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Awareness Changes in Participants in Online Symposiums — Observations from Pre- and Post-Questionnaire Survey Results

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Abstract

This study aims to clarify the changes in participants' awareness of an online symposium on MICE held during the COVID-19 pandemic. Authors compared and analyzed the results of a questionnaire survey conducted before and after the symposium targeting practitioners involved in attracting international conferences. The analysis showed that post-symposium evaluations increased in areas such as networking, understanding of infectious disease countermeasures, and interest in local resources, indicating that the symposium contributed to raising participants' awareness. On the other hand, evaluations of VR and AI technologies settled at a realistic level due to an understanding of their limitations. Concerns about the decrease in international conferences were also somewhat alleviated by the prospect of a future recovery. In addition, discriminant analysis showed that the correct answer rate for the classification of pre- and post-symposium responses was 96.7%, confirming a clear change in participants' awareness. This study provides suggestions for the form of international conferences and strategic information provision in the post-COVID era.

Keywords: MICE, international conferences, COVID-19 pandemic, awareness change

1 Introduction

The purpose of this study is to consider changes in participant awareness due to a symposium. In this study, authors compare the results of a pre-questionnaire survey and a post-questionnaire survey of symposium participants to clarify changes in participant awareness. The symposium in question was held online in 2021, when the COVID-19 pandemic was in full swing. This symposium discussed attracting international conferences in the post-COVID era, and many of the participants were convention and visitor bureaus working to attract international conferences across Japan.

Conventions or conferences are sometimes referred to as part of the term "MICE," which is an acronym for Meeting, Incentive, Convention, and Exhibition/Event, and is a general term for all business events. It has a greater economic ripple effect than general tourism, contributing to increased consumption, job creation, and tax revenue in the region. For example, in 2016, it generated an economic effect of over 1 trillion yen and created approximately 96,000 jobs. It is

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also an important sector that contributes to business exchanges, promotion of innovation, and improvement of a city's brand power.

During the COVID-19 pandemic in 2021, many international conferences were held online to prevent the spread of infection, and there has been growing concern that the number of face-to-face international conferences will decrease in the future. Against this background, the authors organized this symposium to hold a multifaceted discussion on the significance and necessity of holding face-to-face international conferences locally.

In the first place, MICE-related events, such as international conferences, are known to have a significant economic ripple effect in the host city through accommodation, food and beverage, transportation, tourism, and the creation of business opportunities. On the other hand, it is a fact that has been repeated throughout history that when people's movements are restricted due to infectious disease epidemics or natural disasters, the entire tourism industry is seriously affected. International conferences are no exception, and as events that welcome many foreign participants, they are extremely vulnerable to external factors. Nevertheless, face-to-face international conferences have value that cannot be fully replaced by online events in that they enable the building of personal networks, deep intellectual exchange, and direct experience of local culture. Therefore, when considering the future of international conferences, it is necessary to go beyond simply choosing the format of the conference. We must also develop new conference strategies that regard sustainability, risk management, and regional collaboration.

Thus, attracting international conferences to Japan is positioned as one of the important pillars of promoting inbound tourism. In particular, with the declining birthrate and aging population, high-value-added business events such as international conferences are of great significance in terms of contributing to regional revitalization, such as acquiring foreign currency through consumption by foreign visitors to Japan, as well as having an economic ripple effect on the host region and increasing international recognition.

Therefore, this study will clarify how participants' awareness has changed by discussing the above points at a symposium the authors hosted. While taking the lessons of the COVID-19 pandemic as a lesson, it is extremely important to reaffirm the advantages of international conferences and understand the significance of face-to-face meetings in reconstructing future MICE strategies. In particular, even as hybrid events and the use of digital technology progress, the accidental encounters and deep trust that come from face-to-face interactions are at the core of the original value of MICE. Therefore, the analysis of the changes in participants' awareness obtained through this study is believed to provide useful suggestions for considering the state of international conferences in the post-COVID era.

