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Article

The Effect of Auditory Stimulation on College Sports Team and University Identification of Media Spectators: Focusing on the Presence or Absence of Live Play-by-Play Announcements and Commentary

Masaya Muneda [1], Takahiro Kitamura [1], Shinichi Kawamae [2], Keisuke Matsuki [3]

[1]Department of Sports Humanities and Applied Social Science, National Institute of Fitness and Sports in Kanoya, 1 Shiromizu, Kanoya-city, Kagoshima 891-2393, Japan
[2]Sport Administrator, National Institute of Fitness and Sports in Kanoya, 1 Shiromizu, Kanoya-city, Kagoshima 891-2393, Japan
[3]Minaminihon Broadcasting Co., Ltd., 5-25 Kourai, Kagoshima-city, Kagoshima 890-8570, Japan

Abstract
This study aimed to determine how college sports team identifications and university identifications of college sports media viewers differ depending on the presence or absence of live play-by-play announcements and commentary. The participants in the experiment were 115 students from University A. A screening survey was conducted to confirm that these were essential attributes, resulting in 58 and 57 participants in the groups with commentary and without commentary, respectively. We conducted an Internet survey with these two groups of experimental participants before and after watching videos of the games. The results showed that only the group with commentary demonstrated improvements in the "public evaluation" of the college sports team and university identification (College sports team: $F(1, 113) = 5.28$, $p < .05$; University: $F(1, 113) = 5.28$, $p < .05$).

Keywords: media spectator, live play-by-play announcements and commentary, college sports, team identification, university identification

1. Introduction

Recent information and communication technology innovations have played a significant role in modern society by popularizing personal computers and smartphones. This is also true in sports, particularly in the spectator sports industry, which is undergoing substantial changes. For example, it is now possible to measure players' abilities and movements in real time and visualize numerical values. Additionally, the media spectator market has expanded rapidly, allowing spectators to watch games anywhere and offering various options for watching sports (Tokuyama & Deguchi, 2021). For sports organizations, it is essential to fill stadiums. For example, the National Football League (NFL) has implemented a blackout rule since 1973, prohibiting live broadcasts on television stations within a 75-mile radius of the stadium if, in principle, tickets are not sold 72 hours before the game starts (Watanabe, 2014). Thus, sports organizations have engineered media spectating as an alternative to sports consumers' inability to watch games in stadiums physically (Murai, 2017). However, the NFL eliminated this system in 2015 because of increased revenue from the media (Isidore, 2015), which reaffirms the growing market for media spectating.

One of the differences between media spectating and direct spectating is that most media spectators can watch the games while listening to live play-by-play announcements and commentary. By contrast, direct spectating is characterized by reality, topophilia (love of the place), atmosphere, togetherness and interaction, and a sense of presence (Hashimoto, 2015; Sugimoto, 2017). However, there is a disadvantage in that the experience of watching a game in person is overwhelmingly limited for those who live in rural areas where there are no clubs or teams in their

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* Correspondence: m-muneda@nifs-k.ac.jp

vicinity owing to the travel time to the stadium or arena and the financial costs of tickets and stadium food. In addition, many spectators have shifted to media viewing in recent years because of COVID-19-related safety concerns (Tokuyama & Deguchi, 2021).

The advantages of media viewing include seeing players' facial expressions while they play and obtaining a wealth of information on rules and player characteristics from announcers and commentators (Fukazawa, 2010b). However, the viewer only watches what the sender intentionally projects, not the viewpoint that the viewer independently chooses (Sugimoto, 2017). Therefore, viewing direct spectators and media viewers as possessing different concepts is crucial (Fukazawa, 2010a; Matsuoka, 2018). Nevertheless, as for the influence on viewers in watching through the media, elements of managing through the media include technology, discourse/content, society (Duncan & Brummett, 1989), and the fear of understanding the game influenced by the subjective viewpoint comments by the anchor or commentator (Frederick et al., 2013; Hashimoto, 2002). As mentioned, TV sports consist of camera clips and sounds (background music, play-by-play announcements, and commentary) (Fukazawa, 2010a). However, the play-by-play announcements and commentary associated with TV screens serve as a text that promotes understanding and deepens sports knowledge (Okada, 2002). This is because people acquire knowledge and learn through announcers and commentators' speeches (Okada, 2002), suggesting that the influence of play-by-play announcements and commentary should be examined with media viewers as the target audience.

The Japan Association for University Athletics and Sports (UNIVAS) was established in March 2019. This is because the National Collegiate Athletic Association (NCAA), an existing organization in the U.S., has been able to develop college sports as a business, and Japan has been studying the establishment of a "Japanese version of the NCAA" since about 2016. In 2016, Japan took cues from the NCAA and established a Japanese version of it. UNIVAS has set forth three activity guidelines: (1) playing, (2) watching, and (3) supporting (UNIVAS, 2022), based on its organizational philosophy of promoting university sports and expanding the number of people participating. In the "watching" activity, UNIVAS has developed a free application, "UNIVAS Plus," which allows users to view videos of the past games of 28 sports, including baseball and volleyball, owned by UNIVAS, as well as a live video of the games, to increase the number of people who watch and support university sports. UNIVAS has also developed a new "Athletic Club Video Posting Service" platform for universities and athletic organizations that are UNIVAS members to introduce and publish videos of athletic competitions held in their respective regions and the activities of their university athletic clubs. In addition, many universities use media to distribute information to their sports teams. In this way, various university sports organizations are creating media viewing environments to encourage, nurture, and expand fans of university sports, especially among alumni and university residents throughout Japan.

Identification (ID), which has been studied as an essential concept in the creation, cultivation, and expansion of fans in sports spectator behavior, is based on social identity theory in social psychology (Deguchi et al., 2017). Social identity theory (Tajfel & Turner, 1979) states that individuals perceive themselves as concerned about the group or organization to which they belong. Furthermore, because they enhance their reputation by incorporating the group's reputation, they act on their own to enhance the group's reputation. Organizational ID, which relies on this, is defined as "a perceived oneness with an organization and the experience of the organization's successes and failures as one's own" (Meal & Ashforth, 1992). This ID promotes healthy behaviors for the organization, such as cooperation and organizational citizenship behavior concept (Takao, 2012). Most sports marketing research using ID focuses on direct spectators in professional sports, with limited research on college sports. In the context of college sports, college sports team ID and university ID are essential (Katz & Heere, 2016). For example, fans of a professional sports team may purchase the team's merchandise or join the team's fan club, but there are still only a few cases in which they make donations to the team's sponsors. However, college sport has a multidimensional ID structure due to athletic department activities and university functions. The stronger the ID for a university, the more support, such as donations, is provided (Meal & Ashforth, 1992). Examining the transformation of college sports team ID and university ID through media viewing of college sports could contribute to the future expansion of college sports team fans. Therefore, this study aimed to determine how the college sports team ID and university ID of media viewers of college sports differ depending on the presence or absence of play-by-play announcements and commentary.

