

Article

# Traditional and Revised Importance-Performance Analysis of Viewer Perceptions Regarding Korea Baseball Organization Broadcasting

Seung-Man Lee 

Department of Physical Education, College of Education, Korea University, Seoul 02841, Korea; lsm14pe@korea.ac.kr; Tel.: +82-2-358-0783; Fax: +82-2-358-0866

**Abstract:** Given the expectations regarding continued improvement in sports relay broadcasting, research related to Korea Baseball Organization (KBO) relay broadcasting is necessary for it to align with the priorities of viewers. The present study aimed to investigate viewers' perceptions of the importance and performance of various aspects of KBO relay broadcasting. In May 2021, purposive sampling was used to select 523 participants who had watched KBO broadcasts for more than one year. Participants completed an online survey administered via Google Forms. Frequency analysis, reliability analysis, descriptive statistical analysis, paired *t*-tests, importance–performance analysis, and revised importance–performance analysis were used to analyze the data. Ratings of importance were higher than those for performance for all sub-factors of KBO relay broadcasting. The IPA, based on the method developed by Martilla and James, yielded 12 factors in Quadrant I, one factor in Quadrant II, five factors in Quadrant III, and two factors in Quadrant IV. In contrast, the use of Vavra's revised IPA method yielded eight factors in Quadrant I, two factors in Quadrant II, five factors in Quadrant III, and four factors in Quadrant IV. Based on the results derived using these two methods, we discuss the strategic and practical implications of identifying priorities via IPA for future improvements in KBO relay broadcasting.

**Keywords:** broadcasting; importance–performance analysis; Korea Baseball Organization



**Citation:** Lee, S.-M. Traditional and Revised Importance-Performance Analysis of Viewer Perceptions Regarding Korea Baseball Organization Broadcasting. *Sustainability* **2021**, *13*, 11670. <https://doi.org/10.3390/su132111670>

Academic Editors: Sungchan Hong and Kyungjin Park

Received: 24 September 2021  
Accepted: 20 October 2021  
Published: 22 October 2021

**Publisher's Note:** MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.



**Copyright:** © 2021 by the author. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

## 1. Introduction

The Korea Baseball Organization (KBO) has grown steadily since its inception in 1982, and support among fans continues to increase based on the results of international competitions, including Korea's gold medal win in the 2008 Beijing Olympics [1]. Indeed, with an audience approaching 8 million in 2016, baseball has established itself as the most popular sport in Korea. The growth of the KBO has brought about innovative changes in relay broadcasting of the sport by increasing the demand for broadcasting, while getting the audience involved. In particular, the competitive structure of professional baseball relay broadcasting, which has centered on broadcasting to cable sports networks since 2005, has enabled both technological and content-related developments in relay broadcasting. Broadcasting companies have used baseball relay broadcasting as a test bed for new technology, with each company employing various elements designed to differentiate it from others.

Changes in KBO broadcasting have been accelerated by the expectations of Korean baseball fans, who have experienced high-quality broadcasting of games involving Korean players in the major leagues (e.g., Chan-Ho Park of the Los Angeles Dodgers and Byung-Hyun Kim of the Arizona Diamondbacks). In cooperation with the Munhwa Broadcasting Corporation (MBC), the Entertainment and Sports Programming Network (ESPN) introduced the Major League Baseball (MLB) relay technique to the KBO in 2005; it took first place in viewer ratings that year. This scenario was a turning point in sports relay

broadcasting, leading to fierce competition among broadcasting companies over KBO broadcasting.

In 2020, the KBO placed restrictions on the number of spectators permitted to enter stadiums and conducted matches without spectators due to the impact of SARS-CoV-2 (COVID-19), and the league continues to operate with a limit on the number of spectators in 2021. Thus, most professional baseball fans have no choice but to watch games via TV, the internet, or smart devices. Given these circumstances, the KBO, individual clubs, broadcasters, and video providers are making great efforts to improve the quality of relay broadcasts provided to viewers. In particular, Korea is a country known for its highly advanced information technology (IT) capabilities, and various relay broadcasting technologies have been employed to make watching KBO a more entertaining experience for fans.

Traditionally, sports and media influence one another via an interactive relationship. This relationship highlights the importance of analyzing satisfaction among viewers when investigating ways to increase the quality of relay broadcasts. Importance–performance analysis (IPA) is a simple method used to identify the priority of the factors to be analyzed and can be of great help to working groups [2,3]. The IPA grid derived by analyzing the two dimensions of importance and performance can identify priorities that require improvement, as well as areas of excess or deficiency [4]. Based on these results, companies can establish marketing strategies to improve customer satisfaction.

In a previous study, Cho [5] investigated the use of MLB and KBO relay broadcasting for political purposes. More specifically, Cho compared how the KBO was used in the 1980s to divert public interest from political issues and encourage state nationalism, with how the sensational popularity of the MLB in the 1990s helped construct alternative governmentality during the International Monetary Fund intervention [5]. In contrast, others highlighted the ability of relay broadcasting to provide useful and interesting content for the public through TV and radio [6]. Mills et al. [7] examined market share competition for MLB relay viewers, while Heennagin [8] investigated the means by which MLB illuminates broadcasting. Accordingly, Cho et al. [9] proposed that sports media in Asia serve as a bridgehead for globalization via sports relays.

