Effects of Audition Programs on Viewing Satisfaction: Meta-Analysis Methodology

Qilin Wang[1], Seungyon-Seny Lee[2*]

Abstract

The controversial results of studying existing audition programs were quantitatively integrated and analyzed, and the empirical study data on viewers' satisfactions were reanalyzed in this paper. The study applied meta-analysis to interpret viewing satisfactions of audition programs and demographic correlations based on these results. The data of this study had been retrieved 929 articles and were collected from the database of the Korea Academic Research Information Service. The keywords of research subjects were set up as 'viewing satisfaction', 'audition program', 'idol audition program', and 'music audition program'. After evaluating the accuracy of their data or their correspondence to the subjects of this study, a total of 16 theses were selected and analyzed. An analysis of the correlation between 'Age-Viewing satisfaction' and 'Educational background-Viewing satisfaction' showed that a few study papers belonging to small groups might affect heterogeneity inspection. Further, based on the effect size of subgroup analysis, we could not assume statistically different effects. Accordingly, we could find that the viewing satisfactions of audition programs were slightly higher in female than male. The satisfactions were varied according to age groups - the highest in 20s, then higher in 30s, in 40s, and in 10s. In addition, viewing satisfaction was not related to educational background, and their impact on viewing satisfaction of programs differed according to inspection method.

1. INTRODUCTION

1.1 Research Purpose and Necessities

Audition programs have attracted people's attention in various forms through OTT, public TV, and terrestrial channels. There was a dramatic shift in the way in which programs were presented with humor and movement, introducing various storytelling structures, or creating a positive environment where viewers were more engaged and actively engaged with their programming than ever before.[1]

As audition program research activities have been activated, research methods have also changed gradually. Previous studies were focused on program content itself, but recently, as viewers' participation has a great impact on their success, domestic researchers are focused on audition program viewing satisfaction itself and most of them are empirical studies with priority given to surveys and in-depth interviews. However, we found substantial differences in the study results on viewing satisfaction. Researchers tried to

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[1] Qilin Wang, Music Technology, Sangmyung Univ, Korea, 361374175@qq.com
[2] Seungyon-Seny Lee, Music Technology, Sangmyung Univ, Korea, senylee01@gmail.com

explore the reasons for the differences, but they still had no unified results. Therefore, existing studies cannot present proper directions for recent audition programs.

On the basis of this limit, this study aims to present the directions and developing courses of the future audition programs. It does this by conducting a study on audition program viewing satisfactions. It finds many impacting factors of viewing satisfactions, and detecting the most influential factor. As it confirmed the problems of the previous studies, it aimed to draw unified conclusions using the method of integrally studying previous studies. This was instead of the previous way of conducting surveys and in-depth interviews.

For study analysis, meta-analysis was used in this study. We aim to interpret and predict reasonably and effectively audition program viewing satisfactions. We do this by quantitatively integrating and analyzing the controversial results of studies and by reanalyzing empirical research data in the field of existing audition program viewing satisfactions. Meta-analysis, which has been used in natural science, social science, the humanities, etc., is a study method of reanalyzing data based on multiple independent studies, and it can merge and analyze as comparatively many independent studies as possible by complementing the shortcomings of traditional literature reviews and by high-dimensionally integrating several literature with the same study purpose. Additionally, as meta-analysis integrates many study results, it can upgrade the statistical efficacy of study results by expanding the sample sizes of similar studies and by reducing measurement errors or sampling errors in independent studies, and thus, it can add persuasive power to derived results.[2] Especially, in this paper, the subgroup analysis of meta-analysis was applied for discovering in detail the potential causes of the discordance of empirical study results on recent audition program viewing satisfactions. Moreover, it used the meta-regression analysis for statistically exploring and verifying the factors affecting the discordance and reconfirming the implication of the empirical study on existing studies.

1.2 Research Methods and Content

A database of domestic literature information that was verified to have an effect on viewing satisfaction was used in this study. Data search was conducted in August 2021, and the published years of the literature were from January 2017 to December 2021. It implemented a thesis search in the database of the Korea Academic Research Information Service. For the key words of this study, we set 'viewing satisfaction' and 'audition program.' In order to secure the thorough search of literature, we searched for literature with the key words of 'Idol audition program' and 'music audition program.' In the result, the number of the total found literature was 929 (635 for master's and doctorate dissertations; 294 for academic papers). The searched dissertations and papers for research data collection passed through the four-step selection process from literature search to final selection, as shown on the left side of Table 1. Data collection process is as follows.