2. Literature Review

2.1 A study of the effects of live play-by-play announcements and commentary on media viewing

Studies examining the effects of play-by-play announcements and commentary on media viewing have been scattered, primarily exploring the impact of the content of the commentary on the viewer, for example, the effects of aggressive and violent commentary (Comiskey et al., 1977; Sullivan, 1991), the effects of emphasizing the relationship between opposing players (Bryant et al., 1977), the effects of nationalism of the public on attitudes toward the opposing team

(Lee et al., 2015, the impact of different commentary content on attitudes and behavioral intentions (Daigo et al., 2015). An analysis of PV viewers' spectator and media use behavior (Sano et al., 2017) indicates that play-by-play announcements and commentary on media viewing have specific effects. Furthermore, few studies analyzed commentary content from various perspectives, including race and gender (Billings, 2004; Billings & Eastman, 2002; Denham et al., 2002; Messner et al., 1993). Additionally, the influence of broadcasters providing media viewing on the speech of sports commentators (Kuiper & Lewis, 2013) has been examined, and a specific body of literature has examined the social effects of sports media. Lee et al. (2015), international mega sports examined changes in nationalistic sentiments among the public depending on the content of commentary at events. They found that the image of a team influences attitudes toward products made in that country. This indicates that commentary is essential in national sentiment regarding media-viewed sports. However, studies have not yet examined the effects of play-by-play announcements and commentary on media audiences in college sport. Thus, promoting discussions on the effectiveness of play-by-play announcements or commentary.

2.2 Set variables (College sports team and University ID)

In the context of social identity theory, ID is a sense of belonging, identification, and connectedness, a self-concept derived from social identity theory, in which individuals define themselves as members of a social group or group (school, company, team, etc.) (Kan et al., 2018). ID in sports teams is considered a psychological state in which the individual perceives not only the competitive success of the team but also frustration and resentment during poor performance as an experience of the self (Deguchi et al., 2018). Most sports marketing research using team ID has focused on direct spectators in professional sports and found it related to various behavioral intentions of sports consumption (e.g., Magunsen et al., 2010; Matsuoka et al., 2003; Yoshida et al., 2015) Furthermore, residents with higher team ID have more positive perceptions of the local government's initiatives (e.g., welfare, education, sports, cultural administration, etc.) (Fujimoto et al., 2012). In addition to the above-mentioned studies, studies incorporating team ID into the context of college sports have shown that students with high team ID report more involvement with their teams and have more positive expectations for future performances of their teams compared with those with moderate and low team ID (Wann & Bransvombe, 1993). Team ID has also been found to positively influence students' sociopsychological health (Wann et al., 2008) and university ID (Kats & Heere, 2016).

University ID, which is used for universities, is, in the words of Meal and Ashforth (1992), "a sense of unity and belonging to a university and is defined as an individual's definition of himself or herself from the perspective of his or her university." It includes alumni donations to the university, participation in university events, prospective students' participation in university events, and the participation of alumni in the university's activities. This is important from a marketing perspective (Bass et al., 2013) because it has been suggested to increase the frequency with which alums encourage their peers to enroll in the university (Bass et al., 2013). Bass et al. (2013) present a university ID model with three antecedents of university ID: (1) athletic programs, (2) academic programs, and (3) individuals. In particular, athletic programs, which consist of perceived team success, perceived program prestige, performance against rival schools, and program recognition, also have significance as a theoretical background for promoting college sports, which can increase attachment and ID to the university team, suggesting that university ID can be enhanced by being.

Four research questions (RQ) were established by reviewing previous studies:
RQ1: Do viewers' college sports team ID increase because they watch college sports in the media?
RQ2: Do college sports viewers' team ID change depending on the presence or absence of play-by-play announcements and commentary?
RQ3: Do viewers' university ID increase because they watch college sports in the media?
RQ4: Does the presence or absence of play-by-play announcements and commentary affect university college sports viewers' IDs?

3. Methodology

3.1 Experimental participants and procedure

The experimental participants were 115 students from University A who did not watch the baseball team game on Sunday, September 26, 2021, either at the venue or via live streaming on YouTube.

The experimental procedure consisted of a screening survey to identify essential attributes such as gender, grade, club activity, and sports experience, followed by classification into two groups: a "with commentary group" that watched videos of recorded games with commentary and a "without commentary group" that watched games without

commentary. The screening revealed 58 and 57 participants in the groups with commentary and without commentary, respectively (Table 1). We conducted an internet survey with the participants in these two groups before and after viewing the matched videos. Note that the experiment was conducted with 2 to 10 participants in each group, each viewing 14 different dates due to the influence of COVID-19.

3.2 Measure

The survey items included essential attributes (gender, grade, club activity, sports experience, etc.) and 23 items of the 6-factor college sports team ID scale, excluding one item from the 24 items of the 6-factor team ID scale of Kan et al. (2018) that were deemed unsuitable for college sports. The definitions of each factor are as follows:

- Private evaluation: Self-evaluation of support for college sports team.
- Public evaluation: Perceptions of college sports teams' general evaluation and reputation.
- Interconnection of self: Psychological ties and attachments between self and college sports team
- Sense of interdependence: Perceptions of self-dependence and life in college sports team.
- Behavioral Involvement: Perceived degree of psychological connection between the individual and college sports team
- Cognitive awareness: Awareness of information related to college sports team

To measure university ID, Heere et al. (2011) developed 18 items of the 6-factor group ID Scale. The scales were translated by a researcher specializing in sports sociology and then reviewed by two additional researchers specializing in sport management. The definitions of each factor are as follows.

- Private evaluation: The positive (or negative) attitude that an individual has personally toward the university
- Public evaluation: The perceived positive (or negative) attitude of non-members toward the university
- Interconnection of self: The degree to which an individual feels that the university is a part of themself
- Sense of interdependence: The degree to which an individual feels that faith depends on the university's faith.
- Behavioral involvement: The degree to which an individual engages in actions that directly imply the university's identity.
- Cognitive awareness: The general awareness (or knowledge) that an individual has of the university

4. Results and Discussion

First, a χ^2 test was conducted on the essential attributes (Gender, Grade, and Club activities) to verify the independence of the groups with and without explanations. No significant differences were found for each item (χ^2_{Gender}=.004, n.s.; χ^2_{Grade}=.391, n.s.; $\chi^2_{Club\ activities}$=1.203, n.s.). Thus, there was no bias in the groups with and without commentary (Table 1).

