Participants' Evaluation of a Virtual Academic Conference: Report from the 24th Japan Association of Medical Informatics Spring Symposium

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Participants' Evaluation of a Virtual Academic Conference: Report from the 24th Japan Association of Medical Informatics Spring Symposium

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Abstract

The COVID-19 pandemic has caused a shift in the style of academic conferences from in-person to virtual. There have been reports about virtual academic conferences; however, the advantages and disadvantages are not readily apparent from the participants' perspective. This study evaluated a virtual academic conference compared with a conventional one from the viewpoint of participants based on the results of the 24th Japan Association of Medical Informatics Spring Symposium; that association held a virtual conference for the first time.

The conference was conducted in three parallel virtual venues using Zoom® webinars. All the panelists and audience members participated from their own sites. The operating team acted as host control for the Zoom® webinar, master of ceremonies, and monitoring and responding to online comments. Questionnaires using the Google Form were sent by e-mail to all registrants after the conference.

The number of registrants was about twice that in previous years: 2345 in 2020, 1189 in 2019, and 1007 in 2018. The response rate to the questionnaire was 68% (1591/2345). Most respondents said that the virtual conference was better than the conventional one in terms of image quality of presentation slides (75%), being able to concentrate on presentations (77%), session accessibility (59%), and feasibility of asking questions (53%). In contrast, most (63%) respondents stated that the in-person conference was better for communicating with other participants. Finally, 97% (1535/1591) of participants evaluated the virtual academic conference positively.

The virtual conference was highly evaluated by participants because of its advantages compared with conventional ones. However, difficulties in human networking should be addressed in the future.

Keywords:

Medical Education, Virtual Academic Conference, COVID-19, Teleconferencing, Medical Informatics

Introduction

The COVID-19 pandemic has led to greater use of online communication by people the world over. Most local and international events (including exhibits, competitions, and scientific conventions) have been cancelled, postponed, or shifted to virtual events using Internet communication technology (ICT) as a realistic alternative [1-2].

A report in 2005 from the Society of Intelligent Automation Engineering addressed the conducting of a successful academic conference virtually. In medicine, the first complete virtual live conference was reportedly held in 2014 [3]. Those studies show that shifting to a virtual platform can result in logistic simplification, cost reduction, and decreased CO_2 emissions. However, the advantages and disadvantages are not readily apparent from the participants' perspective.

This study evaluated a virtual academic conference compared with a conventional in-person conference from the participants' viewpoint. It was based on the results of the 24th Japan Association of Medical Informatics Spring Symposium, which was held as a virtual conference for the first time.

Materials and Methods

The present study examined the 24th Japan Association of Medical Informatics Spring Symposium, which was held on June 5–6, 2020. Owing to the COVID-19 pandemic, it was a virtual symposium for the first time in the association's history. The conference allows participants to receive points for taking part: those points are needed to update participants' licenses as Healthcare Information Technologist or Senior Healthcare Information Technologist. Registration fee was set as 6000 yen for members, 7500 yen for non-members, and 3000 yen for students. The fees of the members and non-members were 1000 yen higher than those of previous years, whereas the same fee for students.

The virtual conference consisted of three systems: registration, conference management, and videoconferencing (VC). Participants conducted registration and payment through the registration system of JTB Corporation, Tokyo. Registrants re-ceived an ID from the Confit® (Atlas Co., Ltd., Tokyo), a conference

