IJASC 23-1-17

Enhancing the Reliability of OTT Viewing Data in the Golden Age of Streaming: A Small Sample AHP Analysis and In-Depth Interview

Seung-Chul Yoo[1], Yoontaek Sung[2], Hye-Min Byeon[3], Yoonmo Sang[4], Diana Piscarac[5]

[1]*Associate Professor, Division of Communication & Media, Ewha Womans University, Korea*
[2]*Research Fellow, Media & Advertising Research Institute, Korea Broadcast Advertising Corporation, Korea*
[3]*Research Fellow, Media & Advertising Research Institute, Korea Broadcast Advertising Corporation, Korea*
[4]*Assistant Professor, Department of Media Communication, Sungshin Women's University, Korea*
[5]*Doctoral Student, Division of Communication & Media, Ewha Womans University, Korea*
E-mail : [1]communication@ewha.ac.kr , [2]takarajima@kobaco.co.kr, [3]hyemin.hmb@kobaco.co.kr,
[4]ymsang@sungshin.ac.kr, [5]diana.piscarac@ewhain.net

Abstract

With the OTT media market growing rapidly, the significance of trustworthy data verification and certification cannot be emphasized enough. This study delves into the crucial need for such measures in South Korea, exploring the steps involved, the technological and policy-related considerations, and the challenges that may arise once these measures are put into place. Drawing on in-depth interviews and the analytical hierarchy process (AHP), this study surveyed various stakeholder groups, both directly and indirectly related to OTT data authentication and certification. By assessing the severity of OTT data-related issues and identifying the requirements for reliability-improvement policies, participants shared their valuable insights and opinions on this pressing matter. The survey results clearly indicate a divided opinion among stakeholders and industry experts on the reliability of OTT data, with some expressing trust while others remain skeptical. However, there was a consensus that advertising-based AVOD is more reliable than SVOD. By analyzing the priorities of authentication and verification, this study paves the way for the establishment and operation of a Korean MRC (KMRC), centered on the OTT media industry. The KMRC will serve as a vital platform for ensuring the authenticity and accuracy of OTT data in South Korea, providing businesses and industry players with a reliable source of information for informed decision-making. This study highlights the pressing need for reliable data authentication and certification in the rapidly growing OTT media market, and provides a persuasive case for the establishment of a KMRC in South Korea to meet this critical need.

Keywords: OTT data, digital media data, data quality, KMRC, AHP method.

1. Introduction

With the diversification of digital media and the creation of a convergence environment, audiences' use of media is changing in various ways. For example, media consumption time is increasing and there is a liberalization of consumption space and increasingly complex media-usage patterns. As media is converting to digital, the previous provider-centered initiatives are shifting from sender to receiver. Consumers actively

select media and contents and gradually show personalized media consumption behavior. In the rapidly changing media market, it is becoming obvious that media data is increasingly important for the establishment of public policy and for increasing market utilization. Moreover, media data occupies an important position in the media and advertising market. A critical component of the media advertising market (where capital runs through various stakeholders) is the ability to measure and certify media and advertising effects.

The ability is founded on accurate data. Securing the 'reliability' of media data is essential in fulfilling its role as currency in the media market. This is because 'viewership data' is an important criterion for determining the distribution of advertising resources in the media market. Especially in the era of diversification and convergence of media along with the emergence of new ad types, it is essential to enhance the reliability of media data to create and expand the transparent media market as it is changing and overheating. Objectively measuring the effectiveness of digital media selected for efficient advertising execution is important because it is a part that can confirm the return on advertising investment (ROI). One way to secure the reliability of advertisements is to objectively measure effects through verified media data, which is essential for establishing fair media market standards.

Currently, the private sector has failed to carry out any quality management of OTT data. We intend to seek out quality-control measures to secure diversity and autonomy while securing the objectivity and reliability of private statistics related to media use. By targeting stakeholder groups directly or indirectly related to OTT data authentication and certification, we intend to understand the in-depth opinions and requirements for accepting/rejecting the reliability enhancement policy of each group. Specifically, we aim to explore the necessity, subject, methodology and expected problems of OTT data authentication and certification. By analyzing the priorities of authentication and verification, we aim to present a plan to establish and operate a so-called Korean MRC (KMRC), centered on OTT media. Through individual in-depth interviews with stakeholders who are directly or indirectly related to OTT data authentication and verification, we intend to synthesize opinions on acceptance/rejection/retainment of each group and their related requirements. Specifically, we will explore the necessity for OTT data authentication and certification, the technological and policy measures, as well as various problems that may be expected should all this be carried out.