Table 1. Participant Demographics

	YES (n = 58)		NO (n = 57)		χ^2
	n	%	n	%	(p)
Gender					
Male	40	69.0	39	68.4	.004 (n.s.)
Female	18	31.0	18	31.6	
Tatal	58	100.0	57	100.0	
Grade					
Freshman	25	43.1	25	43.9	.391 (n.s.)
Sophomore	16	27.6	14	24.6	
Junior	9	15.5	11	19.3	
Senior	8	13.8	7	12.2	
Tatal	58	100.0	57	100.0	
Club activities					
Kendo	16	27.6	20	35.1	1.203 (n.s.)
Soccer	13	22.4	11	19.3	
Athletics	6	10.3	4	7.0	
Judo	6	10.3	6	10.5	
Cycling	4	6.9	4	7.0	
Gymnastics	3	5.2	2	3.5	
Swimming	2	3.4	2	3.5	
Volleyball	2	3.4	2	3.5	
Canoeing	2	3.4	2	3.5	
Tennis	2	3.4	2	3.5	
Basketball	1	1.7	1	1.8	
Dance	1	1.7	1	1.8	
Tatal	58	100.0	57	100.0	

Note: n.s. = not significant; YES = Groups with commentary, NO = Groups without commentary.

Next, confirmatory factor analyses were conducted to test the reliability and validity of the college sports team ID and university ID scales. The results showed that the convergent validity of the college sports team ID (pre/post-viewing: λ=.56-.97/.60–.99, AVE=.59–.84/.60–.85, CR=78–.96/.83–.96), model fit (pre/post-viewing: χ^2/df=1.65/1.61 (norm ≤5.00: Bollen, 1989), CFI=.947/.952 (criterion ≥ .90: Bentler, 1990), NNFI=.935/.942 (criterion ≥ .90: Hair et al., 2005), RMSEA=.076/.074 (criterion ≤ .08: Staiger and Lind, 1980)) were met in all cases (Table 2, 3). The criterion value for λ is .50 (Hair et al., 2014), and that for CR is .60 (Bagozzi & Yi, 1988).

Table 2. Mean, Standard Deviation, Reliability, and Convergent Validity of College Sports Team ID

Factor / Item	Mean		SD		λ		AVE		CR	
	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST
Private evaluation	5.18	5.18	1.28	1.24			.71	.80	.88	.92
I feel good about being a fan of the team.	5.88	5.69	1.24	1.31	.87	.99				
In general, I am glad to be a fan of the team.	5.21	5.39	1.54	1.36	.87	.88				
I am proud to think of myself as a fan of the team.	4.44	4.45	1.57	1.47	.81	.81				
Public evaluation	4.81	4.87	1.12	1.17			.80	.85	.92	.94
The team is viewed positively by others.	4.77	4.82	1.25	1.21	.85	.87				
Others respect the team.	4.82	4.94	1.21	1.24	.91	.95				
People hold a favorable opinion about the team.	4.84	4.86	1.15	1.26	.93	.95				
Interconnection of Self	2.58	2.86	1.30	1.34			.59	.60	.87	.88
Being associated with the team is an important part of my self-image.	2.79	2.99	1.75	1.69	.60	.70				
When someone compliments the team, it feels like a personal compliment.	3.17	3.32	1.68	1.66	.71	.74				
I have a sense of being part of the team.	1.90	2.17	1.46	1.44	.71	.76				
I have a solid attachment to the team.	2.54	2.95	1.56	1.50	.90	.81				
The success of the team feels like my success.	2.50	2.86	1.59	1.66	.87	.87				
Sense of Interdependence	1.72	2.14	1.20	1.33			.81	.84	.94	.96
What happens to the team will influence what happens in my life.	1.57	2.01	1.16	1.41	.97	.94				
What happens to the team will have an impact on my own life.	1.58	2.07	1.20	1.41	.97	.96				
Changes affecting the team will have an impact on my own life.	1.70	2.08	1.32	1.38	.90	.97				
What the team does affects me personally.	2.00	2.41	1.51	1.53	.74	.79				
Behavioral Involvement	2.60	3.07	1.30	1.37			.55	.63	.78	.83
I am the one who helps the team do its thing.	3.46	3.66	1.81	1.79	.56	.60				
I am the one who talks to others about the team.	2.05	2.57	1.47	1.44	.79	.89				
I am the one who actively tries to know the results of the team's games.	2.29	2.97	1.49	1.58	.84	.85				
Cognitive Awareness	1.40	1.81	.99	1.13			.84	.80	.96	.95
I am aware of the history of the team.	1.32	1.64	.95	1.13	.96	.94				
I know a lot about the team.	1.43	1.78	1.10	1.21	.93	.98				
I have knowledge of the successes and failures of the team.	1.36	1.96	1.06	1.29	.96	.79				
I know the ins and outs of the team.	1.43	1.86	1.12	1.32	.91	.83				
I am aware of the community activities that the team is engaged in.	1.46	1.83	1.06	1.24	.80	.91				

Note: Model Fit（PRE / POST）：χ^2/df=1.65/1.61, CFI=.947/.952, NNFI=.935/.942, RMSEA=.076/.074

Table 3. Examination of the Discriminant Validity of the College Sports Team ID

	1		2		3		4		5		6	
	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST
1.TIDPVE	.71a	.80a'										
2.TIDPBE	.49	.45	.80b	.85b'								
3.TIDIS	.10	.13	.06	.06	.59c	.60c'						
4.TIDSI	.00	.01	.00	.00	.42	.50	.81d	.84d'				
5.TIDBI	.10	.18	.03	.04	.52	.40	.35	.32	.55e	.63e'		
6.TIDCA	.01	.00	.00	.01	.34	.30	.50	.55	.32	.26	.84f	.80f'

Note: The numbers a - f' on the diagonal indicate the AVE of each factor;
TID = College Sports Team ID, PVE = Private Evaluation, PBE = Public Evaluation, IS = Sense of Interdependence,
SI = Interconnection of Self, BI = Behavioral Involvement, CA = Cognitive Awareness.