Similarly, Ha [10] reported that KBO relay broadcasting has undergone continuous development, in accordance with the development of broadcasting technology and the needs of viewers. Lee [11] verified the structural relationships among broadcast quality, viewer satisfaction, broadcaster image, and channel loyalty in the context of a televised professional baseball highlight program. Choi [12] also reported a relationship between speech constituent factors and public confidence in professional baseball broadcast commentators. Furthermore, Sul and Park [13] conducted a viewing analysis of the characteristics and involvement of college students to establish a marketing strategy for a professional baseball broadcast, while Lee and Shin [14] investigated the determinants of KBO live broadcast ratings.

Several studies have also applied IPA to sports relay broadcasting. Zhang et al. [15] analyzed the importance and performance of the relay broadcasting of Women's National Basketball Association games using the IPA method. In addition, Yoon and Kang [16] conducted a study to analyze the public confidence in commentators involved in the relay broadcasting of golf games using IPA. In addition, Lee et al. [17] examined the credibility of commentators at the 2014 FIFA World Cup in Brazil using IPA and multidimensional scaling (MDS) techniques.

As such, multi-faceted research on baseball and relay broadcasting has been conducted, and various studies have used IPA to investigate relay broadcasting. However, no studies have investigated the qualitative growth of KBO relay broadcasting by examining its importance and performance among viewers. Therefore, in the present study, we analyzed viewer perceptions regarding the importance and performance of KBO relay broadcasting. We also aimed to address the issue of investment priorities. To achieve our aims, we applied the distinct sets of IPA techniques described by Martilla and James [18] and Vavra [19],

respectively, following which we compared the results obtained using the two methods. The hypothesis of this study was established as follows. First, there will be differences in viewers' perceptions of the importance of and satisfaction derived from KBO relay broadcasts. Second, the results of Martilla and James [18]'s IPA and Vavra [19]'s revised IPA will be different.

## 2. Methods

### 2.1. Participants

This study used purposive sampling to select 10 online KBO fan communities, from which 550 KBO viewers active in the community were targeted. Following the exclusion of the data of 27 people who responded insincerely to the questionnaire, the final analysis included data from 523 people. Given the government's enforcement of social distancing due to COVID-19, surveys were conducted online (Google Forms). Table 1 shows the demographic characteristics of the study participants. This study was approved by the Institutional Review Board of Kyunghee University (KHGU-IRB-202107-SB-053) in accordance with ethical requirements.

**Table 1.** Demographic characteristics of the participants.

Characteristic	Groups	Frequency ( <i>n</i> )	%
Gender	Man	435	83.2
	Woman	88	16.8
Age (years)	10–19	75	14.3
	20–29	76	14.4
	30–39	89	17.0
	40–49	116	22.2
	50+	167	31.9
Weekly frequency of broadcast viewing	1	203	38.8
	2	95	18.2
	3	92	17.6
	4	42	8.0
	5	28	5.4
	6	63	12.0
Daily broadcast watching time	Less than an hour	208	39.8
	1–2 h	259	49.5
	More than 2 h	56	10.7
Broadcast viewing period	Less than 1 year	49	9.4
	1–3 years	120	22.9
	4–10 years	80	15.3
	11–20 years	140	26.8
	More than 21 years	134	25.6
Total		523	100

### 2.2. IPA

The IPA method, developed by Martilla and James [18], evaluates a service by analyzing the importance that consumers assign it before using the product and the satisfaction after using the service, with the aim of more easily defining the properties of the product and service. IPA provides practical information for identifying and effectively managing priorities at a low cost [20]. Numerous studies have incorporated IPA, because it allows

for easy visual judgment based on the quadrant of the matrix and can provide clear implications regarding key service attributes. However, many research groups [2,21–24] have raised concerns regarding the IPA method described by Martilla and James [18]. Most important among these is the concern that the two variables of importance and achievement, which must be independent, are related to each other, and the relationship between achievement by attribute and overall performance is asymmetric and nonlinear [4]. In other words, there is a correlation between importance and achievement, and the perception of achievement tends to be high for attributes recognized as practically important. Furthermore, most attributes tend to be concentrated in Quadrants I and III of the IPA grid [25–28].

Thus, efforts are being made to compensate for these shortcomings. Kano et al. [29] pointed out the problems of the IPA method developed by Martilla and James [18] and suggested that it can be improved using a three-factor model: (1) although even a low degree of performance is regarded as satisfaction for a “basic factor,” a lack of performance in such an area indicates that the factor in question is the most basic that should be addressed; (2) although failure to achieve “excitement factors” does not cause dissatisfaction, achieving these factors can lead to customer satisfaction; (3) the “performance factor” refers to the ratio between the degree to which customer requirements can be satisfied and the degree to which customer preferences can be satisfied.

Basic and attractive factors exhibit a nonlinear and asymmetric relationship with overall performance. On the other hand, performance factors exhibit a symmetric and linear relationship with overall performance [29]. Vavra [19], as well as Deng [2], developed revised IPA methods by deriving the relative importance based on the performance of each attribute as the background. In particular, Vavra’s [19] revised IPA method has been used in many studies. In the present study, we used the IPA technique of Martilla and James [18], as well as the revised IPA technique developed by Vavra [19], which utilizes explicit and implicit importance through regression analysis based on the three-factor model proposed by Kano et al. [29]. By comparing the results derived for KBO relay broadcasting using the above two methods, we intended to identify priorities for future improvements and derive strategic and practical implications.