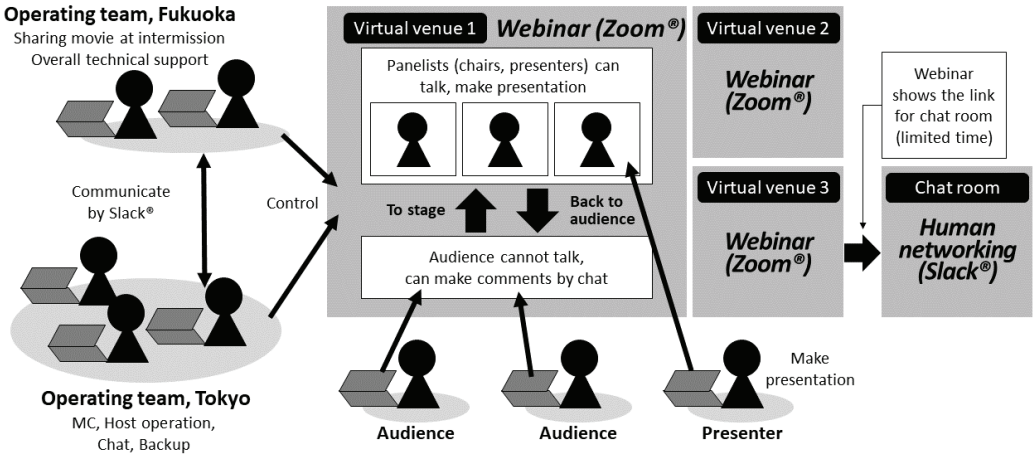

Figure 1- Framework for operating virtual venues. MC, master of ceremonies.

management system. Presenters submitted their abstracts and presentation files to Confit®; the program committee managed the presentations and organized time schedules using that system. On the day of the event, participants connected to each session using the Zoom® (San Jose, CA) webinar links that were posted on Confit®. The videos from parallel sessions were mixed into one Youtube® (YouTube, San Bruno, CA) stream. Webinar links were added so that participants could monitor sessions at other venues.

Figure 1 shows the framework for operating the virtual venues. There were three such venues. The first was a webinar that could accommodate 3000 audience members and 100 panelists; the second and third venues could each accommodate 1000 audience members and 100 panelists. In a webinar, there were two possible roles for a participant: panelist or audience member. The panelists (which included the moderator, presenter, and discussants) conducted a discussion; the audience members listened and watched the audio-video presentation and could make comments by chat. All the participants used the same link on the conference program. The operating team changed the roles of the participants from audience member to panelist—and vice versa—as appropriate. There were 30 operating team members at Akiba Plaza, Tokyo and five at Kyushu University Hospital, Fukuoka. The operating team staff were selected from association members who responded to the request for technical assistance. All other panelists and audience members participated from their own sites. The operating teams were set separately in Tokyo and Fukuoka for two reasons. First, there were travel restrictions owing to COVID-19. The second concerned risk distribution, e.g., preventing operational failure if the network of one team encountered serious problems. The operating team was responsible for such matters as controlling Zoom®, being the master of ceremonies, and monitoring and responding to posted comments. All the operating team members communicated using Slack® (Slack Technologies, San Francisco, CA) [4]. To control the parallel sessions, the operating team comprised at least four people at each of the three venues. Training programs for the operating team began 2 weeks before the conference. All panelists were asked to take part in a rehearsal a few days before the conference. The operating team also conducted rehearsals for audience members whenever necessary. The presentation files were shared by each presenter. As a backup, the operating team collected all the presentation materials. Two 100-minute sessions for personal conversations among audience members were set at the third venue on the 2nd day. In these sessions, a link to a Slack® chat room was displayed in the webinar to invite participants to that space.

Questionnaires using Google Form (Google LLC, Mountain View, CA) were sent by e-mail to all registrants after the conference. Details about the number of registrations, conference programs, and advertisements for the past 3 years were obtained from the secretariat of the Japan Association of Medical Informatics.

Table 1- Numbers of registration, sessions, presentations, and advertisements

	2020 Virtual	2019 In-person	2018 In-person
Number of registrants	**2345**	**1189**	**1007**
Number of sessions	**35**	**38**	**36**
Keynotes, special lectures	9	7	5
Oral presentations	17	15	18
Posters	4	4	4
Tutorials	3	8	5
Sponsored seminars	2 (2 cancelled)	4	4
Number of presentations	**96**	**92**	**76**
Keynotes, special lectures	27	14	8
Oral presentations	17	15	18
Posters	46	49	38
Tutorials	3	8	5
Sponsored seminars	3	6	7
Number of advertisements	**2**	**57**	**50**
Exhibitions	0 (22 cancelled)	47	37
Printed materials and web sites	2 (1 cancelled)	10	13

Results

Program

The numbers of registered participants, sessions, presentations, and advertisements appear in Table 1. There were no major differences in total number of sessions and presentations over the 3 years. By contrast, the number of registrants in 2020 was about twice that in previous years; 2345 in 2020, 1189 in 2019, and 1007 in 2018. The number of advertisements significantly decreased. In 2020, all 22 exhibitions were cancelled owing to lack of exhibition space; that compares with the 40 exhibitions held in the previous 2 years. The number of sponsored seminars also decreased by half: from four to two.