In addition, the convergent validity of the University ID (pre/post-viewing: λ=.52-.98/.65–.98, AVE=.47–.88/.47–.93, CR=72–.96/.73–.98), model fit (pre/post-viewing: χ^2/df=1.46/1.67, CFI=.967/.961, NNFI=.958 /.950, RMSEA=.064/.077), and in the criterion values for the square of inter-factor correlations and AVE comparisons, the criterion value of .50 for AVE was not reached for "interconnection of Self (.47)" before and after viewing. However, for all other criterion values, the standard met all the other criteria (Table 4, 5).

Table 4. Mean, Standard Deviation, Reliability, and Convergent Validity of University ID

Factor / Item	Mean		SD		λ		AVE		CR	
	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST
Private Evaluation	5.96	5.97	1.19	1.23			.81	.91	.93	.97
I feel good about being a member of my university.	5.92	5.98	1.35	1.33	.84	.95				
I am glad to be a member of my university.	6.07	6.07	1.20	1.19	.92	.94				
I am proud to think of myself as a member of my university.	5.88	5.87	1.30	1.29	.94	.97				
Public Evaluation	4.97	5.10	1.24	1.17			.70	.74	.87	.90
Overall, my university is viewed positively by others.	5.29	5.29	1.33	1.25	.77	.78				
In general, others respect my university.	4.57	4.86	1.61	1.39	.73	.84				
Overall, people hold a favorable opinion about my university.	5.04	5.14	1.29	1.24	.98	.95				
Interconnection of Self	4.97	4.91	1.22	1.28			.47	.47	.72	.73
When someone criticizes my university, it feels like a personal insult.	4.44	4.44	1.62	1.70	.52	.65				
In general, being associated with my university is an important part of my self-image.	5.51	5.31	1.25	1.40	.80	.69				
When someone compliments my university, it feels like a personal compliment.	4.96	4.98	1.51	1.47	.71	.71				
Sense of Interdependence	5.81	5.72	1.23	1.31			.88	.93	.96	.98
What happens to my university will influence what happens in my life.	5.82	5.75	1.26	1.32	.91	.98				
Changes affecting my university will have an impact on my own life.	5.77	5.66	1.31	1.39	.94	.95				
What happens to my university will have an impact on my own life.	5.85	5.74	1.28	1.31	.97	.97				
Behavioral Involvement	3.72	3.73	1.52	1.62			.76	.82	.90	.93
I participate in activities supporting my university.	3.84	3.83	1.63	1.76	.88	.87				
I am actively involved in activities that relate to my university.	3.83	3.83	1.68	1.67	.92	.95				
I participate in activities with other fans/members of my university.	3.48	3.53	1.70	1.76	.80	.88				
Cognitive Awareness	3.26	2.96	1.48	1.43			.73	.76	.89	.90
I am aware of the tradition and history of my university.	3.59	3.09	1.61	1.51	.86	.89				
I know the ins and outs of my university.	3.23	3.03	1.61	1.56	.91	.92				
I have knowledge of the successes and failures of my university.	2.96	2.76	1.68	1.61	.80	.81				

Note: Model Fit（PRE / POST）：χ^2/df=1.46/1.67, CFI=.967/.961, NNFI=.958/.950, RMSEA=.064/.077

Table 5. Examination of the Discriminant Validity of the University ID

	1		2		3		4		5		6	
	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST
1.UIDPVE	.81a	.91a'										
2.UIDPBE	.29	.36	.70b	.74b'								
3.UIDIS	.30	.24	.21	.20	.47d	.47d'						
4.UIDSI	.39	.30	.18	.13	.42	.35	.88c	.93c'				
5.UIDBI	.07	.03	.14	.05	.27	.31	.14	.05	.76e	.82e'		
6.UIDCA	.08	.00	.13	.06	.10	.10	.15	.00	.33	.36	.73f	.76f'

Note: The numbers a - f' on the diagonal indicate the AVE of each factor;
UID = University ID, PVE = Private Evaluation, PBE = Public Evaluation, IS = Interconnection of Self, SI = Sense of Interdependence,
BI = Behavioral Involvement, CA = Cognitive Awareness.

Although the reliability and validity of the University ID scale could not be wholly confirmed (Table 4), the overall results were within the acceptable range, suggesting that this scale model fit the data (e.g., Yoshida et al., 2015).

Then, a two-factor analysis of variance was conducted to compare the pre-and post-video viewing means of the groups with and without commentary on the college sports team ID. The results showed "psychological connectedness" ($F(1, 113) = 7.63$, $p < .01$), "sense of dependency" ($F(1, 113) = 18.44$, $p < .001$), "behavioral involvement" ($F(1, 113) = 14.62$, $p < .001$), and "cognitive awareness" ($F(1, 113) = 20.69$, $p < .001$), with statistically significant main effects for pre- and post-viewing changes in college sports team ID, as well as an increase (Figure 1). The results suggest that the team ID of college sports viewers increases when they experience a game through media instead of watching it directly, which is expensive. This may be because most participants belonged to club activities, and by watching games of other club activities, they identified themselves with their team. Viewer attributes are essential, and it is necessary to consider how to present them in a way that is appropriate for the target audience. In addition, college sports teams should expand the range of services provided to viewers through media, increase viewers' identification with college sports team and the number of direct spectators, and expand the number of fans.

As shown in Figure 1, there was a statistically significant main effect of the presence of commentary on "public evaluation" ($F(1, 113) = 5.28$, $p < .05$). This suggests that college sports viewers' perceptions of a team's general reputation are likely to be enhanced by the addition of play-by-play announcements and commentary on media. As mentioned, media viewers acquire knowledge and learn through announcers and commentators' speeches (Okada, 2002). Information (exceptionally positive, non-technical discussions) about the college sports team delivered to viewers by play-by-play announcements and commentary is believed to enhance and improve the team's image (Fukazawa, 2010). Furthermore, it was suggested that the content of the actual situation and commentary might control

viewers' general evaluations of the team and their perceptions of its reputation. This can be interpreted as the priming effect, a phenomenon in which information presented in advance influences the attitude and behavior of subsequent information processing without the awareness of the people involved (Oikawa & Oikawa, 2010). Thus, university and college sports team may find it more effective than simply conducting PR activities to indirectly communicate their thoughts about the community through live play-by-play announcements and commentary. The effectiveness of using athletes as endorsers has been confirmed when companies conduct brand extensions (Bizen et al., 2019). Referring to the study, a university can also use college sports team and college athlete in their public relations activities to change the residents' perception of the university, which has a high threshold for residents, and to show their presence as an open university to the region. In “sports viewing,” play-by-play announcements and commentary are essential tools that unconsciously influence viewers' attitudes and behaviors.