The remainder of this paper is composed as follows: Backgrounds of MICE and literature reviews are summarized in Section 2. Methodology and analysis results are explained in Section 3. Considerations are provided in Section 4. Finally, Section 5 concludes the paper.

2 Background and Literature Review

2.1 Background along with COVID-19

Japan began to focus on inbound tourism with the 2003 "Visit Japan Campaign (VJC)." This marked a major turning point, as the country also began to focus on attracting international

conferences. The Japanese government launched the VJC with the aim of increasing the number of foreign visitors to Japan, and the MICE (Meeting, Incentive, Convention, Exhibition) sector was positioned as a priority policy. The 2010 "Basic Plan for Promoting a Tourism Nation" also pointed out the importance of MICE, and MICE began to be strategically supported as something that contributes to regional revitalization and economic revitalization. Hosting international conferences was seen as a way to attract high-value-added visitors to Japan, and JNTO (Japan National Tourism Organization), local governments, and convention and visitor bureaus stepped up their efforts to attract them. Japan's convention and visitor bureaus are specialized organizations that attract and support MICE (International Conferences, Exhibitions, Academic Conferences, Corporate Events, etc.) to their local areas. They work with local governments, tourism associations, economic organizations, etc. to promote the attractions of the host city both domestically and internationally, and provide support to organizers in venue selection, accommodation, transportation, interpretation, attraction arrangements, etc. Many municipalities have established convention and visitor bureaus with the aim of revitalizing the local economy and raising international recognition.

In addition, after 2011, international conferences were actively held in Japan with the aim of recovering and re-disseminating Japan's image after the Great East Japan Earthquake, and it also played an important role in the sense of "reconstructing the Japan brand." Furthermore, in 2016, the Ise-Shima Summit was held, which became the basis for confidence and achievements in hosting international conferences in various regions. The number of international conferences held in Japan continued to increase after 2016, and at that time, the Japanese government set a goal of attracting 40 million foreign tourists to Japan in 2020, and in addition to attracting international conferences, MICE-related events, such as the Tokyo Olympics, were positioned as one of the important measures to achieve that goal. However, since 2020, the number of face-to-face international conferences has decreased sharply due to the spread of the new corona-virus infection, as shown in Figure 1. Many conferences were canceled, postponed, or switched to online hosting, which has dealt a major blow to the entire MICE market. According to data from the JNTO (Japan National Tourism Organization), the number of international conferences held fell from 527 in 2019 to less than half in 2020.