2. OTT media performance indicators and issues

2.1. Limitations of Traditional Media Rating Measurement Models
Measures of audience size and composition have served as the currency that supports commercial media operations. However, the continual 'audience fragmentation' that commenced with cable television and accelerated with non-linear digital media requires a change in the existing panel-based audience survey methods [1]. Furthermore, traditional people meter-based audience rating surveys show differences between measurement companies. In measuring delayed viewing by users of smartphones and various digital devices, there are certain limitations--the small number of panels of rating survey companies, as well as the fact that the composition of panels fails to reflect the viewing behavior of users who stream via the Internet. Lastly, indicators for measuring ratings of OTT content are collected by individual operators or institutions, meaning no standardized measurement system exists.

2.2. Increase in digital advertising, advertising fraud and brand safety
By 2022, digital advertising is expected to account for over half (52%) of the domestic advertising market. At the same time, in the advertising market, which is being reorganized into a digital center, the issue of advertising fraud is growing in severity. In addition, the issue of brand safety in the digital media environment

is also increasing in importance. Major overseas countries, including the USA and the UK, have established and operated advertisement-related data authentication and verification agencies, along with efforts to establish a viewer-rating survey system suitable for this diversified media environment. Until now, real-time broadcasting has been subject to relatively stronger regulations than non-real-time videos, and in the case of broadcasting, various regulations have been applied in the advertising area.

2.3. Discussion about the OTT advertising business model and changes in the market

Domestic pay-TV and OTT operators are showing a lot of interest in the impact of Netflix's introduction of the advertising rate system on the media and advertising market. Specifically, as subscription-based VOD services such as Netflix and Disney Plus adopt advertising business models, they are expected to refresh their advertising campaign strategies based on an understanding of what targeting options are possible and what new audiences they can reach. Therefore, when discussing digital media ratings and verification of advertising-related data, it is necessary to review how existing advertising-related regulatory models will be applied to OTT services and how self-regulation efforts related to advertising fraud and brand safety can be institutionalized.

2.4. Increased need for transparency and reliability related to OTT data

Viewers' media usage behavior is becoming more diverse. Yet in Korea measuring audience viewing has barely deviated from the viewer-rating survey method centered on real-time television broadcasting. Therefore, data on digital media viewership, including OTT, lacks trust in data due to the lack of unified measurement standards, unclear related policies and OTT operators' failure to transparently disclose user data. Specifically, global SVOD operators, who are in a superior position to provide services that reflect the characteristics of users, are collecting large amounts of user data around the world and have invested in technologies to intensify this process. On the other hand, criticism has been raised that broadcasters do not receive data about their content being streamed on SVOD or have only limited access rights. In this context, there is increasing concern that the measurement methods used by operators who extensively collect user data may become the standard used by advertisers.

As the proportion of digital advertising is expected to continue to grow, and advertising fraud and brand safety issues become more important, KMRC needs to pay attention not only to measuring OTT data performance indicators, but also to establishing a minimum common standard related to advertising data measurement.

3. Methodology

This study tried to actively use the various perspectives of interested parties (hereafter referred to as "stakeholders") related to securing the reliability of OTT data, classify and synthesize their opinions by category and proceed to "research methods for securing and utilizing OTT data reliability". The in-depth interview is one qualitative research method which allows for an unsystematic, semi-structured personal interview in which participants answer questions, speaking relatively freely about their feelings and beliefs about the research topic [2]. Specifically, stakeholder groups related to securing OTT data reliability were divided into a total of four groups and related experts were invited for interviews.

A total of 20 people participated in the in-depth interviews related to OTT data, and the stakeholders related to securing the reliability of OTT data were divided into a total of 4 groups, as well as related experts being invited as interview subjects. The opinions of a total of 20 people were combined into the followingfour groups: 1) OTT advertising practice experts (6 people), 2) SVOD OTT working experts (5 people), 3) OTT ad tech