### 2.3. Instruments

The questionnaire consisted of a total of 44 questions, including 38 questions regarding KBO relay broadcasting, one question regarding overall performance, and five questions regarding the demographic characteristics of the participants. First, the demographic characteristics of the participants were as follows: gender (man, woman), age group (10–19 years, 20–29 years, 30–39 years, 40–49 years, 50+ years), broadcast viewing frequency (1–6 times per week), broadcast viewing time per day (less than 1 h, 1–2 h, 2+ h), and broadcast viewing period (less than 1 year, 1–3 years, 4–10 years, 11–20 years, 21+ years). All variables were assessed using a categorical nominal scale.

Items related to KBO relay broadcasting were selected based on the following studies: Berlo et al. [30], Hovland and Weiss [31], Lee et al. [32], Lee et al. [33], and Whitehead [34]. Thereafter, 19 factors were reconstructed according to the study purpose. The content validity of the reconstructed scale was verified using the Delphi technique. As part of this verification, a closed-type (two-point scale) survey was conducted with five expert groups (one professor of sports sociology and four groups of Ph.D. students). Items that affected content validity were removed. The survey assessed the following specific sub-variables of KBO relay broadcasting: impression regarding the cast (1), tone of the cast (2), the communication ability of the relay staff (3), the knowledge of the relay staff (4), relay staff progress ability (5), the ability of relay staff to explain situations (6), broadcaster’s help in watching the game (7), video composition (8), relay data screen (9), relay screen configuration (10), on-the-spot delivery of video (11), on-the-spot delivery of audio (12), player record delivery (13), team record delivery (14), delivery of background knowledge (15), delivery of information concerning the game schedule (16), the ability to participate in

viewer game events (17), the ability to participate in the viewer participation corner (18), and the ability to participate in viewer opinion reflection (19). Each of the 19 sub-factors consisted of two items measuring importance and performance, resulting in a total of 39 items after the inclusion of an additional item measuring overall performance. All items were independently scored using the following scale: “completely agree” (5 points), “agree” (4 points), “neutral” (3 points), “disagree” (2 points), and “do not agree at all (1 point).

After data collection, we verified the intra-item consistency of the scale using Cronbach’s  $\alpha$ . Cronbach’s  $\alpha$  values for the importance and performance items were 0.939 and 0.960, respectively; values of 0.7 or higher are considered to reflect high internal consistency [35]. As there was no item in which the “alpha if item deleted” value was higher than Cronbach’s  $\alpha$ , the study was conducted without removing any items.

## 2.4. Procedure and Data Analysis

Data were collected via an online survey (Google Forms) targeting KBO broadcast viewers in 2021. Data obtained through this procedure were analyzed using SPSS (version 24.0; IBM Corp., Armonk, NY, USA). First, a frequency analysis was performed to confirm the demographic characteristics of the participants. Second, the reliability of the research tool was verified using Cronbach’s  $\alpha$ . Third, a paired samples *t*-test was conducted to analyze differences in importance and performance for the sub-variables of KBO relay broadcasting. Fourth, the traditional IPA [18] and Vavra’s revised IPA [19] methods were used to verify the importance and performance of each variable.

## 3. Results

### 3.1. Difference in Importance-Performance Levels for KBO Relay Broadcasting

Prior to preparing the IPA grid for KBO relay broadcasting, we conducted a paired *t*-test to examine whether there was a statistically significant difference between the importance and achievement (i.e., satisfaction) items for the relay broadcasting properties rated by respondents. The results of this analysis are shown in Table 2. The difference between the average ratings for importance and performance was statistically significant for all items related to KBO relay broadcasting ( $p < 0.001$ ). In other words, viewers rated the importance of all sub-factors of KBO relay broadcasting higher than their own performance with these sub-factors, suggesting that broadcasters would need to adopt various strategies to increase viewer satisfaction with relay broadcasting. In particular, the largest difference between importance and performance was noted for knowledge of the cast (4) ( $t = 19.847$ ), while the smallest difference was noted for the broadcaster’s help in watching the game (7) ( $t = 4.508$ ).

### 3.2. IPA Based on the Method Developed by Martilla and James

Figure 1 shows the results of the analysis for importance and performance of KBO relay broadcasting obtained using the IPA method suggested by Martilla and James [18]. The IPA grid was constructed by intersecting the average value of 4.28 for importance and the average value of 3.89 for performance to generate axes for importance (Y-axis) and achievement (X-axis). Each factor was distributed in the quadrants as follows. Quadrant I included the relay staff’s communication ability (3), relay staff knowledge (4), relay staff progress ability (5), the ability of the relay staff to explain situations (6), video composition (8), relay data screen (9), relay screen configuration (10), on-the-spot delivery of video (11), on-the-spot delivery of audio (12), player record delivery (13), and team record delivery (14). Thus, both importance and performance were above average for these factors, which were included in the “keep up the good work” area of the IPA grid. Only the tone of the cast (2) was included in Quadrant II, which reflects the “concentrate here” area of the IPA grid. In addition, five items were included in Quadrant III (i.e., the “low-priority” area): impression of the cast (1), background knowledge delivery (15), game event (17), viewer participation corner (18), and viewer opinion reflection (19). Two items—broadcaster’s

help in watching the game (7) and delivery of information regarding the game schedule (16)—were included in Quadrant IV, indicating “possible overkill”.