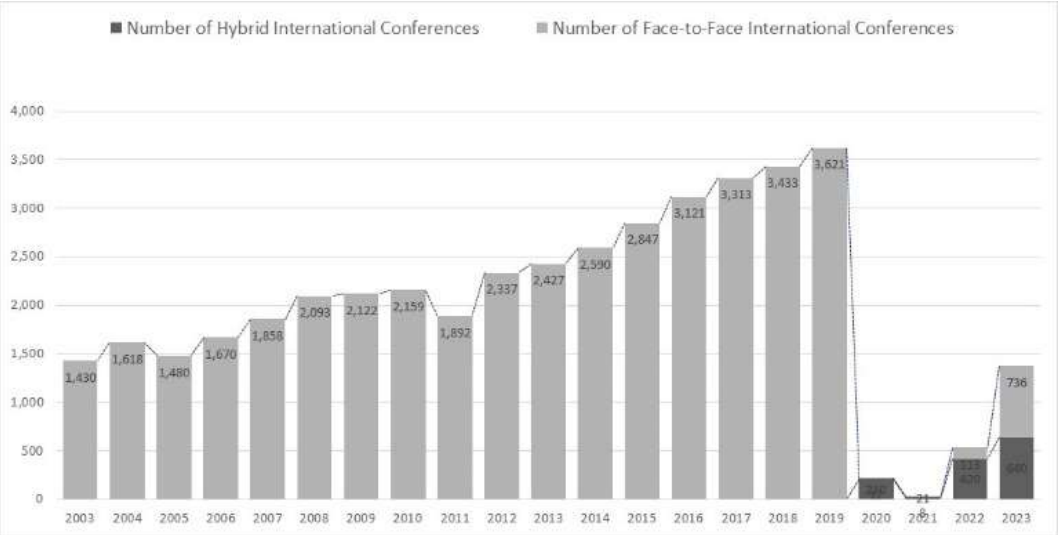

Figure 1: Number of international conferences held in Japan (2003-2023)
(Source: Created by the authors from the JNTO database)

During the COVID-19 pandemic, attracting online and hybrid (face-to-face on top of online) conferences has become mainstream. As a result, convention and visitor bureaus and local governments in Japan have strengthened new initiatives such as ICT infrastructure development, distribution support, and provision of virtual venues. The Japanese government, the Japan Tourism Agency, and local governments have supported MICE attraction activities through hybrid conference support subsidies and subsidies for infectious disease control costs, with the aim of revitalizing MICE attraction. In addition, JNTO has taken measures such as "MICE venue promotion" and "provision of guidelines on infectious disease control" to increase organizers' sense of security. recognition.

Since 2022, when the infection situation began to calm down, Japan has been focusing on the recovery of face-to-face events and re-accelerating MICE attraction. In particular, Japan has been actively attracting MICE in a competitive environment centered on Asia, using "Japan's high safety," "reliability of technology," and "diversity of tourism resources" as weapons. Signs of recovery are beginning to become clear, with Japan becoming the country that hosts the most international conferences in Asia in 2023.

2.2 Literature Review

Previous studies on international conferences and academic meetings have pointed out that they bring various benefits to participants, such as knowledge sharing, networking, and research motivation. For example, Hauss [1] points out that the social and scientific benefits of conferences include the acquisition of specialized knowledge, as well as the opening up of opportunities for researchers to meet and engage in future collaborative research. In addition, Hashemi et al. [2] revealed the indirect effect of trust and attitudes on knowledge sharing behavior among participants of an international convention held in Malaysia, indicating that the quality of social networks is key to knowledge sharing.

Chapman et al. [3] revealed that conference participation can be a "gateway" for doctoral students to promote their participation in professional communities. Cherrstrom [4] further stated that conferences are a place of meaningful learning not only through formal sessions but also through informal interactions during lunch and breaks. In addition, Cherrstrom placed conferences as a valuable place to "build connections."

In addition, with regard to knowledge sharing in university education, Fullwood et al. [5] point out that while knowledge sharing within academic communities tends to be autonomous and individualistic, conference participation provides an important opportunity for sharing within that culture. Furthermore, Lee [6] shows that the quality of international conferences (e.g., selection rate, number of papers, and internationality of collaboration) significantly influences the number of citations of presented papers. Lee also points out that the characteristics of the conference itself may determine the ripple effect of research results.

In a study focusing on students and young researchers, Kuzhabekova and Temer-bayeva [7] found that conference participation plays an important role in the socialization of doctoral students, and that repeated participation leads to improved self-awareness and the acquisition of autonomy as a researcher. Similarly, Malinovska [8] demonstrated that student presentations at international conferences contribute to the development of language skills and intercultural

communication skills.

In a study on online conferences since the pandemic, Roos et al. [9] cited the advantages of online conferences as “low barrier to participation” and “possibility of supporting young researchers,” suggesting that hybrid conferences may become mainstream in the future. Valenti et al. [10] evaluated the effectiveness and challenges of virtual conferences, which have rapidly expanded due to COVID-19, based on a SWOT analysis, and stated the need for flexibility in designing future conferences.