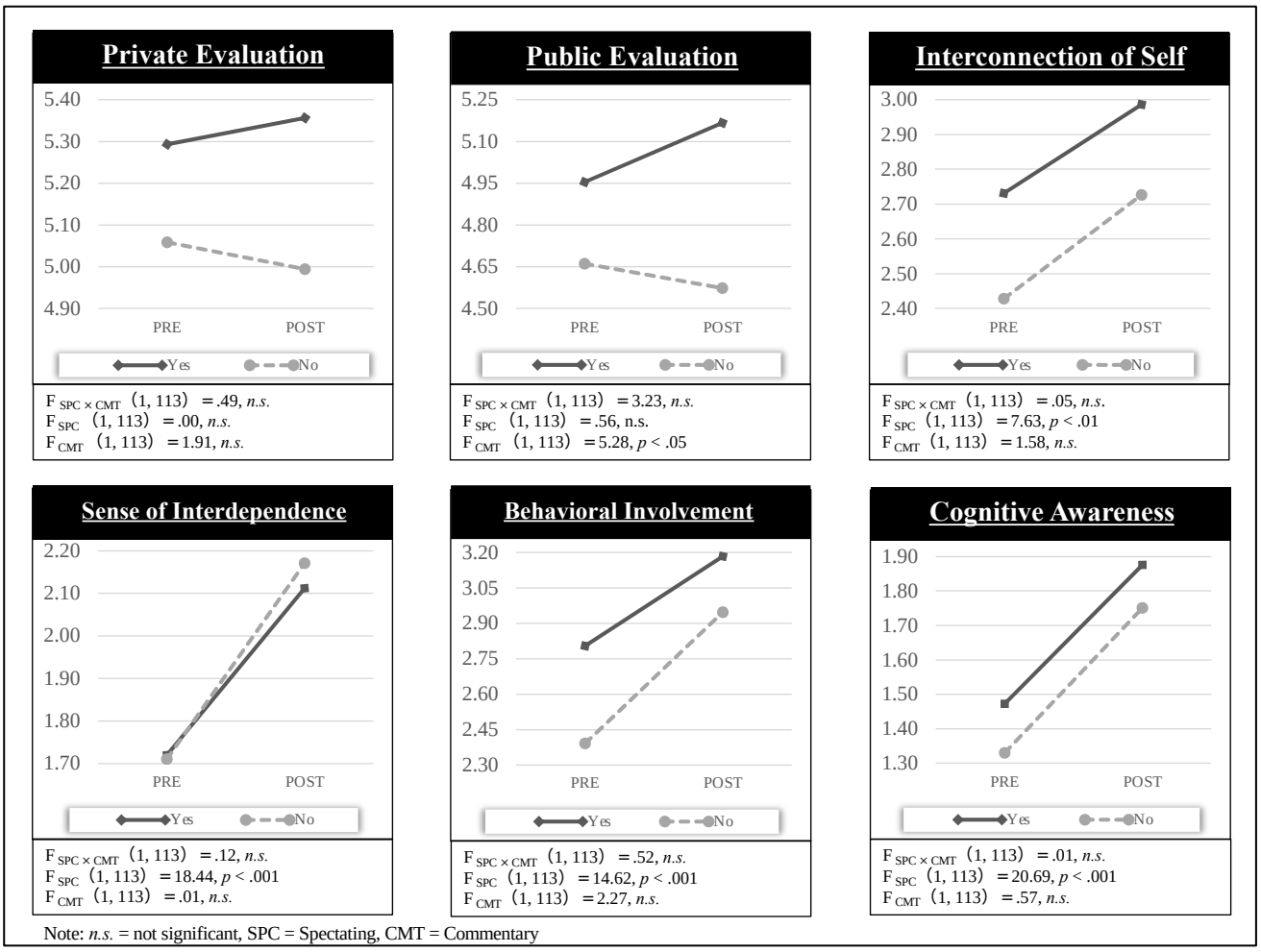
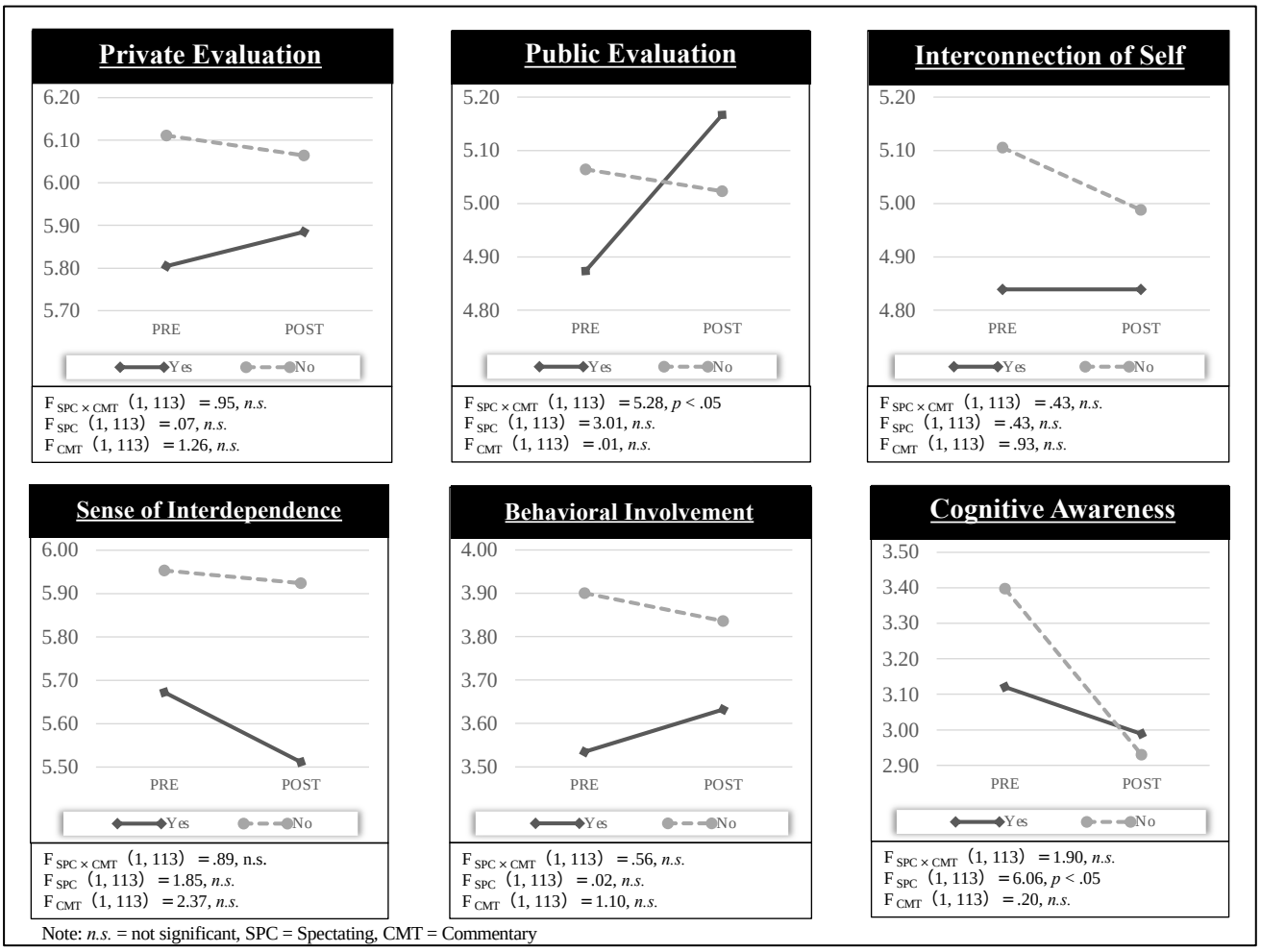