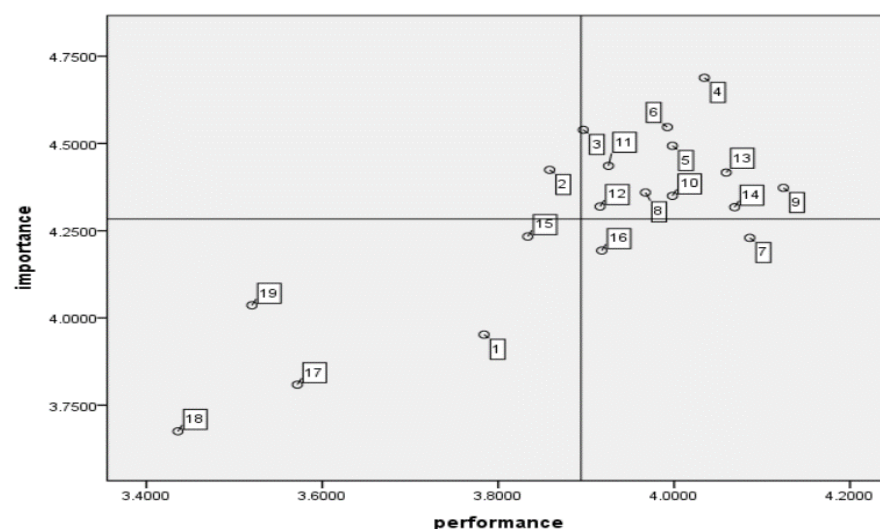
**Table 2.** Difference between importance and performance ratings for KBO relay broadcasting.

Item No.	Sub-Variables	Importance		Performance		Mean Difference	Rank Difference	<i>T</i>	<i>p</i>
		M	SD	M	SD				
1	Impression of the cast	3.95	0.94	3.78	0.77	0.17	18	4.121	<0.001 ***
2	Tone of the cast	4.42	0.72	3.86	0.75	0.56	3	15.081	<0.001 ***
3	Relay staff’s communication ability	4.54	0.66	3.90	0.77	0.64	2	17.448	<0.001 ***
4	Relay staff knowledge	4.69	0.61	4.03	0.76	0.66	1	19.847	<0.001 ***
5	Relay staff progress ability	4.49	0.64	4.00	0.73	0.49	7	14.539	<0.001 ***
6	Ability of relay staff to explain situations	4.55	0.66	3.99	0.77	0.56	3	15.594	<0.001 ***
7	Broadcaster’s help in watching the game	4.23	0.85	4.09	0.78	0.14	19	4.508	<0.001 ***
8	Video composition	4.36	0.75	3.97	0.83	0.39	10	11.583	<0.001 ***
9	Relay data screen	4.37	0.74	4.12	0.79	0.25	14	8.286	<0.001 ***
10	Relay screen configuration	4.35	0.73	4.00	0.81	0.35	12	10.922	<0.001 ***
11	On-the-spot delivery of video	4.44	0.72	3.93	0.87	0.51	6	13.359	<0.001 ***
12	On-the-spot delivery of audio	4.32	0.73	3.92	0.84	0.40	8	11.081	<0.001 ***
13	Delivery of player record	4.42	0.69	4.06	0.77	0.36	11	11.162	<0.001 ***
14	Delivery of team record	4.32	0.71	4.07	0.76	0.25	14	8.091	<0.001 ***
15	Background knowledge delivery	4.23	0.78	3.83	0.83	0.40	8	11.719	<0.001 ***
16	Delivery of game schedule information	4.19	0.83	3.92	0.81	0.27	13	8.472	<0.001 ***
17	Game event	3.81	1.00	3.57	0.92	0.24	16	6.159	<0.001 ***
18	Viewer participation corner	3.68	1.04	3.44	1.02	0.24	16	6.014	<0.001 ***
19	Viewer opinion reflection	4.04	0.89	3.52	0.97	0.52	5	12.080	<0.001 ***

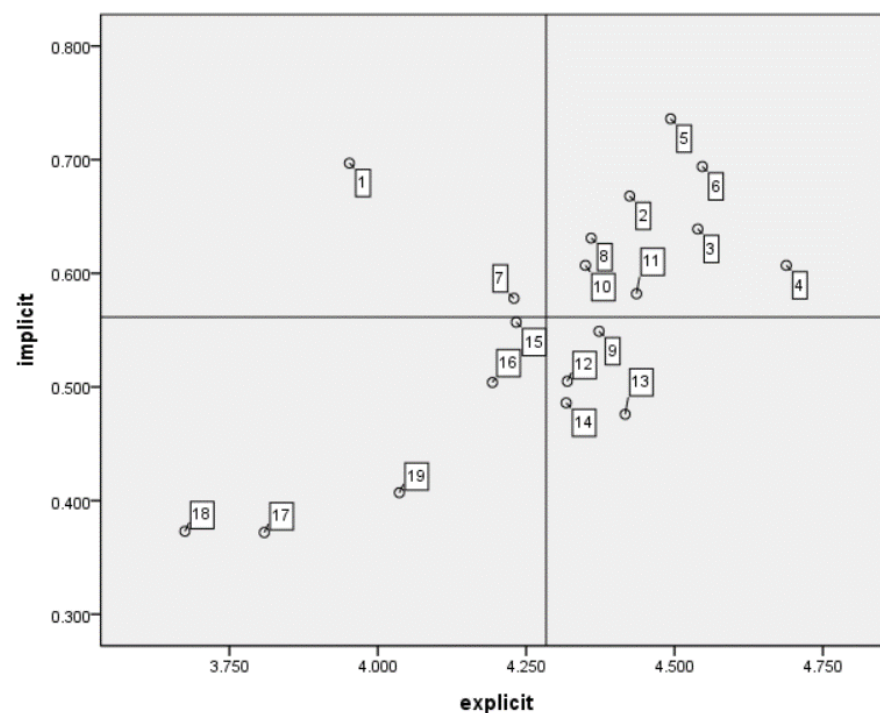
\*\*\*  $p < 0.001$ , tested by paired samples *t*-test.