Table 1 Data Collection Process
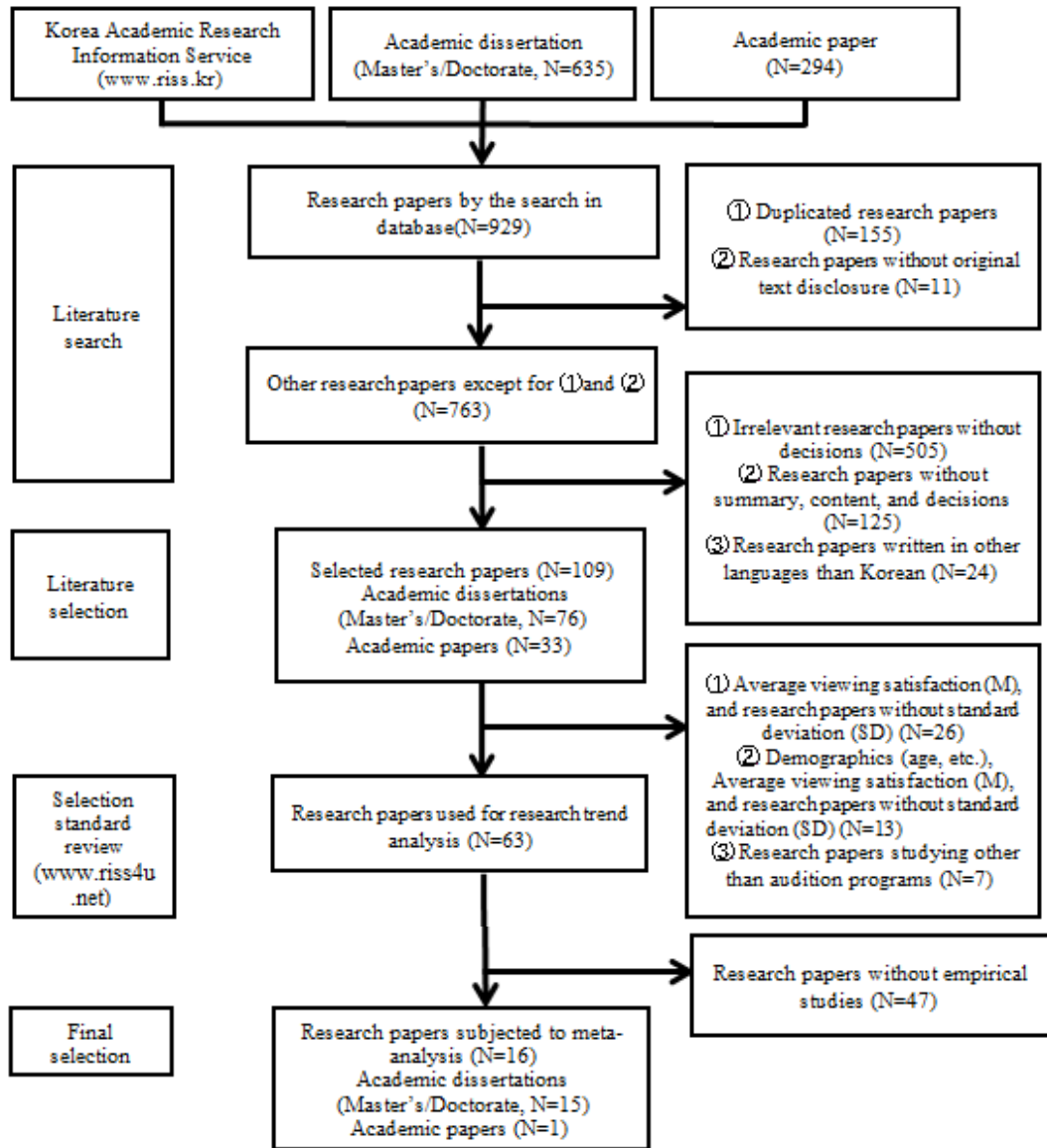
Due to the convenience of using the 5-point Likert scale for conducting empirical studies on audition program viewing satisfactions, most researchers tend to use this 5-point Likert scale in their research papers and analyses. The type of scale chosen in this study was also utilized in its meta-analysis. The literature included in the meta-analysis is in Table 2.