Fig.1. Two-Factor Analysis of Variance for College Sports Team ID

Next, a two-factor analysis of variance was conducted to compare the pre-and post-video viewing means of the groups with and without commentary on the University ID. The results revealed a statistically significant main effect for "cognition and awareness" ($F(1, 113) = 6.06$, $p < .05$), with a statistically significant decrease in the amount of change pre- and post-video viewing change in the University ID (Figure 2). Viewing college sports in the media allows viewers to learn something new about the parent university of a college sports team. This may be because viewers realize that there is information about the university they were unaware of after watching games. They also differ depending on the content of the game. The game involved a comeback loss in the last inning. According to Cialdini et al. (1976), BIRGing is the relationship between a highly rated individual, group, and the self. CORFing refers to measures that seek to protect self-esteem and avoid low evaluations from others by emphasizing a lack of connection with individuals and groups that are rated low. In this study, media viewing of college sports may have influenced university ID from CORFing because the team at the viewer's university lost a closed game.

As shown in Figure 2, there was a statistically significant interaction between media viewing and the presence of commentary in "public evaluation" ($F(1, 113) = 5.28$, $p < .05$). This indicates that the group with commentary had an increased perception of the public reputation and the reputation of the university compared with the group without commentary. By contrast, the group without commentary decreased their perception of the university's public reputation compared with before media viewing. In this study, the experiment was conducted using videos of an event organized by University A's Sports Development Project, which featured one-sided commentary and commentary biased toward the home team. In Lee and Yeo's (2011) study, color commentary (biased toward the home team) was found to be more effective in enhancing perceptions of sports teams. The results showed that participants who received more favorable commentary on their team showed a more significant change in their team evaluations. In light of these results, it is believed that University A's students affiliated with University A, who were the viewers of the survey, may have had an opportunity to strengthen their ties to their university through live commentary, in addition to media viewing of games of other club activities affiliated with their university. This can be used as a marketing strategy for university sports. For example, to increase university ID targeting the local community, university officials, and alumni, it may be possible to give spectators a sense of "empathy" by incorporating the dialect used in daily life by students in play-by-play announcements and commentary with explanation and care for the meaning and usage of the dialects for those who are not familiar with or related to the area. Furthermore, if students' lives (i.e., classes, part-time jobs, etc.) and the personalities and preferences of university athletes are communicated through play-by-play announcements and commentary while taking care to protect personal information, residents, university officials, and alums may feel a sense of familiarity with athletes.

Furthermore, to utilize college sports as university management, an environment for viewing college sports should be created for high school students who are potential students of the university. Adding one-sided play-by-play announcements and commentary to this environment could increase university ID, change attitudes and behavior toward the university, and enhance future motivation to enroll.



Note: *n.s.* = not significant, SPC = Spectating, CMT = Commentary

Fig.2. Two-Factor Analysis of Variance for University ID

5. Conclusions

This study aimed to determine how college sports team ID and university ID of college sports media viewers differ depending on the presence of play-by-play announcements and commentary. The results indicate the following:

RQ1. Viewers' "interconnection of self," "sense of interdependence," "behavioral involvement," and "perception/awareness" factors of college sports team ID increased by watching college sports media.
RQ2: Media viewers' "public evaluation" factor of college sports team ID increased in the group with play-by-play announcements commentary and decreased in the group without it.
RQ3: Viewers' "cognitive awareness" factor of university ID decreased with media coverage of college sports.
RQ4: The presence or absence of play-by-play announcements and commentary affects the "public evaluation" factor of university ID among college sports viewers.

Despite the above-mentioned contributions, there are some limitations to the study, which we would like to discuss along with future perspectives. As mentioned, University A conducted a sports training project and held an event where participants provided commentary. Since the experiment was conducted using the videos distributed at that time, professional announcers and amateur students provided commentary. Second, participants differed in their viewing environments (number of people, time, etc.). The experiment was conducted not once but on multiple occasions. The atmosphere and environment in which a sporting event is watched are essential, and the effect of the restricted interaction between viewers during COVID-19 is undeniable. Third, the participants in this study were university students who needed to directly watch the A baseball team's game on Sunday, September 26, 2021 or watch live streaming on YouTube. A total of 115 University A students were recruited by asking faculty advisors for each activity at University A to recruit participants for the experiment. It may be possible that the students were not watching the game proactively. In addition, since the participants belonged to the same university, they may have had prior information about the baseball team members. In the future, public viewing and other events should be held to target residents and the public to verify data from active or no prior information viewers. Other prospects include conducting experiments tailored to contexts other than minor and college sports, using other concepts, conducting analyses, examining concepts unique to media viewers rather than a scale, and controlling the content of play-by-play announcements and commentary. In addition, we can further elucidate the effects of play-by-play announcements and commentary by controlling for the content of the play-by-play announcements and commentary.

Finally, the establishment of UNIVAS, ICT innovations, and COVID-19 have increased media audiences of college sports. Therefore, this study examines the effects of the presence or absence of commentary from college sports team and university ID on media audiences for college sports, increase in direct spectators and positive word-of-mouth behavior (e.g., Chang et al., 2018; Park & Dittmore, 2014), and the potential to develop an attachment to the region where the university is located (Kan et al., 2018). We hope that this will lead to the expansion of the university sports business.