### 3.3. IPA Using the Revised Method Reported by Vavra

After applying Vavra’s method [19], the IPA grid was constructed using explicit importance (X-axis), which is the result of the respondents’ evaluation of KBO relay broadcasting, and implicit importance (Y-axis), which is derived from the regression coefficient for overall performance. The revised IPA results are shown in Figure 2.



**Figure 1.** Importance-performance analysis grid constructed based on the method by Martilla and James [18].



**Figure 2.** Revised importance-performance analysis grid of explicit vs. implicit performance based on the method by Vavra [19].

The average values of implicit and explicit importance (4.28 and 0.56, respectively) were used as intersection points to divide the matrix into quadrants. Quadrant I included the following: tone of the cast (2), relay staff's communication ability (3), relay staff knowledge (4), relay staff progress ability (5), the ability of the relay staff to explain the situation (6), video composition (8), relay screen configuration (10), and on-the-spot delivery of video (11). This quadrant represents "important performance factors," for which both implicit and explicit importance are high. Two attributes—impression of the cast (1) and broadcaster's help in watching the game (7)—were located in Quadrant II, which reflects "excitement factors" that are high in implicit importance and low in explicit importance. The following five attributes were included in Quadrant III, which reflects "unimportant performance factors" that are low in both implicit and explicit importance:

background knowledge delivery (15), delivery of game schedule information (16), game event (17), viewer participation corner (18), and viewer opinion reflection (19). Finally, four attributes were included in Quadrant IV, which reflects basic factors that are low in implicit importance but high in explicit importance: relay data screen (9), on-the-spot delivery of audio (12), player record delivery (13), and team record delivery (14).

The traditional IPA method [18] and revised IPA [19] methods using implicit and explicit importance yielded different classification results, as shown in Table 3. Although seven items of Quadrant I (3, 4, 5, 6, 8, 10, and 11) and four items of Quadrant III (15, 17, 18, and 19) were the same for both methods, the remaining items were located in different quadrants.

**Table 3.** Summary of findings.

Quadrant	IPA (Martilla and James [18])	Revised IPA (Vavra [19])
I	Keep up the good work 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 14	Important performance factor 2, 3, 4, 5, 6, 8, 10, 11
II	Concentrate here 2	Excitement factor 1, 7
III	Low priority 1, 15, 17, 18, 19	Unimportant performance factor 15, 16, 17, 18, 19
IV	Possible overkill 7, 16	Basic factor 9, 12, 13, 14

1 = impression of the cast, 2 = tone of the cast, 3 = relay staff's communication ability, 4 = relay staff knowledge, 5 = relay staff progress ability, 6 = ability of the relay staff to explain the situation, 7 = broadcaster's help in watching the game, 8 = video composition, 9 = relay data screen, 10 = relay screen configuration, 11 = on-the-spot delivery of video, 12 = on-the-spot delivery of audio, 13 = player record delivery, 14 = team record delivery, 15 = background knowledge delivery, 16 = delivery of information regarding the game schedule, 17 = game event, 18 = viewer participation corner, 19 = viewer opinion reflection.

#### 4. Discussion

Broadcasting is an important element of sports that brings viewers closer to the event. Developments in relay broadcasting techniques, along with advancements in science and technology, have made sports more interesting for viewers. Given expectations regarding continued progress in sports relay broadcasting, research related to KBO relay broadcasting is necessary for it to align with the priorities of viewers. To promote future improvements in this arena, we investigated perceptions of importance and performance among viewers of KBO relay broadcasting, using the IPA and revised IPA methods proposed by Martilla and James [18] and Vavra [19], respectively.

Previous studies have reported that the results obtained using the IPA method of Martilla and James [18] may lead to incorrect derivation of improvement strategies [2,19,21,23]. Although the revised IPA method has been proposed as an alternative to address this issue, studies in the field of sports have mainly utilized the method developed by Martilla and James [18]. In our study, the IPA method of Martilla and James [18] yielded 12 factors in Quadrant I and one factor in Quadrant II. Five factors were included in Quadrant III, and two factors were included in Quadrant IV. Thus, as has been pointed out in previous studies [2,21–24], most of the factors were concentrated in Quadrants I and III. Notably, tone of the cast (2) was identified as the only factor with high importance but low performance. The KBO broadcast crew usually consists of a sports announcer and one or two commentators. The announcer performs the broadcast after mastering specific skills, including voice, intonation, and expression, but the professional commentator is typically a former baseball player who draws upon his field experience to add fun to the broadcast. However, most commentators who used to play professional baseball are not familiar with relay broadcasting, and only if they have accumulated sufficient experience and dedicated their efforts to improving their skills in broadcasting can they provide commentary at a level with which viewers can be satisfied. For this reason, it is necessary to avoid hasty,

unprepared commentary from an athlete and to ensure that athletes wishing to provide commentary are prepared to stand in front of the audience.