Table 2 Literature for analysis

Study	Year	Type	Likert Scale	Samples
SUN WOONG KIM[10]	2017	Doctoral	5	400
LIU SHUANG[11]	2017	Master	5	186
KUANG, HUAHUI[12]	2018	Master	5	200
LI PINNAN[13]	2018	Master	5	313
Wu, Rong[14]	2018	Master	5	408
FAN, XUEYING[15]	2019	Master	5	327
XIE MANYUN[16]	2019	Master	5	322
Sun Huimin[17]	2019	Master	5	251
Thak, Eun Ah[18]	2019	Master	7	266

JIANG YUQIAO[19]	2020	Master	5	204
Pham Huong Giang[20]	2020	Master	5	268
Yong-Wan Kwon; Hun Kim; Byeng-Hee Chang[21]	2020	paper	7	291
CHEN YING[22]	2021	Master	5	318
ZHULINSHAN[23]	2021	Master	5	238
WENHUA GUO[24]	2021	Master	5	212
Moon Hyuk Lee[25]	2021	Master	7	420

2. THEORETICAL BACKGROUNDS

2.1 The Concept of Audition Program

The concept of an audition reality program (hereinafter 'auction program') refers to the production and broadcast of an audition as a media program, and that means that an audition program is a synthetic version of a reality show. Audition course is divided into preliminary audition and final audition, and most of them have a live broadcast in front of the judges of auditions and viewers. A representative of the real world is the US public audition program 'American Idol', which began in 2002.[3]

The audition program is hybrid.[4] As it evolved, answering the question about the audition program's definition became difficult. Therefore, audition programs can be categorized as a sub-genre of reality programs. Audition programs give ordinary people an opportunity to be a star through competitions, and their contents and patterns all belong to the category of reality programs.[5]

2.2 Viewing Satisfactions

A concept of satisfaction is one that reflects satisfaction of demands as well as confirmation of expectations.[6] Satisfaction occurs when desires for certain things reach personal anticipation. Viewers can have this satisfaction when they watch media programs. In other words, the level of satisfaction equals the degree of a viewer's satisfaction with the programs. This satisfaction is created by the viewer's memories which are shaped about various factors of the programs. If the viewer can get psychological satisfaction from the programs, they will watch them continuously. Instead, if the programs fail to produce the effects the viewer expected or cannot attract the viewer, they may not watch them anymore.[7] Satisfaction is divided into satisfaction with the programs' contents and that from the watching process.[8]

3. MAIN SUBJECT

3.1 The Result of the Analysis of Total Effect Size

In this study, Excel was used to select data. Data such as sample sizes and effect sizes of each literature were analyzed using stata15.0. As a result of analyzing all effect sizes mainly with meta-analysis, K shows the number of relevant research papers. ES is the effect size, and I2 is the result of inspection which interprets heterogeneity among research papers to determine the existence of moderating variables. 95%CI shows a 95% confidence interval. For certifying samples' heterogeneity, Q statistic was used, and Hedges and Olkin[9] research was adopted. The calculation formula for Q statistic is as follows.

$$Q = \sum_{i=1}^{k} W_i \left(r_i - \overline{r} \right)^2 = \sum_{i=1}^{k} W_i r_i^2 - \frac{(\sum W_i r_i)^2}{\sum W_i} \quad (1)$$