Our study focuses on “symposiums” that include general participants with diverse backgrounds, rather than traditional international conferences mainly attended by re-searchers. Another important feature is that the symposiums covered by this study were held online due to the impact of COVID-19. This allows us to observe changes in consciousness in the experience of participating in a form different from traditional face-to-face conferences. Previous research has widely recognized that participating in conferences is beneficial for participants, but there has been limited research that quantitatively examines the “change” in consciousness itself. In particular, this study fills the gap with previous research in terms of examining how participation in a new form, online, affects consciousness. .

3 Methodology

3.1 Explanation of the Symposium

In this study, authors conducted pre- and post- questionnaire surveys for the 8th International Tourism and Convention Symposium (ITCS 2021), which was held online on October 12 and 26, 2021. This symposium was held in two parts, and each part discussed the challenges and prospects of international conferences in the with-COVID and post-COVID periods. eras. University researchers took to the stage as speakers and shared the results of their research on the management of academic conferences and the motivations of participants.

Participants in this symposium included staff from convention and visitor bureaus across the country involved in attracting international conferences, as well as representatives from MICE-related organizations, local governments, companies, universities, and other relevant parties. The program of this symposium was divided into three parts. First, the lecture part, which was live-streamed and recorded, featured trends in conventions in the with-COVID and post-COVID eras, examples of the introduction of cutting-edge technology in international conferences, an explanation of organizer duties for beginners, and the results of a survey on participants' motivations for interacting with each other at social events. Second, a small-group workshop was held using Zoom, where participants were divided into small groups and actively exchanged opinions with the facilitation of experts. The discussion focused on themes such as regional efforts to recover inbound tourism, the balance between hybrid and on-site events, and the creation of a management system to deal with infectious disease risks, and participants shared practical knowledge based on their work experience. Third, an online discussion was held using the AI discussion support tool "D-Agree" during the two-week period between the two-day symposium. In this asynchronous discussion, participants continuously posted their opinions on the themes discussed in the workshop, and two-way and in-depth discussions were held.

There are 73 convention and visitor bureaus in Japan that are members of the Japan Congress and Convention Bureau (JCCB), a general incorporated association. The subject of this study, the ITCS 2021, was attended by many organizations involved in attracting international conferences from all over Japan, as summarized in Tables 1 & 2.

Table 1: Convention and visitor bureaus from around Japan who participated in this symposium

Convention and Visitors Bureaus (CVBs)
Sendai Tourism, Convention and International Association (Miyagi Prefecture)
Koriyama Convention Bureau (Fukushima Prefecture)
Maebashi Convention & Visitors Bureau (Gunma Prefecture)
Tokyo Convention & Visitors Bureau (Tokyo Metropolis)
Yokohama Convention & Visitors Bureau (Kanagawa Prefecture)
Kanazawa Convention Bureau (Ishikawa Prefecture)
Gifu Convention and Visitors Bureau (Gifu Prefecture)
Hamamatsu and Lake Hamana Tourism Bureau (Shizuoka Prefecture)
Nagoya Convention & Visitors Bureau (Aichi Prefecture)
Kyoto Convention & Visitors Bureau (Kyoto Prefecture)
Osaka Convention & Tourism Bureau (Osaka Prefecture)
Kobe Tourism Bureau (Hyogo Prefecture)
Takamatsu Convention & Visitors Bureau (Kagawa Prefecture)
Wakayama Tourism Federation (Wakayama Prefecture)
Kitakyushu Convention and Visitors Association (Fukuoka Prefecture)
Fukuoka Convention & Visitors Bureau (Fukuoka Prefecture)
Kumamoto International Tourism and Convention Association (Kumamoto Prefecture)
Kagoshima Convention & Visitors Bureau (Kagoshima Prefecture)
Okinawa Convention & Visitors Bureau (OCVB) (Okinawa Prefecture)

Table 2: MICE-related organizations, local governments, universities, and individual businesses that participated in this symposium