The use of Vavra's revised IPA method [19] yielded eight factors in Quadrant I and two factors in Quadrant II. Five factors were included in Quadrant III, and four factors were included in Quadrant IV. The results obtained using the revised method indicated that most factors were located in Quadrant I. However, while most factors were located in Quadrants I and III using the traditional IPA method, the revised method led to an even distribution of factors throughout the quadrants. Quadrant I included the tone of the cast (2), the relay staff's communication ability (3), relay staff knowledge (4), relay staff progress ability (5), the ability of the relay staff to explain the situation (6), video composition (8), relay data screen (10), and on-the-spot video delivery (11). Quadrant I includes areas that are considered "important performance factors," for which both implicit and explicit importance are high. These factors require continuous management as the level of satisfaction perceived by viewers increases due to improvements in relay broadcasting technology [29]. This result suggests that viewers felt that commentators were making sufficient progress and provide adequate explanations, that they perceived the relay broadcasting video screen to be well-organized, and that the video conveyed a sense of realism. For example, the use of "flashback" scenes to repeat a game sequence in normal or slow motion [16] has great meaning in that it provides information regarding the referee's decision and allows the viewer to check the accuracy of that decision. Yoon [16] argued that flashback scenes help viewers to understand the on-field situation in greater depth; they are of great importance for broadening the understanding of the game and enhancing its entertainment value. This hypothesis is in accordance with the results of the present study. On the other hand, most of the derived items are related to the relay team. Since the relay team is a crucial component of the broadcast from beginning to end, our results indicate that it is necessary to develop strategies for enhancing the expertise of the relay team and delivering the content more effectively.

Quadrant III, in which both implicit and explicit importance are low, included background knowledge delivery (15), delivery of information related to the game schedule (16), game events (17), viewer participation corner (18), and viewer opinion reflection (19). These five attributes are regarded as "unimportant performance factors." In other words, when executed well, these factors have a positive effect on overall performance; however, when executed poorly, they have a negative effect on overall performance [29]. Therefore, broadcasters should assess the various needs of viewers for the factors located in Quadrant III to develop supplementary measures for increasing the overall performance of KBO relay broadcasting. In summary, for the "performance factors" located in Quadrants I and III, variables with higher importance require a higher level of performance. Therefore, broadcasters should use these to differentiate themselves from their competitors.

Quadrant II included the impression of the cast (1) and the broadcaster's help in watching the game (7). These attributes are regarded as "excitement factors," which are high in implicit importance and low in explicit importance. Although failure to achieve "excitement factors" does not lead to dissatisfaction, achieving these factors does increase satisfaction [29]. This is a quality factor that provides unexpected satisfaction to the viewer or exceeds the viewer's expectations. Broadcasters usually communicate with viewers only through their voice, but when a video revealing the appearance of the broadcaster is unexpectedly provided to viewers, this may enhance entertainment value. In other words, the neat and beautiful appearance of the broadcast crew can foster trust and interest among viewers. In addition, because they are mainly interested in the performance of the team they support, viewers do not have high expectations regarding the broadcast team's commentary, but the broadcast crew's analysis of a situation helps them to better understand the game. Given that this may be an easy factor to address, it can be interpreted as an essential element. Our results suggest that it is necessary to develop a variety of programs that can help viewers watch the game and provide enhanced benefits that can inspire them.

Quadrant IV included the following four attributes, which were regarded as low in implicit importance and high in explicit importance: relay data screen (9), on-the-spot delivery of audio (12), player record transmission (13), and team record transmission (14). These are considered “basic factors.” Although satisfaction is not very high when these attributes are rated positively, dissatisfaction occurs when they are rated negatively [29]. For example, it is taken for granted that a player or team record is delivered accurately, but if the wrong record is delivered, the viewer’s satisfaction with the broadcast may decrease. In other words, basic factors are necessary, but not sufficient for satisfying requirements. These factors are expected to be met and taken for granted. Therefore, in the case of elements classified as “basic factors,” it is necessary to prepare carefully and make an effort to avoid decreased satisfaction among viewers in unintended areas.

The demands of KBO broadcast viewers are becoming increasingly diverse, with an emphasis on more advanced types of services. To increase viewers’ satisfaction, our results suggest that more attention should be paid to developing a new relay broadcasting method based on factors attractively perceived by viewers rather than maintaining the existing uniform relay broadcasting method. Thus, strategies that differentiate broadcast companies from their competitors may be particularly advantageous.

As of 2021, the world is still experiencing the effects of COVID-19, and the sports scene is no exception. The Tokyo 2020 Olympic Games were held in 2021, after being postponed by one year due to the pandemic. The events were also held without spectators or with limited spectators, and most games were presented to people via broadcast. In the “COVID era” or the “post-COVID era,” the proportion of relay broadcasting in the sports scene will increase. Therefore, it is necessary to improve the quality of items that are of high importance in various sports broadcasting sites, including professional baseball, and have high viewer satisfaction. In addition, it will be necessary to prioritize the items with high importance but relatively low satisfaction among viewers.

Sports and media have a complementary relationship. Media technology develops through sports, while it makes sports easily accessible to the public. It is expected that sports relay broadcasting will continue to evolve; therefore, as indicated in the results of this study, organizations or institutions that plan and execute relay broadcasting should continuously identify relay broadcasting methods that viewers prefer and make an effort to provide broadcasts that meet viewers’ preferences for sustainable sport and physical activity education.

In this study, different results were derived using the two IPA methods [18,19], and it may be necessary to discuss which method is more effective in future studies. However, given that IPA requires the consideration of many factors, the results of each method may be useful, depending on the needs of the reader. In this regard, O’Neill and Palmer [36] have emphasized the practical use of IPA, arguing that there is no need to focus excessively on academic issues. In other words, the appropriate method should be selected based on the problem to be addressed at each time. Our results support this position.