Author Contributions

M.M. contributed significantly to the study conceptualization, methodology, investigation, data analysis, validation, interpretation, and manuscript drafting. T. K. contributed to the methodology, interpretation, writing, review, and editing of the manuscript. S.K. and K.M. contributed to the interpretation. All the authors have read and agreed to the published version of the manuscript.

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Institutional Review Board Statement

The study was conducted in accordance with the guidelines of the Declaration of Helsinki and was approved by the Ethics Committee of the National Institute of Fitness and Sports in Kanoya (protocol code 3-58 and date of approval October 15, 2021).

Informed Consent Statement

Informed consent was obtained from all participants involved in the study.

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Conflicts of Interest
The authors declare no conflict of interest.

References
Bagozzi, R. P., & Yi, Y. (1988). On the evaluation of structural equation models. *Journal of the Academy of Marketing Science, 16*(1), 74-94. https://doi.org/10.1007/BF02723327

Bass, J., Gordon, B., & Kim, Y. (2013). University Identification: A Conceptual Framework. *Journal of Contemporary Athletics, 7*(1). https://ssrn.com/abstract=2197484

Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin, 107*(2), 238-246. https://doi.org/10.1037/0033-2909.107.2.238

Billings, A. C. (2004). Depicting the Quarterback in Black and White: A Content Analysis of College and Professional Football Broadcast Commentary. *Howard Journal of Communications, 15*(4), 201-210. https://doi.org/10.1080/10646170490521158

Billings, A. C., & Eastman, S. T. (2002). Selective representation of gender, ethnicity, and nationality in American television coverage of the 2000 Summer Olympics. *International review for the sociology of sport, 37*(3-4), 351-370. https://doi.org/10.1177/101269020203700302

Bizen, Y., Kuo, T.Y., & Shao J. Y. L. (2002). The effectiveness of athlete endorsement on brand extension. *Japanese Journal of Sport Management, 11*(1), 3-20. https://doi.org/10.5225/jjsm.2019-003

Bollen, K. (1989). Structural equations with latent variables. *John Wiley: New York.*

Bryant, J., Comisky, P., & Zillmann, D. (1977). Drama in sports commentary. *Journal of communication, 27*(3), 140-149. https://doi.org/10.1111/j.1460-2466.1977.tb02140.x

Chang, Y., Wann, D. L., & Inoue, Y. (2018). The effects of implicit team identification (iTeam ID) on revisit and WOM intentions: A moderated mediation of emotions and flow. *Journal of Sport Management, 32*(4), 334-347. https://doi.org/10.1123/jsm.2017-0249

Cialdini, R. B., Borden, R. J., Thorne, A., Walker, M. R., Freeman, S., & Sloan, L. R. (1976). Basking in reflected glory: Three (football) field studies. *Journal of personality and social psychology, 34*(3), 366-375. https://doi.org/10.1037/0022-3514.34.3.366

Daigo, E., Kimura, K., & Sakura, S. (2015). Change of attitude and behavioral intention in appreciation of a ballet video: a case of a university ballet class. *Sport Sciences Research, 12*, 19-37. http://hdl.handle.net/2065/46479

Deguchi, J., Okimura, T., Izawa, Y., Tokuyama, T., & Kikuchi H. (2017). The club support intention of J. League spectators: An investigation of the relationship between attachment and team identification. *Japanese Association for Sport Management, 9*(2), 19-34. https://doi.org/10.5225/jjsm.2017-009

Denham, B. E., Billings, A. C., & Halone, K. K. (2002). Differential accounts of race in broadcast commentary of the 2000 NCAA men's and women's final four basketball tournaments. *Sociology of Sport Journal, 19*(3), 315-332. https://doi.org/10.1123/ssj.19.3.315

Duncan, M., & Brummett, B. (1989). Types and sources of spectating pleasure in televised sports. *Sociology of Sport Journal, 6*(3), 195-211. https://doi.org/10.1123/ssj.6.3.195

End, C. M., Dietz-Uhler, B., Harrick, E. A., & Jacquemotte, L. (2002). Identifying with winners: A reexamination of sport fans' tendency to BIRG. *Journal of Applied Social Psychology, 32*, 1017-1030. https://doi.org/10.1111/j.1559-1816.2002.tb00253.x

Fornell, C., & Larcher, D. F. (1981). Evaluating structural models with unobservable variables and measurement error. *Journal of Marketing Research, 18*, 39-50. https://doi.org/10.2307/3151312

Frederick, E. L., Lim, C. H., Chung, J., & Clavio, G. (2013). Determining the effects of sport commentary on viewer perceptions, attitudes, beliefs, and enjoyment through violence justification. *Journal of Sports Media, 8*(1), 65-86. https://doi.org/10.1353/jsm.2013.0009

Fujimoto, J., Harada, M., James, J. D., Okunaga, K., & Umemoto, A. (2012). Examining the relationship between team identity and sense of community of J. league team fans. *SSF journal of sport for everyone, 1*(1), 160-167.

Fukasawa, H. (2010a). *'Narratives' in sports broadcasts: construction by media senders.* In Hashimoto, J. *Sports spectator studies* - Stage structure and meaning of enthusiasm. Sekaishisosha, pp. 162-205.

Fukasawa, H. (2010b). The narrative as a part of play-by-play sports broadcasting: the final game of the All Japan High School Soccer Tournament is a typical example. *Journal of Management Information Science, 16*, 109-125. http://id.nii.ac.jp/1188/00000360/

Hair, J. F., Black, W., Babin, B., Anderson, R. E., & Tatham, R. L. (2005). *Multivariate data analysis (5th ed)*. Upper Saddle River, NJ: Prentice Hall.

Hair, J. F., Black, W., Babin, B. J., & Anderson, R. E. (2014). *Multivariate data analysis (7th ed)*. Pearson new international ed. Pearson.

Hashimoto, M. (2002). *History of media sports research.* In Hashimoto, J. Contemporary Media Sport Theory. Sekaishisosha, pp. 25-47.

Hashimoto, J. (2015). Differences between spectators and viewers: the appeal of live spectating and the grammar of the sports media. *Journal of health, physical education and recreation. 65*(10), 715-719.