MICE-related organizations/Local governments/Universities/Individual businesses
Japan National Tourism Organization (JNTO)
MICE Japan Co., Ltd.
PACIFICO Yokohama / Yokohama International Peace Conference Center
Urasoe City Office (Okinawa Prefecture)
Okinawa Institute of Science and Technology Graduate University (OIST)
Ginowan City Office, Division of Tourism, Agriculture and Fisheries (Okinawa Prefecture)
Tokyo Metropolitan University of Advanced Industrial Technology
Meeting Planning Consultant

3.2 Explanation of the Survey

In this study, authors conducted pre- and post-questionnaire surveys to measure the effects of the ITCS 2021. The pre-questionnaire survey was conducted to understand the interests and expectations of the participants, and the post-questionnaire survey was conducted to analyze changes in awareness after the symposium. A total of 35 responses were collected in the pre-questionnaire survey, and 26 in the post-questionnaire survey.

Participants for this symposium were recruited openly from CVBs, local governments, universities, and MICE-related organizations nationwide, and participation was completely voluntary. Information emails were sent out in advance, and participants were recruited through an application form. Regarding dropouts, the response rate for the post-event survey was 74.3% (26 people), and some participants did not respond due to dropping out midway through the event or being busy with work.

The pre-questionnaire survey investigated the recovery of the convention industry in the COVID-19 era, the factors promoting online and hybrid conferences, and interest in regional branding and event strategies. The authors also measured awareness of the decline in the number of events attracted and held, the increase in costs due to infection control measures, and the change in the need for face-to-face meetings, and asked for opinions on the inducements for on-site events and the importance of infection prevention measures.

The post-survey analyzed changes in interest and awareness after participating in the symposium. The authors examined changes in awareness of the challenges in the convention industry and the hosting strategy, and compared evaluations of the inducements for on-site events and the importance of infection prevention measures. In addition, the authors surveyed the overall satisfaction of the symposium and expectations for the next one, and examined the impact on raising participants' awareness. Based on the results of this survey, the authors aimed to obtain suggestions on how conventions should be held in the COVID-19 and post-COVID era.

3.3 Data Analysis

The questionnaire was created by the executive committee with reference to past MICE-related research and practice reports. To ensure the validity of the content, it was revised after being reviewed by multiple MICE experts.

The pre- and post-questionnaire surveys consisted of questions centered on the state of the convention business and conferences in the with- and post-COVID periods, willingness to participate, and awareness of support for organizers, with many questions using a five-point Likert scale (e.g., "strongly agree" to "not at all agree"). In the analysis, the authors first compared the average values of the common questions and calculated the amount of change in awareness. This clarified which items in participants' awareness changed positively (increased) or negatively (decreased), and the authors evaluated the impact of the symposium by arranging them in order of the largest difference and adding an interpretation. Next, authors used discriminant analysis to statistically compare the responses to the pre-survey and post-survey to verify whether there was

a significant difference between the two. The purpose of this method was to confirm whether the change in participants' awareness could be statistically justified.

3.4 Analysis Result

In order to compare the effectiveness of this symposium, the means of pre-questionnaire survey and those of post-questionnaire survey are compared. The number of samples is 35 for the pre-questionnaire survey and 26 for the post-questionnaire survey, respectively. The difference between the average of pre-survey and that of post-survey is was then taken. The questionnaire with the larger amount of change in both positive and negative was focused on. These results are summarized in Tables III and IV. The means of 35 samples of pre-questionnaire survey are shown in the column entitled "Pre_Mean," while those of 26 sample of post-questionnaire survey are summarized in the column entitled "Post_Mean." These differences of means are shown in the column entitled "Diff." Positive value indicates positive reactions after those questionnaire surveys, while negative value shows negative reactions.

From the results shown in Table 3, the question Q4_3 "Networking" shows the biggest positive reaction. This question is followed by Q2_5 "Increasing cost per convention host due to heightened expectation of infection control," Q6_10 "Infection information for local area," and Q4_5 "Sightseeing resources around venue."