The results of this study had several limitations. (1) According to our results, more attention should be paid to developing a new relay broadcasting method, based on factors that viewers perceive as attractive rather than maintaining the existing uniform relay broadcasting method. Thus, strategies that distinguish broadcast companies from their competitors may be particularly advantageous. Although we derived meaningful results via an IPA of baseball broadcasts, future studies should investigate whether ratings of importance and performance differ based on the sport. (2) Moreover, although we utilized a quantitative research method in the present study, further studies involving qualitative research methods, such as in-depth interviews with relay broadcasters and viewers, or mixed research methods, are necessary, as these may complement and aid in interpreting the IPA results. (3) These combined methods will help to provide three-dimensional and persuasive data. Additional studies may wish to compare findings related to broadcasts of professional baseball in various countries, such as the United States, Japan, and Taiwan.

## 5. Conclusions

Our IPA demonstrated that viewers valued the knowledge of the cast as the most important aspect of KBO relay broadcasting and were most satisfied with the relay data screen. In addition, importance and performance ratings were lowest for the viewer participation corner. Notably, significant differences between importance and performance were observed for all sub-factors of KBO relay broadcasting. The IPA grid obtained using the method developed by Martilla and James [18] included 12 factors in Quadrant I (keep up the good work), one factor in Quadrant II (concentrate here), five factors in Quadrant III (low priority), and two factors in Quadrant IV (possible overkill). The revised IPA method developed by Vavra [19] yielded eight factors in Quadrant I (important performance factor), two factors are in Quadrant II (excitement factors), five factors are in Quadrant III (unimportant performance factors), and four factors in Quadrant IV (basic factors). While seven items in Quadrant I (3, 4, 5, 6, 8, 10, and 11) and four items in Quadrant III (15, 17, 18, and 19) were the same for both methods, the remaining items were located in different quadrants.

These results indicate that, to provide relay broadcasts that can more successfully satisfy viewers, it is necessary to improve the professionalism of the relay crew, secure the relay capability, and continuously develop relay technology so that viewers can watch more dynamic and realistic relay broadcasts. It is necessary for stakeholders to make efforts and improve. Due to the “no-contact era” that has developed in response to COVID-19, KBO broadcasts will need to develop further, because viewers are watching sports in more private settings. The results derived from this study can be used as basic data for the development of KBO relay broadcasting.

**Funding:** This research received no external funding.

**Institutional Review Board Statement:** The study was conducted according to the guidelines of the Declaration of Helsinki, and approved by the Institutional Review Board (or Ethics Committee) of Kyunghee University IRB approval (KHGU-IRB-202107-SB-053).

**Informed Consent Statement:** Informed consent was obtained from all subjects involved in the study.

**Data Availability Statement:** The data presented in this study are available on request to the authors. Some variables are restricted to preserve the anonymity of study participants.

**Conflicts of Interest:** The authors declare no conflict of interest.

## References

1. Lee, S.M. Structural Relationship between Physical Self-Concept, Occupational Instability, and Retirement Intention among South Korean Minor League Baseball Players. *Healthcare* **2021**, *9*, 595. [[CrossRef](#)] [[PubMed](#)]
2. Deng, W. Using a Revised Importance–Performance Analysis Approach: The Case of Taiwanese Hot Springs Tourism. *Tour. Manag.* **2007**, *28*, 1274–1284. [[CrossRef](#)]
3. Hansen, E.; Bush, R.J. Understanding Customer Quality Requirements: Model and Application. *Ind. Mark. Manag.* **1999**, *28*, 119–130. [[CrossRef](#)]
4. Matzler, K.; Bailom, F.; Hinterhuber, H.H.; Renzl, B.; Pichler, J. The Asymmetric Relationship between Attribute-Level Performance & Overall Customer Satisfaction: A Reconsideration of the Importance- Performance Analysis. *Ind. Mark. Manag.* **2004**, *33*, 271–277.
5. Cho, Y. Broadcasting Major League Baseball as a Governmental Instrument in South Korea. *J. Sport Soc. Issues* **2008**, *32*, 240–254. [[CrossRef](#)]
6. Ham, E.L. *Broadcasting Baseball: A History of the National Pastime on Radio and Television*; McFarland: Jefferson, NC, USA, 2011.
7. Mills, B.M.; Mondello, M.; Tainsky, S. Competition in Shared Markets and Major League Baseball Broadcast Viewership. *Appl. Econ.* **2016**, *48*, 3020–3032. [[CrossRef](#)]
8. Hennagin, N.M. Blackout or Blackmail-How Garber V. MLB Will Shed Light on Major League Baseball’s Broadcasting Cartel. *Brook. J. Corp. Fin. Com. L.* **2013**, *8*, 158.
9. Cho, Y.; Leary, C.; Jackson, S.J. Globalization and Sports in Asia. *Sociol. Sport J.* **2012**, *29*, 421–432. [[CrossRef](#)]
10. Ha, S.W. A Study on Changes in Producing Components of Korean TV Sports Relay Broadcasting: Focused on Professional Baseball Relay Broadcasting. Ph.D. Thesis, Konkuk University, Seoul, Korea, 2014.
11. Lee, Y.G. A Causal Relationships among Broadcasting Quality, Viewers Satisfaction, TV Station’s Image, and Channel Loyalty on TV Baseball Highlights. *Korean J. Phys. Educ.* **2016**, *55*, 377–391.

