

Research on the impact of audience behavior based on emotional orientation effect of public service advertising

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ABSTRACT

Purpose: This study analyzes the changes in feelings, attitudes, and behaviors of the audience after watching the Public Service Advertisements (PSA) and better evaluates which emotions are more acceptable to the audience of the PSA.

Design/Methodology/Approach: In this study, 217 audiences from Eastern and Western nations were chosen to witness the effects of several emotionally intense Public Services Advertisements and gather data to assess the shifts in opinion and behavioural influences.

Findings: Based on the results of the study, it can be shown that many social groups exhibit favorable responses to Public Services Advertisements (PSA) in terms of emotional effect perception, namely in relation to fear, comedy, and compassion. These findings indicate a generally good trend across all levels of analysis. Differences in audience attitudes and behavioural changes brought on by various levels of perception of advertising impact emerge under the influence of background circumstances.

Conclusion: The emotional orientation have a favorable impact on the attitude and conduct of the audience, serving as a source of motivation, induction, and guidance.

Research Limitations/Implications: This paper analyzes audience cognitive and behavioral research from only the emotion-oriented effect, and the actual emotion is inextricably linked with emotions and psychology. Some of the parts that have not yet been covered will be further studied in the future when conditions permit.

Practical Implications: It can help trigger the audience's emotional cognition, form long-term attention to public welfare information, and improve the possibility of changing the behavior of the public.

Contribution to Literature: This study provides a research framework for the impact of the PSA effect on audience behavior and paves the way for later emotional effect research and design strategies.

Keywords: *Attitude identification, Audience, Behavior change, Effect, Emotional orientation, Public service advertising.*

1. INTRODUCTION

In the era of social media, there is often a "tsunami" of public opinion after sudden public events, which can ferment, produce, and continue to stimulate emotions such as happiness, anger, and sorrow and even seriously affect the basic values and behavioral norms of a social system. Public Service Advertising is different from legal systems. As a practical form of art, it emphasizes persuasion and guidance from both ideological and emotional perspectives, effectively promoting changes in public attitudes and even behavior from the perspectives of artistic aesthetics and media dissemination. Researchers have discovered that utilizing emotions to persuade people is more effective than using logic to change people's minds about things (such as attitudes, behavioral intentions, and actions) (Hornik, Ofir, & Rachamim, 2017). Emotion, as a powerful tool in design expression, has been increasingly integrated into the theme ideas of Public Service Advertising design by more and more designers as an important factor. This article conducts a questionnaire survey to analyze the impact of emotional orientation, attitude recognition, and behavioral changes on the emotional orientation (fear, humor, or warmth) of public

service advertisements at various levels among audiences of different backgrounds. The primary objective is to analyze the impact of audience perception, attitude, and behavioral changes. The aim is to enhance the persuasiveness and effectiveness of emotional appeals by employing various emotional guidance techniques to convey public service themes. This approach seeks to orient and appeal to the audience in a more humanized manner, reducing the psychological distance in communication. By doing so, it aims to improve the audience's comprehension and acceptance of the thematic concepts in public welfare initiatives, thereby garnering attention from individuals and social groups alike. Ultimately, the goal is to achieve more effective dissemination outcomes and greater social influence.

2. LITERATURE REVIEW

Psychology regards emotional orientation as a phenomenon in which humans guide and choose their creative methods or directions based on their own emotional likes and dislikes. Public service advertising cannot be separated from the participation of emotional elements to stimulate emotional resonance with the audience and then guide their psychology and behavior. Therefore, more and more designers are beginning to pay attention to effective emotional guidance in public service advertising, selecting typical (humor, fear) and other emotional appeals to explore and compare them in a targeted manner in order to give more emotional attention to the audience and meet the needs of different emotional levels. According to the theory of "the managed heart" proposed by Hochschild (2020), emotions can be regarded as symbolic tools used by individuals or groups for image creation, social interaction, and even serving a certain purpose. Some scholars have also noticed the importance of emotional orientation in the effectiveness of public service advertising. For example, Dillard and Peck (2000) pointed out that emotional appeal in public service advertising has become the most valued form of public service advertising due to its ability to facilitate specific emotional guidance from the audience. It can be seen that researchers have noticed the important role of emotions in public service advertising, and research on the changes in audience attitudes and behaviors caused by emotional experiences needs to be further validated. For example, O'Keefe and Reid (2009) conducted a national probability sampling quantitative survey of 1500 American adults to study the effectiveness and evaluation of the guidance level of public service advertisements broadcasted on television in order to obtain specific research data on the impact of public service advertisements on audience attitudes.