Table 3: Questionnaire items with positive results in the post-questionnaire survey

Question	Details of Question	Pre_Mean	Post_Mean	Diff
Q4_3	Networking	4.51	4.69	0.18
Q2_5	Increasing cost per convention host because of heightened expectation of infection control	3.60	3.73	0.13
Q6_10	Infection information for local area	4.46	4.58	0.12
Q4_5	Sightseeing resources around venue	4.23	4.35	0.12

On the other hand, From the results shown in Table 4, the question Q2_2 "Concerns over decreasing number of conventions hosted by our country" shows the largest negative reaction. This question accompanies a questions Q1_2 "Usage of VR during online meetings," Q2_4 "Concerns over the influence of convention industry due to weakening of tourism industry," Q1_4 "Discussion support system using AI," Q2_7 "Difficulty of meeting the demands for a more attractive promotion campaign overseas" and Q6_6 "Putting limitations on attendance."

Table 4: Questionnaire items with negative results in the post-survey

Question	Details of Question	Pre_Mean	Post_Mean	Diff
Q2_2	Concerns over decreasing number of conventions hosted by our country	3.80	3.23	-0.57
Q1_2	Usage of VR during online meetings	4.31	3.77	-0.55
Q2_4	Concerns over the influence on the convention industry due to the weakening of tourism industry	3.49	3.00	-0.49
Q1_4	Discussion support system using AI	4.00	3.58	-0.42
Q2_7	Difficulty of meeting the demands for a more attractive promotion campaign overseas	3.77	3.38	-0.39
Q6_6	Putting limitations on attendance	4.46	4.12	-0.34

To improve the reliability of the pre- and post-questionnaire surveys in this study, discriminant analysis was conducted on 61 samples (35 pre- and 26 post-questionnaire survey). Cross-tabulation of the discriminant analysis is summarized in Table 5. From these results, prediction accuracy is 96.7%, since 59 out of 61 samples are classified into correct predictions.

Table 5. Results of discriminant analysis of pre- and post-questionnaire surveys

		Prediction		
		Pre-event	Post-event	Total
Observation	Pre-event	34	1	35
	Post-event	1	25	26
	Total	35	26	61

4 Discussion

As a whole, the post-evaluations were higher than the pre-evaluations for all items, suggesting that the program had a positive impact on participants.

First, for “networking (Q4_3),” the pre-survey average was 4.51, while the post-survey average was 4.69, an increase of 0.18 points, showing the most significant change. This symposium was held online because it was held during the COVID-19 pandemic, but it is believed that the importance of interaction between participants and personal networks was reaffirmed through this program. Next, for “increase in costs for the organizers due to strengthened infection control measures (Q2_5),” the pre-survey average was 3.60, while the post-event average was 3.73, an increase of 0.13 points. This change is believed to be due to the increased importance of measures against infectious diseases, such as COVID-19. For “infection information at the venue

(Q6_10)," an increase of 0.12 points was confirmed, from a pre-survey average of 4.46 to a post-event average of 4.58. This suggests the need to provide appropriate information on the infection situation so that participants can participate with peace of mind. Furthermore, for "tourism resources around the venue (Q4_5)," the pre-survey average was 4.23, and the post-survey average was 4.35, a similar increase of 0.12 points. Naturally, online meetings have no economic ripple effect on the region compared to face-to-face participation. This symposium pointed out the importance of face-to-face participation in the post-COVID era, and included elements that stimulated interest in local tourism resources, suggesting that participants' understanding and interest in the region increased. It became clear that this program had a multifaceted beneficial impact on participants, such as promoting personal exchange, understanding of the organizers' infection control efforts, and raising awareness of local information.