12. Choi, Y.L. The Effect of Speech Component Factors of Pro-baseball Broadcasting Commentator on Credibility. *J. Sport Leis. Stud.* **2012**, *50*, 353–365. [[CrossRef](#)]
13. Sul, M.S.; Park, D.Y. Watching Characteristic Analysis of Professional Baseball Relay Broadcast on College Students' Characteristics and Participation. *J. Sport Leis. Stud.* **2013**, *51*, 311–320. [[CrossRef](#)]
14. Lee, S.I.; Shin, S.H. Determining Factors of Korean Professional Baseball League Live Broadcast Ratings. *Korean J. Phys. Educ.* **2013**, *52*, 249–262.
15. Zhang, J.J.; Lam, E.T.; Cianfrone, B.A.; Zapalac, R.K.; Holland, S.; Williamson, D.P. An Importance–Performance Analysis of Media Activities Associated with WNBA Game Consumption. *Sport Manag. Rev.* **2011**, *14*, 64–78. [[CrossRef](#)]
16. Yoon, S.W.; Kang, S.T. The Study on Credibility of Golf Commentator Based on IPA. *Korean Soc. Sports Sci.* **2016**, *25*, 839–853.
17. Lee, J.H.; Li, J.L.; Kim, J.H. A Study on Public Confidence in the Sports Commentators of Each Broadcasting Company with the Use of IPA and MDS. *Korean J. Sport Sci.* **2015**, *26*, 267–280.
18. Martilla, J.A.; James, J.C. Importance-Performance Analysis. *J. Mark.* **1977**, *41*, 77–79. [[CrossRef](#)]
19. Vavra, T.G. *Improving Your Measurement of Customer Satisfaction: A Guide to Creating, Conducting, Analyzing, and Reporting Customer Satisfaction Measurement Programs*; ASQ Quality Press: Milwaukee, WI, USA, 1997.
20. Yang, J.H. A Study on The Distribution Strategy of Convenience foods at Convenience Store Based Using Revised IPA. *J. Korea Serv. Manag. Soc.* **2015**, *16*, 101–123. [[CrossRef](#)]
21. Deng, W.J.; Kuo, Y.F.; Chen, W.C. Revised Importance-Performance Analysis: Three-Factor Theory and Benchmarking. *Serv. Ind. J.* **2008**, *28*, 37–51. [[CrossRef](#)]
22. Jeong, C.; Seo, Y.S. Re-Examination of Importance-Performance Analysis (IPA) Used in Tourism Studies in Korea. *J. Tour. Stud.* **2010**, *22*, 119–137.
23. Oh, H. Revisiting Importance-Performance Analysis. *Tour. Manag.* **2001**, *22*, 617–627. [[CrossRef](#)]
24. Pyo, S.S. Improvement of Importance-Performance Analysis Study. *J. Tour. Sci.* **2009**, *33*, 227–251.
25. Lee, S.M.; So, W.Y.; Youn, H.S. Importance-Performance Analysis of Health Perception among Korean Adolescents during the COVID-19 Pandemic. *Int. J. Environ. Res. Public Health* **2021**, *18*, 1280. [[CrossRef](#)] [[PubMed](#)]
26. Oh, M.J.; Ryu, J.S. Comparison between Traditional IPA and Revised IPA: An Attractiveness Evaluation of Incheon Chinatown. *Int. J. Tour. Hosp. Res.* **2016**, *30*, 129–142. [[CrossRef](#)]
27. Olimpia, B. The Construction of Importance-Performance Grid in Tourist Services Research without the Direct Determination of the Attributes Importance. *J. Fac. Econ. Univ. Oradea* **2012**, *1*, 474–480.
28. Wyród-Wróbel, J.; Biesok, G. Decision Making on Various Approaches to Importance-Performance Analysis (IPA). *Eur. J. Bus. Sci. Technol.* **2017**, *3*, 123–131. [[CrossRef](#)]
29. Kano, N.; Seraku, N.; Takahashi, F.; Tsuji, S. Attractive Quality and Must-Be Quality. *Hinshitsu- J. Jpn. Soc. Qual. Control* **1984**, *14*, 39–48.
30. Berlo, D.K.; Lemert, J.B.; Mertz, R.J. Dimensions for Evaluating the Acceptability of Message Sources. *Public Opin. Q.* **1969**, *33*, 563–576. [[CrossRef](#)]
31. Hovland, C.I.; Weiss, W. The influence of source credibility on communication effectiveness. *Public opinion quarterly* **1951**, *15*, 635–650. [[CrossRef](#)]
32. Lee, J.H.; Kim, J.H.; Noh, J.H. Influence of Public Trust of Sports Communicator by Broadcasting Station on the Satisfaction of Watching TV by Teenagers and Their Intention of Re-Watching-Focusing on Relay Broadcasting of the 2006 FIFA Worldcup Germany. *Korean J. Sport Sci.* **2007**, *18*, 40–48.
33. Lee, Y.G.; Lee, J.H.; Lee, M.S.; Park, Y.M. The Relationship among Public Trust of Golf Commentator, Satisfaction of Watching TV and Intention to Re-watch. *J. Sport Leisure Studies* **2011**, *45*, 365–374. [[CrossRef](#)]
34. Whitehead, J.L., Jr. Factors of Source Credibility. *Q. J. Speech* **1968**, *54*, 59–63. [[CrossRef](#)]
35. Weaver, B.; Maxwell, H. Exploratory Factor Analysis and Reliability Analysis with Missing Data: A Simple Method for SPSS Users. *Quant. Methods Psychol.* **2014**, *10*, 143–152. [[CrossRef](#)]
36. O'Neill, M.A.; Palmer, A. Importance-Performance Analysis: A Useful Tool for Directing Continuous Quality Improvement in Higher Education. *Qual. Assur. Educ.* **2004**, *12*, 39–52. [[CrossRef](#)]