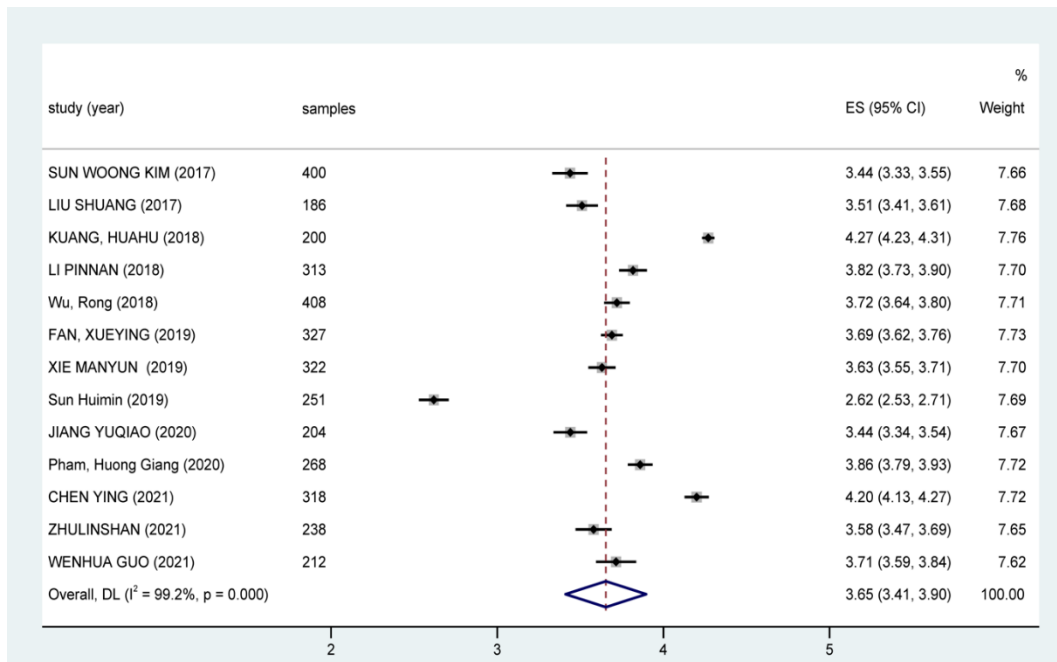W=weight, r_i=cohen's d, K=the number of research papers

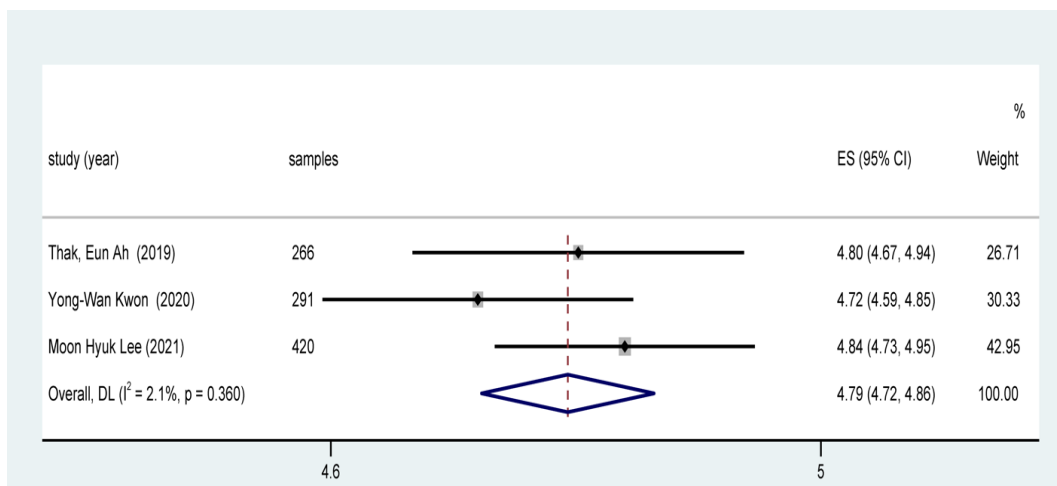Figure. 1 Total effect size analysis of 5-point Likert scale (Forest plot)

Figure. 2 Total effect size analysis of 7-point Likert scale (Forest plot)