experts (3 people), and 4) OTT technology policy experts (6 people). The in-depth interview questions broadly consisted of five areas--1) OTT data utilization and reliability, 2) media data reliability level, 3) OTT data reliability problem diagnosis, 4) technology for enhancing OTT data reliability, 5) OTT data authentication/certification and improvement measures. The reason for interviewing SVOD OTT working experts is that currently (as of 2022), OTT is operated by subscription (SVOD-OTT) rather than advertisement-based (AVOD-OTT), so it is highly likely to introduce advertisement-based OTT services after Netflix's advertising business is settled. A series of individual interviews were conducted to identify the main frame of perceptions held by experts representing stakeholders related to securing media data reliability [3]. In more cases, qualitative research methods are more appropriate for in-depth analysis of phenomena in a specific area than using quantitative data [4]. In particular, this study was conducted using a semi-structured interview method for exploratory purposes, based on Grounded Theory [5]. Face-to-face in-depth interviews are a qualitative research methodology that uses a conversation form to collect and analyze a subject's unfiltered statements to uncover the subject's perception of the event, including the specific background, process, and backstory. To prioritize the safety of all participants during the study, in-depth interviews lasting an hour were conducted via online voice call or face-to-face, as per the interviewees' preferences, due to the widespread nature of the COVID-19 infectious disease at the time. After audio recording the interview, the recorded data was transcribed by a researcher in charge of transcription and converted into a text file, which the researcher then analyzed using a qualitative software dedicated to qualitative research, such as (Nvivo 11) software for qualitative data analysis' analysis [6].

Table 1. Design of stakeholder in-depth interviews

Section	Content
Target Sample	4 stakeholder groups related to OTT data
Sample Size	Total of 20 stakeholders
Inquiry Method	Individual in-depth interviews with experts using semi-structured interview guidelines
Data Collection	The study employed various methods for data collection, including individual and small-group face-to-face interviews, respondent self-administered data collection through e-mail, telephone and video conferences, as per the interview situation. During the face-to-face interview phase, content was collected in adherence to the COVID-19 infectious disease-related quarantine standards, ensuring that all necessary precautions were taken.
Sampling Method	Judgment sampling, through discussion with experts in the field

Table 2. Characteristics of in-depth interview participants

Category	Stakeholder characteristics	Occupational details
A	OTT advertising practice expert	Employee of companies that sell and distribute OTT advertisements
B	SVOD OTT practice expert	Practitioners of subscription-based OTT (advertising execution / considering execution) companies
C	OTT Adtech Specialist	OTT advertisement verification and effect analysis technology expert
D	OTT Technology Policy Specialist	Expert in OTT media technology and policy

After completing in-depth interviews with stakeholders, quantitative surveys were conducted face-to-face and online with a total of 24 working-level experts recommended by the interviewees. Of the total of 24 respondents to the online survey, approximately three out of four (75.4%) were male. As for the type of stakeholder, the SVOD OTT working-level expert group that actually operates OTT media was the most common (33.3%), followed by OTT technology policy (29.2%) experts, OTT advertising practice experts (25%) and finally, OTT ad-tech experts (12.5%). In the case of ad-tech, it was difficult to find related experts, and most of them had a low understanding of technology and policy, so great effort was required for sampling.

Table 3. Characteristics of AHP respondents (multiple-choice questionnaire, 24 people)

	Category	Frequency	Rate
Gender	Male	18	75%
	Female	4	16.7%
	Not specified	2	8.3%
Education	University graduate	11	45.8%
	M.A. degree/ Attending a master's course	3	12.5%
	Ph.D. degree/ Doctoral course completion	10	41.7%
Average Age	45.38 years old (SD = 5.84)		
Average Industry Experience	15.17 years (SD= 6.12)		
Stakeholder Type	OTT advertising practice expert	6	25%
	OTT technology policy expert	7	29.2%
	SVOD OTT expert	8	33.3%
	OTT Adtech specialist	3	12.5%

In this study, AHP was used as an investigation methodology to synthesize the priority of importance perceived by stakeholders in promoting media data authentication and certification projects. The Analytic Hierarchy Process (AHP) is a methodology designed to solve the complexity of judgment faced by decision makers with respect to specific agendas, through the synthesis of majority opinions [7]. After structuring respondents' "logic, intuition, emotion, and experience", AHP can hierarchically systematize decision-making factors and then statistically calculate the relative importance and priorities of each element [7]. The AHP method has the advantage of being able to compare the importance of items even among heterogeneous items that are difficult to quantify or that have different units of measurement. In order to solve the problem using AHP, the importance of the evaluation criteria for the final goal is calculated after designing a hierarchical structure with the causal relationship of the "final goal-evaluation standard-alternative." In the case of AHP, even if survey participants are fewer than 10, it is possible to calculate priority, so practitioners use it frequently to solve problems out in the field.