A screenshot of a webinar appears in Figure 2. There was no need for a backup presentation to be used: all the presenters successfully shared their presentations. In all, 23% (531/2345) of participants registered in the Slack® chat room.

Figure 2- Screenshot of the conference as seen by audience members: a presentation slide appears on the left and panelists on the right.

Participant characteristics

The questionnaire response rate was 68% (1591/2345). The respondent characteristics appear in Table 2. Most respondents were affiliated to hospitals (46%); that was followed by companies (37%). Those affiliated to university and research institutions comprised 12% (195/1591). Regarding occupation, hospital staff other than physicians and nurses accounted for almost half (42%); they were followed by company staff (38%). Most (91%) respondents participated from their home or office. Furthermore, 129 respondents participated from both the home and office. Of these, many participated from the office on the 1st day (Friday) and from home on the 2nd day (Saturday). Almost all respondents (93%) incurred no additional system costs. Among respondents with additional costs, it was less than 3000 yen for 77% (83/108). Regarding devices, most respondents used a personal computer (PC) (70%). Over half (54%, 1059/1979) employed a wireless optical fiber network; that was followed by a wired network (30%); 15% used a mobile network. In all, 12% (24/197) of presenters made special preparations for the virtual conference, such as lighting, background screens, and participating in rehearsals. There were participants from all Japan's 47 prefectures; they were mainly concentrated in cities (Figure 3). There was one participant from the United States.

Table 2- Respondent characteristics

Affiliation (n = 1591)		
University hospital, research institution	195	12%
Hospital	737	46%
Company	593	37%
Other	66	4%
Occupation (n = 1704)*		
Researcher	195	11%
Physician	87	5%
Nurse	41	2%
Other hospital staff	721	42%
Company staff	641	38%
Student	19	1%
Place of participation (n = 1591)		
Home	997	63%
Office	441	28%
Both home and office	129	8%
Other	24	2%
Equipment used (n = 2125)*		
PC (desktop or laptop)	1483	70%
Tablet	276	13%
Mobile phone	366	17%
Kind of network used (n = 1979)*		
Optical fiber network (wired)	587	30%
Optical fiber network (wireless)	1059	54%
Mobile network	302	15%
Others	31	2%
Additional cost for participation (n = 1591)		
None	1483	93%
Network	57	4%
Devices	29	2%
Other	22	1%
Cost for participation (n = 108)**		
< 3000 yen	83	77%
3001–10000 yen	21	19%
10001–50000 yen	3	3%
> 50000 yen	1	1%

* Multiple choice, ** if applicable; PC, personal computer

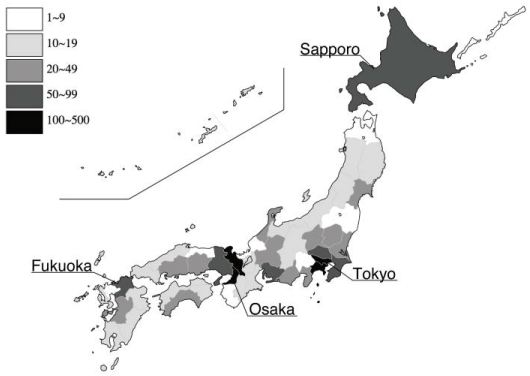

Figure 3- Distribution of respondents' locations

Quality evaluation

Almost all the participants made positive evaluations about the audio (96% stated "very good" or "good") and image quality (98%) as well as accessibility to the sessions (85%), being able to concentrate on the presentations (86%), and feasibility of asking questions to presenters (91%). However, most (60%) respondents gave negative ratings for communication with other participants (Figure 4). Around one-third of respondents experienced technical issues, such as audio (34%) and image disruption (27%). Most respondents, however, experienced no technical issues (Figure 5).