According to meta-regression analysis, viewing satisfaction from a 7-point Likert scale was 1.13 higher than viewing satisfaction from a 5-point Likert scale (95% CI:0.62-1.65, P<0.001), therefore, the difference between these two satisfactions was statistically meaningful, and this showed that both satisfactions were different. The two satisfactions combined the effect sizes (Forest plots) of Figure 1 and Figure 2. Totally, 13 literatures included L5-point Likert scale, and the total number of samples was 3,647, ES effect was 3.65, and 95% CI=[3.41, 3.90]. Three studies provided 7-point Likert scale, ES effect of 4.79, and 95% CI=[4.72, 4.86]. As the literatures using 7-point Likert scale were just three, for the more study of heterogeneity causes, subgroup analysis on literatures using 5-point Likert scale was mainly conducted.
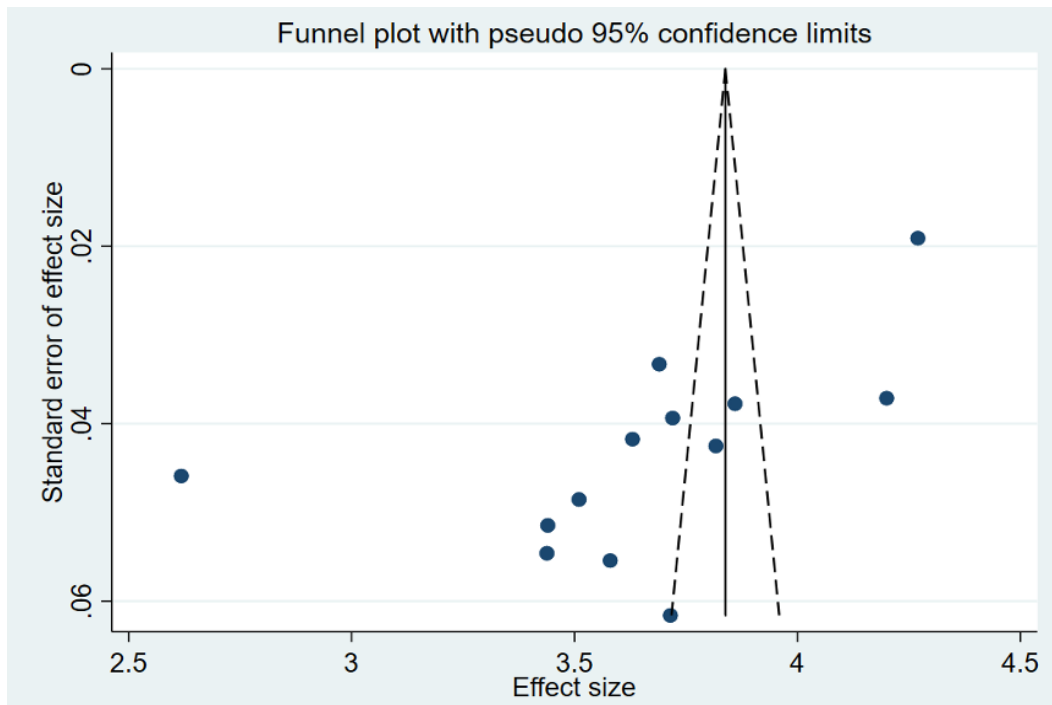
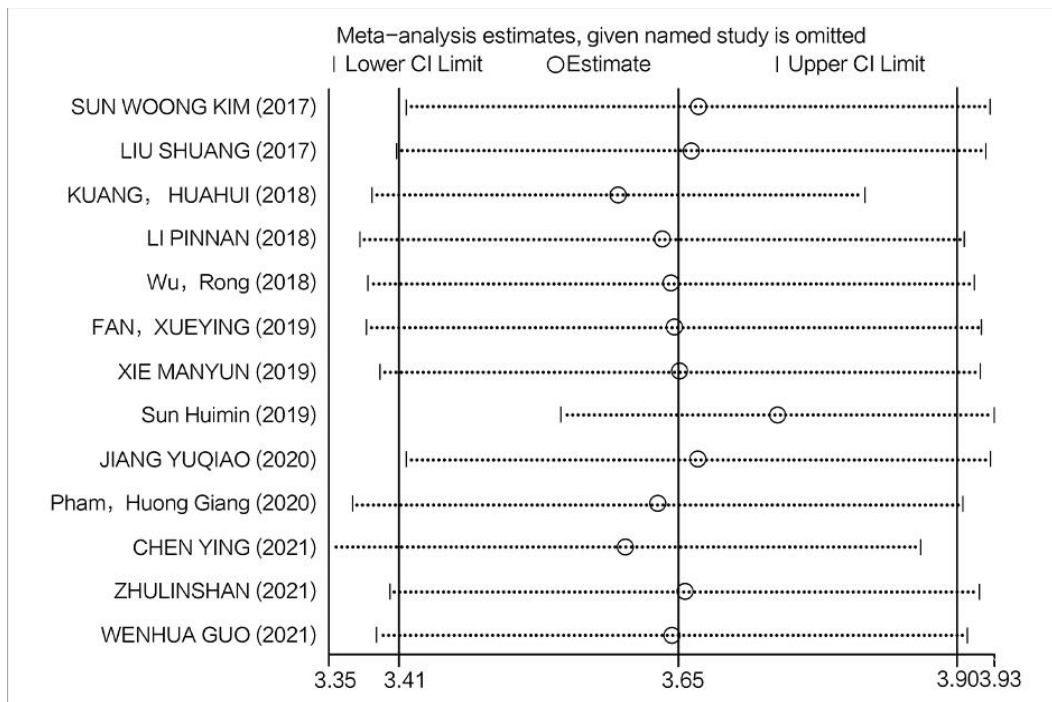Figure. 3 Analysis of 5-point Likert scale (Funnel plot)