For the next questionnaire item, the post-evaluation was lower than the pre-evaluation, suggesting that their regard of some items may have been revised or reevaluated. The biggest change was observed in "concerns about a decrease in international conferences held in Japan (Q2_2)," with a pre-survey average of 3.80 and a post-survey average of 3.23, a drop of 0.57 points. This symposium pointed out that the shift to online in the MICE industry was likely to be only temporary, and that the longer it continued, the higher the potential demand would be. Therefore, this symposium may have alleviated participants' excessive concerns. Next, "use of VR in online meetings (Q1_2)" showed a drop of 0.55 points, from a pre-survey average of 4.31 to a post-survey average of 3.77. Many participants believed that online meetings would become mainstream in the future, and may have thought that they would have to rely on descriptions of VR, etc. This is thought to be due to the fact that participants' expectations for VR technology changed to a more realistic evaluation after learning about actual use cases and technical limitations through this symposium. In addition, "concerns about the impact of the tourism downturn on the international conference industry (Q2_4)" also showed a decrease of 0.49 points (3.49 → 3.00), and it is inferred that the pessimistic outlook for the future was alleviated by the indication of support measures for the tourism industry and the possibility of collaboration with other industries. Regarding "AI-based discussion support system (Q1_4)," the average score decreased by 0.42 points from 4.00 before the event to 3.58 after the event, and it is possible that excessive expectations were revised as a result of a deeper understanding of the current state and limitations of the technology. In addition, "difficulties in responding to strengthening overseas promotions (Q2_7)" and "necessity to limit the number of participants (Q6_6)" also showed decreases of 0.39 points (3.77 → 3.38) and 0.34 points (4.46 → 4.12), respectively.

These results indicate that the sharing of practical examples and infection control measures has softened perceptions of previous issues and constraints, promoting a more realistic and positive understanding in this sector.

5 Conclusion

In this study, the authors clarified the changes in participants' awareness by comparing the results of a questionnaire survey conducted before and after an online MICE-related symposium targeting practitioners involved in attracting international conferences. The analysis showed that the symposium had a positive impact on participants, with post-evaluations being higher than pre-evaluations in areas such as networking, understanding of infectious disease countermeas-

ures, and interest in local resources. On the other hand, there was a tendency for expectations for VR and AI technology and concerns about the decrease in the number of international conferences held which were revised to more realistic evaluations. Furthermore, the results of the discriminant analysis confirmed that the classification accuracy of the pre- and post-questionnaire surveys was high at 96.7%, and that there was a clear change in participants' awareness. The above results show that online symposiums in the MICE field are effective in terms of providing information and raising awareness. It could also be suggested that these results will provide certain suggestions for future human resource development and business planning.

Practical implications gained from this study include the clarification of elements that can raise participant awareness even in online events (introducing practical examples, securing opportunities for dialogue, raising interest in local resources, etc.). By systematically incorporating these elements into future MICE strategy design, it is believed that effective human resource development and regional collaboration will be possible.

This study has several limitations. First, this survey is based on a self-report questionnaire and may be influenced by the subjectivity and memory of the respondents. Second, this study was conducted on a one-time event, and it was not possible to evaluate long-term changes in awareness or the impact on behavior. Third, regarding the interpretation of the survey results, there has been no in-depth analysis of causal relationships or practical implications, such as why a particular change in awareness occurred and what meaning it has for practice. For example, with regard to why concerns about VR technology decreased, it is impossible to say for sure whether this was due to the specific information provided at the symposium, as the sample size was small. Fourth, the observed changes in attitudes are not necessarily due to the influence of the symposium itself, but may also be influenced by other factors, such as changes in the pandemic situation, the dissemination of MICE-related information by the media, and natural changes in perception over time.

In the future, it is hoped that further empirical research will be conducted on educational effectiveness and best ways of disseminating information in MICE through follow-up surveys targeting participants with a greater variety of attributes, and comparative research with face-to-face and hybrid formats. Statistical methods ought to be applied to the dataset obtained at further research so that more profound in-depth discussions can be cultivated.

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