Virtual compared with in-person conference

Most respondents stated that the virtual conference was better than the conventional one in terms of image quality of presentation slides (75%), being able to concentrate on the presentations (77%), session accessibility (59%) and feasibility of asking questions (53%). In contrast, most (64%) respondents said that the in-person conference was better for communication with other participants (Figure 6). Overall, 97% (agreed, 73%; somewhat agreed, 24%) of respondents gave positive rating for the virtual conference.

Discussion

Advantages of a virtual academic conference

Holding a virtual academic conference made it easier for people to take part and led to double the number of participants. Not having to spend time travelling has benefits—especially for individuals who are busy with daily work. Through the virtual academic conference, many participants were able to update their licenses. Almost all participants were able to take part at no additional cost: they could join the virtual conference easily using existing PCs, tablets, and networks. Without transportation and accommodation fees, the actual expense for the participants seemed to be much less even though the registration fee was set higher than previous years. This time, there were participants from all Japan's prefectures. A conference held this way offers equal chance to participate regardless of location, with minimized cost and CO_2 emissions. These benefits increase with participants from more remote locations. At this conference, there was one participant from the United States. A virtual conference easily allows people to participate from other countries, and so the format should be attractive for international conferences.

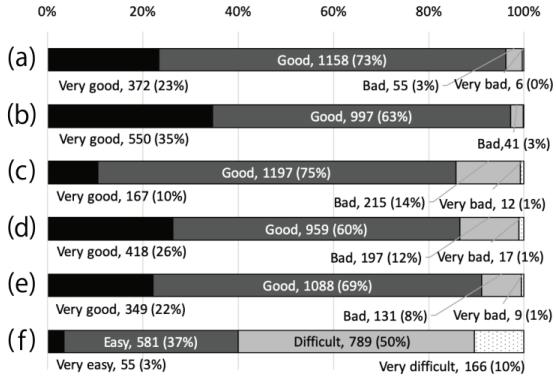

Figure 4- Quality evaluation
(a) audio quality, (b) image quality of presentation slides, (c) session accessibility, (d) being able to concentrate on presentations, (e) feasibility of asking questions to presenters, (f) communication with other participants

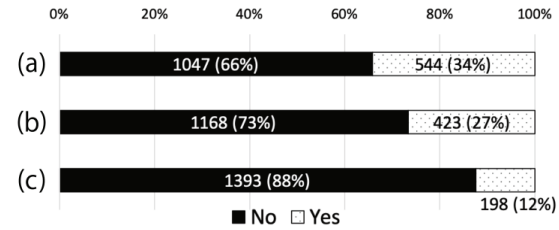

Figure 5- Technical issues
(a) audio disruption, (b) image disruption, (c) disconnection during Zoom® webinar

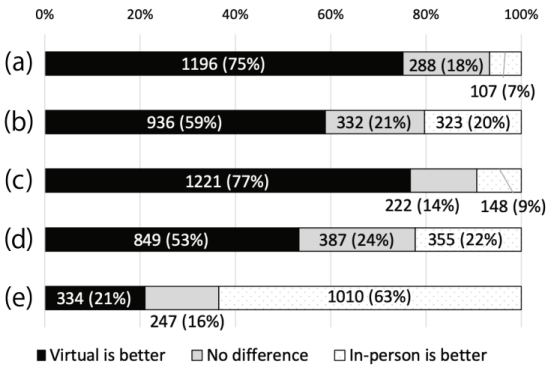

Figure 6- Evaluation of virtual versus in-person conference
(a) image quality of presentation slides, (b) session accessibility, (c) being able to concentrate on presentations, (d) feasibility of asking questions to presenters, (e) communication with other participants

In a virtual academic conference, participants are better able to concentrate on the presentations in the familiar surroundings of their homes or offices. Participants are not distracted by other people: they can watch and listen to the presentations alone in a relaxing, quiet place. To get a better, comfortable view of presentation slides, participants can adjust the monitor's position. Some comments indicated that participants were able to learn more effectively: they could concentrate on the presentations. Questions can be posted online, which is easier than raising a hand and speaking up with many participants watching. Moderators can monitor the posted questions, select some, and give them to the presenter. With these advantages, 97% (1535/1591) of respondents evaluated the virtual academic conference positively.