Figure. 4 Sensitivity analysis of 5-point Likert scale

Figure 3 shows a funnel plot of Likert 5-point audition program viewing satisfaction. Funnel plot is a method of intuitively measuring publication bias. The horizontal coordinates of Figure 3 reveal the amount of effects studied. These numbers can be considered viewing satisfaction. The vertical coordinates are standard errors of existing research papers. The smaller the sample size, the more dispersed the distribution is, and if there is no bias, the funnel shape draws symmetry. Most of the data from the 13 included literatures are on the left side of the vertical line. This shows that publication bias of each literature is relatively significant. In Figure 4, the circles that represent the estimated combined effect size of each study has been eliminated successively belong to the

estimated total effect size '95% CI,' they are distributed on the left and right side of the central line. The result of combined effect sizes indicates that there are no qualitative changes and excellent solidity.

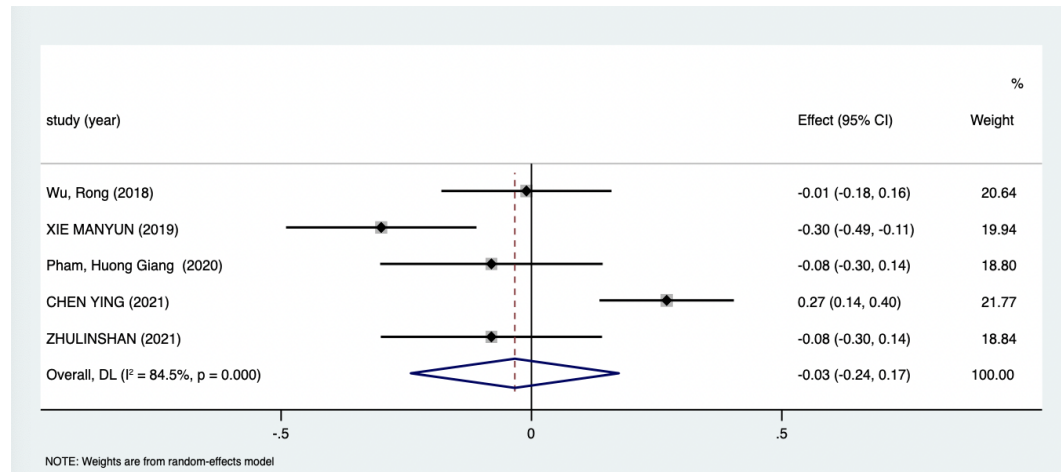### 3.2 The Result of the Subgroup Analysis

Figure. 5 Viewing satisfaction difference by gender analysis (Forest plot)

Basically, subgroup analysis involves dividing samples included in various dimensions and meta-analyses into different groups and analyzing their effects. It should verify other groups' effect sizes, and identify the existence of differences in the research papers. In the case of a considerable difference, it should suggest variables to control rationality after several assessments. The present study examined the difference between male and female viewing satisfactions in this chapter to explore further the gender influence on viewing satisfactions. The amount of combined effect built on the random effect model (I2=84.5%) was –0.03 (95% CI:-0.24-0.17), it could not explain the difference of viewing satisfactions by gender as in Figure 5.