4. Research results

4.1. In-depth interviews

As OTT media is a relatively new, rapidly growing industry, opinions on the reliability of its data are highly varied. Among digital media, advertising practitioners who mainly work with OTT media are left with no choice but to rely on the effectiveness of OTT-provided advertisements. While there is a general trust in global media outlets such as Netflix and YouTube, as they are not currently operating using an advertisement-based model, SVOD OTT practitioners who rely on advertising for their products feel a great burden in disclosing their OTT data, which is their valuable asset. Despite this, they are still actively engaging in partial data disclosure for PR purposes to highlight the superiority of their SVOD. The current situation highlights the need for standardized and reliable data authentication and certification for the OTT industry. As the industry continues to rapidly expand, a trustworthy data system is essential for informed decision-making and fair competition.

In advertising-mediated media, reliability can often be poor. However, it is notable that advertising-based AVOD is more reliable than SVOD, given its accountability to advertisers. Ad-tech experts have expressed concerns regarding data contamination in digital media, including OTT media. Notably, there were significant discrepancies between the performance indicators reported through platforms like Google and Naver, and the data results obtained through analytics programs, raising suspicions about the accuracy of the data.

Experts were aware of the seriousness of advertising fraud and are concerned that it will evolve in line with technological or policy responses. In particular, experts were concerned that macro technology, which uses ad-bots to replicate human-like behaviors and generate "false" advertising effects, is evolving day by day. The severity of ad fraud can vary depending on the type of OTT media and leading ad-based OTT companies including YouTube are making self-reliant efforts against ad fraud, but there are opinions that video content and advertising operated through ad networks are seriously contaminated and countermeasures are needed.

Another point of concern is that in the execution of video advertisements using OTT, the victims are often small businesses rather than large corporations. "Fabricated transactions" through professional freelance sites such as Kmong are prevalent, and there are frequent cases of hiring while knowing the problems for short-term performance of business operators. It should be recognized that the fraudulent business is growing rapidly, taking advantage of the lack of regulation while committing fraudulent crimes. Some also pointed out that advertisement fraud should be considered as part of advertisement fraud on a wider scale, as well as whether advertisement exposure is suitable for TPO (Time-Place-Occasion), which refers to whether the advertisement

fraud is exposed at the right time to the desired target, beyond whether it is executed or not. It should also be recognized that incorrect targeting not only fails to help increase sales, but it can also have a negative effect of lowering marketing performance by weakening the brand's reputation.

Experts agreed that brand safety is also multifaceted, concluding that when the three axes of "Advertiser-Contents-Consumer" are aligned, the optimal advertisement has been executed. It should be noted that it is difficult to assess all the non-ideal combinations mentioned above as brand safety risks. In cases where advertisements are executed for contents that are socially denied, such as abusive language, racism, sexual expression, and violence, the issue of brand safety must be narrowed down and specified.

Interestingly, some also pointed out that even in the case of PPL (Product Placement) that uses OTT integrated with the content, harm can still occur. Some also mentioned that the advertiser's brand could be harmed by the mistake of a one-person broadcaster such as a YouTuber, or when the advertiser's brand is organized in a form of content production that the advertiser does not want. In the future, as the types of advertisements using OTT diversify, various types of brand safety cases are expected to occur and preemptive preparations were found to be necessary.

Many experts agreed that OTT is a relatively new medium and that communication and management are not being carried out properly in the industry due to the absence of related standards. In this context, many participants saw it as unrealistic for large businesses with monopolistic authority and start-ups to form a single consultative body. Citing cases in which the establishment of related committees such as the Dispute Mediation Committee and the Fair Trade Commission had a positive impact on the industry, experts discussed the establishment of related agencies or the acquisition of related businesses by certain organizations.

4.2. AHP method

Considering the domestic context in the OTT data-verification project, we analyzed how each stakeholder perceives priorities for the items presented using the AHP technique. The extraction of verification-related problem items resulted in overlapping parts among the topics derived from the previous in-depth interview process with 21 people. The C.R. value (Consistency Ratio), which is important in interpreting AHP results, can be seen as having greater consistency in judgment as the value decreases. When the C.R. value is less than 10% (0.1 or 0.2), it is considered that the respondent has consistently performed a pairwise comparison [7]. In this study, the C.R. value of each comparison item overall met the minimum requirements mentioned above (should not exceed the 0.2 criterion). As a result of this study, it was confirmed that each stakeholder perceives somewhat differently the importance and preparation of each task, with the priority being to improve OTT data reliability. The authentification and certification priorities of OTT data stakeholders are summarized in the table below.