Disadvantages of a virtual academic conference

Some studies have identified the difficulties of human networking in virtual academic conferences[1-2]. It is easy to arrange an online conference to accommodate some panelists and a huge number of audience members. In that way, the audience members can interact with panelists, but it is difficult for them to communicate freely with other participants. Unless the participants are panelists, it is difficult to meet other participants for the first time. With the conference presented here, chat rooms were prepared for human networking, but only a limited number of participants used them; thus, communication among individuals was not satisfactory.

In this regard, a new setup or system is required. Remo (Remo Inc., Valencia, CA) provides individual networking. For a conference, a room appears on-screen with some tables and individuals shown as icons. Participants can communicate by videoconferencing with the members located virtually at the same table; they can move at any time to different tables and talk to other groups. SpatialChat (FunCorp Lab, Moscow) offers more organic communication. Participants can move freely in a 2-D space and interact with others by audio-video links and posting contents. The audio level is controlled according to the distance from other people. Participants can look at what is being discussed in the space and move closer to people they want to communicate with. Virtual reality (VR) technology actualizes networking using avatars in a 3-D space. Since the COVID-19 pandemic, millions users have played the game Animal Crossing: New Horizons (Nintendo Ltd., Kyoto), and interacted with others in the virtual space using their avatars. VirBELA (VirBELA LLC, La Jolla, CA) [5], Second Life® [6], and Cluster (Cluster Inc., Tokyo) provide virtual conference space using VR technology. All these systems allow easier interaction among individuals and could help improve communication. Neill et al. [7] reported that social media spread and deepened networking at a conference. Here, such social media as Twitter® (Twitter, San Francisco, CA) and Facebook® (Facebook Inc., Cambridge, MA) may be a realistic option: people already communicate online with one another using their existing networks.

At the conference presented here, sponsorship was limited: no exhibition was set up, and there was limited space for advertisements. Failure to get sponsors' support is not a direct disadvantage for participants; however, it is essential for the sustainability of academic conferences. Therefore, a system for sponsors should be addressed. Some VC systems offer advertisement settings to show the banners and logos of various companies. In VR systems, users can create exhibition spaces. However, it is not clear to what extent a company can present the appeal of a product to participants using a VR system. It is also doubtful whether participants would actually access a virtual exhibition booth since during breaks at a virtual conference, participants do not need to stay at a venue; they can do as they please. Virtual academic conferences offer a potential increase in the number of participants, so efficient advertising systems should be developed to attract sponsors.

Audiovisual transmitting quality

The audiovisual transmitting quality was evaluated highly by participants from around Japan, who had wireless and wired Internet connections through their PCs and tablets with the cloud VC system. The basic ICT environment appeared to be adequate for VC in Japan. The COVID-19 dynamically changed our lives to online in scenes of business and private. Network companies provide broader bandwidth, and VC systems have rapidly improved transmitting quality. However, even if the infrastructure is satisfactory, participants cannot successfully take part or make presentations if they lack proper technical skills. At the conference presented here, thorough preparation led to success: training programs were conducted for operating staff members, panelists, and audience members. The association is related to information technology, so individuals' basic technical skills appeared high.

Around one-third of participants did, however, experience audio and video disruptions. Changing from a wireless and mobile network to a wired network could help improve this situation. Wireless networks were used by most participants owing to convenience, such as no cable restrictions. The wireless network infrastructure will evolve to a new generation, which will enable more stable, broader bandwidth. When 5G is implemented, it will be applied in various fields, including health care [8–10].

Limitations

The present study lacks a statistical analysis. A detailed analysis is necessary to examine more closely the advantages and disadvantages of a virtual conference. Although it was easy to post questions online, obtaining responses was not promising. Thus, participants who did not receive answers to their questions may have been unsatisfied with the virtual conference. Qualitative research to analyze participants' comments is also needed to determine their impressions when participating in a virtual conference. A multidisciplinary approach to research is also required. With other specialties and academic associations, there may be less of an increase in the number of participants at a virtual conference unless there are incentives, such as being able to renew specialist licenses. It is necessary to conduct further studies with respect to cost analyses and CO_2 emissions about holding virtual academic conferences in Japan.

Conclusion

This study determined that a virtual academic conference was highly evaluated by its participants owing to its advantages compared with conventional conferences. However, the problems with human networking should be addressed in the future.

Acknowledgments

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