Table 3 Meta-analysis of Subgroup analysis values

Method	Type	K	ES	95%CI	I^2	P^a	Z	P^b
Program type – Viewing satisfaction	Audition program	5	3.82	[3.46, 4.17]	99.2%	P=0.000	1.50	0.472
	Entertainment show	5	3.46	[2.99, 3.92]	99.2%	P=0.000		
	Web Entertainment show	3	3.71	[3.61, 3.81]	80.7%	P=0.006		
Survey method - Viewing satisfaction	Online Survey	11	3.65	[3.37, 3.93]	99.3%	P=0.000	0.01	0.991
	Survey	2	3.65	[3.24, 4.06]	97.7%	P=0.000		
Gender - Viewing satisfaction	Male	5	3.77	[3.35, 4.18]	97.5%	P=0.000	0.03	0.858
	Female	5	3.81	[3.66, 3.96]	91.9%	P=0.000		
	Male+Female	5	-0.03	[-0.24, 0.17]	84.5%	P=0.000		
Age - Viewing satisfaction	Not greater than 20	4	3.71	[3.54, 3.89]	77.5%	P=0.004	0.62	0.892
	20-29	4	3.83	[3.53, 4.12]	97.0%	P=0.000		

	30-39	5	3.81	[3.53, 4.09]	90.2%	P=0.000		
	40-49	3	3.75	[3.62, 3.88]	22.5%	P=0.275		
Educational background – Viewing satisfaction	Not greater than high school graduation	4	3.79	[3.69, 3.89]	0.0%	P=0.827	1.70	0.230
	Enrolled in or graduated from a junior college	2	3.83	[3.62, 4.03]	86.3%	P=0.007		
	Enrolled in or graduated from a university	4	3.87	[3.54, 4.20]	97.1%	P=0.000		
	Enrolled in or graduated from a graduate school	4	3.57	[3.38, 3.77]	70.3%	P=0.018		

Note: * k=the number of research papers ; 95%CI=95% confidence interval, Q=observed distribution (dispersion); ES=effect size ; I2=heterogeneity (real dispersion: total dispersion). P=0.000 (p＜0.05) with statistical significance and remarkability, P>0.05 without statistical significance and remarkability.

According to subgroup analysis, the conclusion could be as follows.

1. A small number of research papers in the subgroups of 'Age-Viewing satisfaction' and 'Educational background-Viewing satisfaction' can partly affect heterogeneity inspection results.

2. Based on the effect sizes in [Table 3], it cannot be assumed that subgroup analysis effect values differ statistically.

4. CONCLUSION

In this study, it conducted a meta-analysis of the correlations among demographic factors including research methods, program types, gender, age, and educational backgrounds and audition program viewing satisfactions. Through the analysis results, it was revealed that viewing satisfactions were different in web entertainment programs, audition programs, and entertainment programs. Above all, audition programs had the highest viewing satisfactions, but the impact on viewing satisfactions of programs depended on research methods. In addition, in this study, it was found that viewing satisfaction results conducted by survey were slightly better than those conducted by online survey. For the viewing satisfactions of male and female viewers, the result of female viewers was a bit higher. The viewing satisfactions by gender increased in the order from 20-29 to 30-39, 40-49, and under 20. For the relationship between educational backgrounds and viewing satisfactions, viewers' satisfactions attending and graduating from a 4-year college were greater than viewers attending and graduating from a 2-year college. However, the viewing satisfactions of viewers attending and graduating from a 2-year college were higher than viewers who graduated from or under high school or viewers attending and graduating from a graduate school. Accordingly, it was found that higher educational backgrounds were not connected to higher viewing satisfactions and educational backgrounds were not related to the viewing satisfactions of programs. The reasons for more plain heterogeneity differences among studies were that collected data had limits and that the exploration of possible factor variables in groups was not possible due to the infeasibility of getting the variables of all study properties. Besides, the analysis variables

confirmed in this study were not sufficient to completely explain the heterogeneous problems of the study on recent audition program viewing satisfactions. Thus, sample sizes can be expanded or comparison with China and western countries can be conducted in the future.

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