Table 4. Synthesis of OTT data stakeholder's authentication/certification priorities

Category	Comprehensive Analysis		
	Evaluation items	Importance	Rank
OTT Advertising Practice Specialist	Improvement of authentication/ certification technology	0.224	3
	Establishment of an institution dedicated to authentication/certification	0.301	2

	Evaluation items	Importance	Rank
	OTT data standardization	0.119	4
	OTT-related private/ business cooperation	0.355	1

OTT Technology Policy Expert	Evaluation items	Importance	Rank
	Improvement of authentication/ certification technology	0.253	2
	Establishment of an institution dedicated to authentication/certification	0.217	4
	OTT data standardization	0.244	3
	OTT-related private/ business cooperation	0.285	1

SVOD OTT Practice Expert	Evaluation items	Importance	Rank
	Improvement of authentication/ certification technology	0.103	4
	Establishment of an institution dedicated to authentication/certification	0.617	1
	OTT data standardization	0.141	2
	OTT-related private/ business cooperation	0.138	3

OTT Ad-Tech Expert	Evaluation items	Importance	Rank
	Improvement of authentication/ certification technology	0.224	3
	Establishment of an institution dedicated to authentication/certification	0.301	2
	OTT data standardization	0.119	4
	OTT-related private/ business cooperation	0.355	1

5. Discussion and Conclusion

The development of digital media technology such as OTT and the diversification of media has hastened broad changes in the media environment. Historically, the media industry has been mainly operated by print and broadcast media. Consequently, media-user research has developed around traditional print media and broadcasting. Major countries overseas have continued to make efforts to secure the reliability and validity of digital media-viewer data, such as strengthening their capabilities by focusing on existing viewer-rating authentication and certification agencies. In the case of Korea, however, there is no organization dedicated to data authentication and certification, aside from the technical difficulties of research that reflect various viewing behaviors in the era of broadcasting and communication convergence.

Users' audio-visual media usage behavior is shifting to a streaming form centered on OTT. In the case of data related to viewer usage behavior owned by OTT operators, it is difficult to access the data itself, and therefore raising a different issue from the existing television viewership rating surveys. Another important issue, in addition to investigating behavioral data on the use of digital media, is possessing the ability to secure the reliability of viewing records and advertising exposure-related data. After all, ad fraud such as traffic

manipulation is likely to occur online. However, the reality is that discussions on digital media viewing performance, including OTT, and the establishment of an advertising data authentication/certification agency are acutely insufficient.

In this study, stakeholder groups directly or indirectly related to OTT data authentication/certification were surveyed about the severity of OTT data-related problems. The study also identified, for each group, opinions on and requirements for the acceptance/rejection of reliability improvement policies. As OTT media is a relatively new, market-led media that is rapidly growing, opinions on trust or distrust in OTT data are visibly different, and it is noteworthy that advertising-based AVOD is more reliable than SVOD. Due to the nature of the media, which can pay attention only to the influence of advertisers, in this same context it has more accountability as soon as it operates based on advertising. Since the introduction of advertising rate system by Netflix, it is expected that demand will continue to rise for reliable media data in relation to AVOD, which is being prepared by global OTT operators. Although this study analyzed overseas trends related to OTT and synthesized the opinions of stakeholders, the small sample's lack of representativeness should be considered. Furthermore, it is necessary to consider ways to improve the reliability of OTT data by continuously reflecting changes in the media environment and collecting opinions from related stakeholders.

Acknowledgement

References

[1] J.L. Nelson & J.G. Webster, Audience currencies in the age of big data. International Journal of Media Management, 18(1), pp. 9-24, 2016. DOI: http://dx.doi.org/10.1080/14241277.2016.1166430

[2] L. Guion, D.C. Diehl, D. McDonald, "Conducting an in-depth interview". EDIS, 2011. DOI: http://dx.doi.org/10.32473/edis-fy393-2011

[3] J. Spradley, "The Ethnographic Interview". Holt Rinehart & Winston, New York, 1979.

[4] D. Threlfall, "Using focus groups as a consumer research tool". Journal of Marketing Practice: Applied Marketing Science, 5(4), pp. 102-105, 1999. DOI: http://dx.doi.org/10.1108/EUM0000000004560

[5] J. Corbin & A. Strauss, "Basics of qualitative research: Techniques and procedures for developing grounded theory". SAGE Publications, Inc., 2014. DOI: https://dx.doi.org/10.4135/9781452230153

[6] J.W. Park, "NVivo 10 Applied Qualitative Data Analysis", Pukyong National University Press, 2012.

[7] T.L. Saaty & L.G. Vargas, "How to make a decision". In "Models, methods, concepts & applications of the analytic hierarchy process", pp. 1-25, Springer, 2001. DOI: http://dx.doi.org/10.1007/978-1-4615-1665-1_1