Heere, B., Walker, M., Yoshida, M., Ko, Y. J., Jordan, J. S., & James J. D. (2011). Brand Community Development Through Associated Communities: Grounding Community Measurement Within Social Identity Theory. *The Journal of Marketing Theory and Practice, 19*(4), 407-422. https://www.jstor.org/stable/23033928

Isidore, C. (2015). NFL drops TV blackout rule. https://money.cnn.com/2015/03/23/media/nfl-blackout-rule/, CNNMoney (New York)

Kan, F., Furukawa, T., Funahashi, H., & Mano, Y. (2018). Consideration of the Causal Relation between Team Identification and Place Attachment: Focused on the Inhabitants of Imabari City, Hometown of Imabari Football Club. *Journal of Japan Society of Sports Industry, 28*,1-11. https://doi.org/10.5997/sposun.28.1_1

Katz, M., & Heere, B (2016). New Team, New Fans: A Longitudinal Examination of Team Identification as a Driver of University Identification, *Journal of Sport Management, 30*(2), 135-148. https://doi.org/10.1123/jsm.2014-0258

Kuiper, K., & Lewis, R. (2013). The effect of the broadcast medium on the language of radio and television sports commentary genres: The rugby union lineout. *Journal of Sports Media, 8*(2), 31-51. https://doi.org/10.1353/jsm.2013.0012.

Lee, M., Lim, C., & Pedersen, P. M. (2015). The marketing of an international match in Asia: The effects of sport commentary and nationalistic sentiments on framing, priming, and consumer behavior. *Sport Marketing Quarterly, 24*(4), 235-245. Retrieved from https://go.gale.com/ps/i.do?p=AONE&u=googlescholar&id=GALE|A437879326&v=2.1&it=r&sid=AONE&asid=7c977c11

Lee, M. K., & Yeo, I. S. (2011). The effects of home team announcer and color commentator on team image, identification, loyalty and TV audience satisfaction of a sports contest. *Korean Journal of Physical Education, 50*, 193-206.

Magnusen, M., Rhee, Y. C., & Kim, Y. K. (2010). The effect of team identification and game satisfaction on revisit intention: A case of Korean Basketball League spectators. *International Journal of Human Movement Science, 4*(2), 23-47.

Matsuoka, H. (2018). *Sports spectators as consumers.* In Harada, M., Fujimoto, J., Matsuoka, H. *Sport Marketing Revised edition.* TAISHUKAN Publishing Co. pp.126-149.

Matsuoka, H., Chelladurai, P., & Harada, M. (2003). Direct and interaction effects of team identification and satisfaction on intention to attend games. *Sport marketing quarterly, 12*(4), 244-253. https://doi.org/10.1063/1.1689669

Mael, F., & Ashforth, B. E. (1992). Alumni and Their Alma Mater: A Partial Test of the Reformulated Model of Organizational Identification. *Journal of Organizational Behavior, 13*(2), 103-123. https://doi.org/10.1002/job.4030130202

Messner, M. A., Duncan, M. C., & Jensen, K. (1993). Separating the men from the girls: The gendered language of televised sports. *Gender & Society, 7*(1), 121-137. https://www.jstor.org/stable/190027

Murai, M., Jyouno, T., Harada, M., Yamamoto H. (2017). Considering sporting events through the media. Symposium I of the Proceeding of the 8th Conference of the JASM, *Japanese Journal of Sport Management, 9*(1), 52-64. https://doi.org/10.5225/jjsm.2017-005

Oikawa, M., & Oikawa, H. (2010). Social Psychology and the Unconscious: Implications for Sports Science. *Japanese Journal of Sport Psychology, 37*(2), 141-148. https://doi.org/10.4146/jjspopsy.2010-070

Okada, M. (2002). *Conversation analysis of live sports coverage.* In Hashimoto, J. *Contemporary media sports theory*. Sekaishisosha, pp. 163-195.

Park, J., & Dittmore, S.W. (2014). The Relationship Among Social Media Consumption, Team Identification, and Behavioral Intentions. *Journal of Physical Education and Sport, 14*(3), 331-336. http://dx.doi.org/10.2139/ssrn.2504608

Rakuten Insight, Inc. (2020). Survey on sport. Rakuten Insight. Retrieved from https://insight.rakuten.co.jp/report/20200313/

Sano, M., Okuizumi, K., & Shimomura, K. (2017). Characteristics of public viewing spectators at Olympic Games: Analysis of watching behavior and media use behavior. *Cultural research of the Olympics, 2*, 21-29. http://id.nii.ac.jp/1444/00001212/

Sugimoto, A. (2017). The conflict between "spectating" and "viewing" sports: Ekidens and Marathons. *Japan Journal of Sport Sociology, 25*(1), 35-47. https://doi.org/10.5987/jjsss.25-01-05

Steiger, J. H., and Lind, J. (1980). *Statistically based tests for the number of common factors.* In the annual meeting of the Psychometric Society. Iowa City, IA.

Sullivan, D. B. (1990). Commentary and viewer perception of player hostility: Adding punch to televised sports, *Journal of Broadcasting & Electronic Media, 35*(4), 487-504. https://doi.org/10.1080/08838159109364142

Tajfel, H., & Turner, J.C. (1979). *An integrative theory of intergroup conflict.* In Worchel, S & Austin W.G. *The social psychology of intergroup relations. Monterey*, CA: Brooks-Cole.

Takao, Y. (2012). Identification in Organizational Contexts: A Review. *Transactions of the Academic Association for Organizational Science, 1*(1), 78-84. https://doi.org/10.11207/taaos.1.2_78

Tokuyama, T., Deguchi, J. (2021). Overview of the spectator sport 2020 season and online spectator possibilities. *Journal of health, physical education and recreation*. *71*(1), 32-36.

UNIVAS (2022). UNIVAS ANNUAL REPORT 2021-22. Retrieved from https://img.univas.jp/uploads/2022/05/ANNUAL-REPORT2022_0520_final.pdf

Wann, D., & Branscombe, N. (1993). Sports fans: Measuring degree of identification with their team. *International Journal of Sports Psychology, 24*: 1-17.

Wann, D., Brame, E., Clarkson, M., Brooks, D., & Waddill, P. J. (2008). College Student Attendance at Sporting Events and the Relationship Between Sport Team Identification and Social Psychological Health. *Journal of Intercollegiate Sports, 1*(2), 242-254. https://doi.org/10.1123/jis.1.2.242

Watanabe, H. (2014). 'Blackout' TV-related measures to encourage local fans to attend. 47NEWS. Retrieved from https://www.47news.jp/192794.html

Yoshida, M., Gordon, B. S., Heere, B., & James, J. D. (2015). Fan community identification: An empirical examination of its outcomes in Japanese professional sport. *Sport Marketing Quarterly, 24*(2), 105-119. http://hdl.handle.net/1808/22131