 Resident and guest lecturer satisfaction surveys.

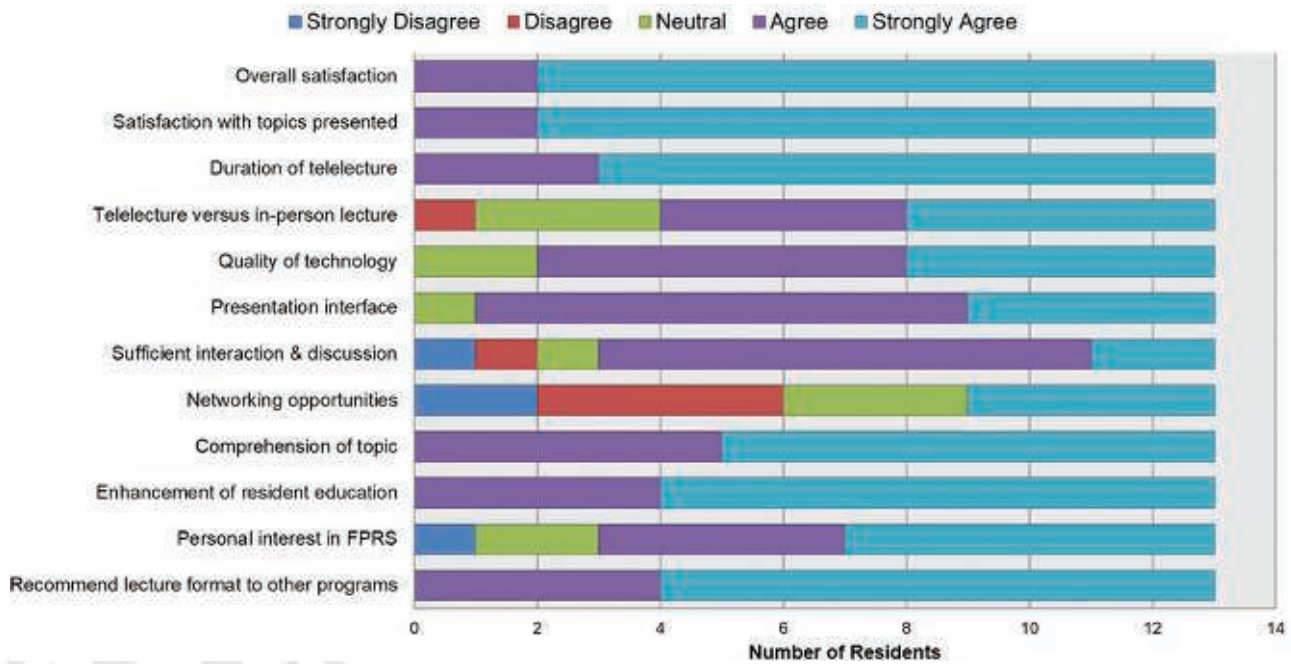


Fig. 2 Resident response to telelecture series survey.

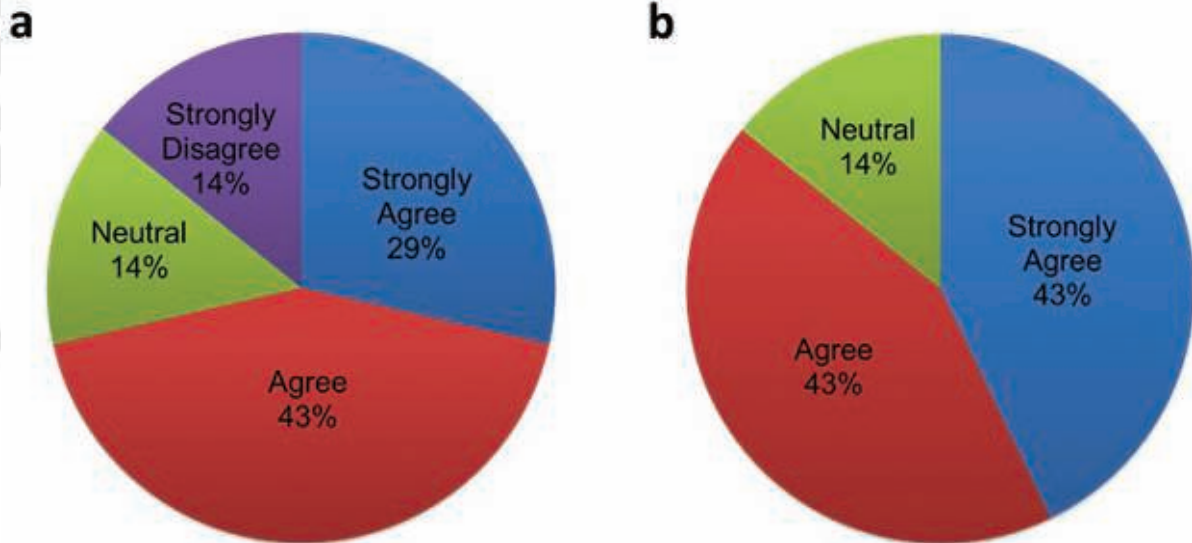


Fig. 3 (a) Faculty interest in future telelecture participation, **(b)** faculty interest in integrating telelecture series at home institution.

and presenting faculty expressed overall satisfaction with the quality and format of these lectures. Moreover, an overwhelming majority of both groups acknowledged the potential benefit of incorporating this technology to other residency programs.

The telelecture educational series offers several noteworthy strengths. It overcomes the temporal, financial, and geographic barriers typically associated with recruiting FPRS faculty. This platform expanded the number and diversity of available presenters and allowed residents to learn from expert FPRS physicians without having to leave their home institution. This may be especially beneficial to provide bespoke educational opportunities from a distance to otolaryngology training programs which have previously reported deficiencies in FPRS

education.¹⁵ Finally, while previous studies have reported overhead costs as a significant barrier to tele-education, advancements in videoconferencing technology through applications like Zoom make incorporation of this system both practical and financially feasible.^{16,17}

There are also limitations to incorporating a live telelecture medium. Learners have previously reported inadequate interaction as a disadvantage of distance education.^{6,17,18} This occasionally drew our residents away from discussing lecture content with presenters. However, their reluctance to engage with lecturers over telecommunications media may be overcome by a more interactive design for the presentations, perhaps involving the use of mobile application-based polls like Mentimeter (Mentimeter AB).¹⁹ Additionally, the video

streaming capabilities were subject to internet connectivity and a knowledgeable AV technician. Although we experienced technical difficulties during the first two lectures, these disturbances were minimized for the subsequent five presentations. We anticipate technical literacy will increase as well, and these issues will be less common.

Gauging the attitudes of all participants was an important first step toward telelecture implementation; however, future works are set to assess their influence on improving learners' knowledge acquisition. To date, there are no guidelines set forth to objectively evaluate the educational value of telelectures; rather, the majority of previous studies present self-reported satisfaction surveys similar to our described questionnaire.²⁰ Few studies have reported the use of different unvalidated instruments and statistical methods to assess knowledge acquisition, mainly through tests taken by participants based on course content.^{9,21–23} However, future investigations are required to develop standardized guidelines for both the implementation and objective evaluation of telelectures in postgraduate education. The concept of postgraduate tele-education is still in its infancy. Herein we demonstrated the potential of telelectures to serve as an important tool to broaden residents' clinical knowledge and technical skills.

Conclusion

FPRS telelectures offer a convenient, time-saving, and low-cost solution for expanding resident education. Additionally, it allows FPRS physician experts to share their knowledge with trainees and colleagues across the globe.

Conflicts of Interest

None.

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