The effect of public service advertising is different from that of general commercial product advertising. It does not aim at the audience's purchasing behavior but rather aims to guide the public to actively identify with and support the appeals advocated by public service organizations. Through artistic and emotional means to stimulate emotion and ultimately implement at the operational level. Yu (2005) believed that public service advertising should convey a certain viewpoint to the audience, thereby influencing the audience's values and even behavior. It can be seen that its effect research is related to audience attitude and behavior research. Scholar He (2004) regarded fear as an effective advertising persuasion strategy, which he explored through audience response and information content design in order to stimulate audience psychological reactions and encourage them to change their attitudes and behavioral intentions. Later, Yang (2016) conducted an experiment to explore the impact of fear intensity on smoking cessation advertising and further selected threat types to analyze the differences in advertising effectiveness among different self-oriented audiences. Some scholars often choose a certain type of emotion to conduct research on audience attitudes and behaviors, lacking comparative research data on multiple emotions. Yousef, Dietrich, Rundle - Thiele, and Alhabash (2022) conducted empirical tests on warm emotions and shame in their study on the role of emotional guidance in improving the effectiveness of charity advertising, and the guiding effect of negative emotions has been proven. Different emotional types and intensities of stimuli produce different advertising effects, and the behavioral responses of individuals are often determined by the interaction between the stimulus environment and the main factors. Therefore, it can be attempted to study the impact of external differences in audience factors on their effectiveness. Hatzithomas, Zotos, and Boutsouki (2011) analyzed the effectiveness of printed magazine public service advertisements in different countries, emphasizing the relevance of humor types. The results showed that different audiences' attitudes are influenced by culture and are directly reflected in the types of humor techniques.

Zhang (2014) showed through experimental results that gender differences can have an impact on the emotional resonance of advertisements. As a special art form of mass communication, public service advertising has a wide range of complex, broad, decentralized, and diverse group characteristics. As a unique individual with a distinct

personality, facing the emotional interpretation in different public service advertisements, it will generate different emotional characteristics and perceptions of effects, affecting specific behavioral changes such as comments and forwarding. The setting of the survey population should show diversity.

3. RESEARCH ASSUMPTIONS

From the above analysis, it can be seen that research on the effectiveness of public service advertising should consider the impact of different background factors on the audience's attitudes and behaviors towards different types of emotional stimuli. Therefore, data analysis is conducted using three aspects of effective perception, attitude recognition, and behavior change as variables, specifically describing their impact changes, and proposing assumptions:

H₁: Different social groups have significant differences in their perception of the emotional impact of public service advertising.

H₂: Emotionally oriented (fear, humor, or warmth) public service advertisements trigger choice differences in the audience's perception of the effects.

H₃: Perception of the emotional orientation effect of public service advertising will positively affect the audience's attitude recognition.

H₄: Perception of the emotional orientation effect of public service advertising will positively affect audience behavior changes.

4. RESEARCH METHODS AND RESEARCH DESIGN

With the progress of the times, the public's vision has become increasingly open, and the appropriate alignment of expectations and emotions for public service advertising determines the attitude towards public service information. Therefore, the study of audience psychology and behavior has always been an important part of the research field of public service advertising. This study mainly uses a questionnaire survey method, which is distributed through Internet media, to analyze the true feedback of audiences from Eastern and Western countries on the emotional guidance effect of public service advertising.

4.1. Research Architecture

This study mainly explores the influence of different emotionally oriented (fear, humor, or warmth) types of public service advertisements on the effectiveness of social group actions. Therefore, combined with the influence of the gender, age, occupation, and region of the test subject, the relationship between the perception of the effect of public service advertisements and the relevant attitudes and behaviors of the test subjects was discussed. The architecture diagram of this study is shown in Figure 1.

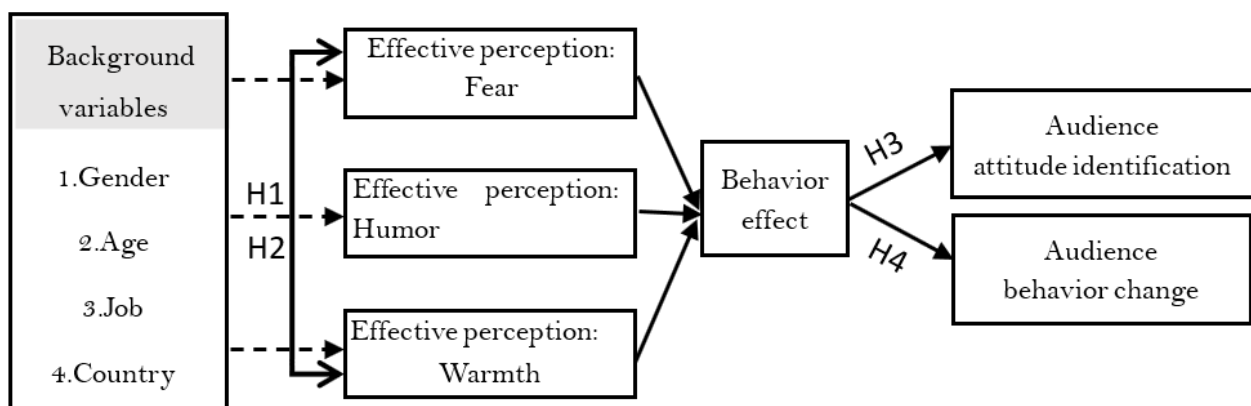


Figure 1. Structure chart of emotional orientation effect research.

4.2. Study Design

According to previous research, the audience subconsciously generates emotional reactions such as joy, sadness, and fear based on the content they are watching (Hupfer, 2006), which shows that emotional orientation is a direct reflection of the audience's own emotional needs. According to the characteristics of public service

advertising, emotional-oriented (fear, humor, and warmth) cases of public service advertising were selected as samples for subjects to watch (see Table 1).

Table 1. Design table of public service ads audience psychological survey cases.

Emotional orientation type	Pictures and text information
Fear	 <p>PSA A: Safe driving: Don't talk on the phone while driving</p>
Humor	 <p>PSA B: Safe driving: Don't drive at high speed.</p>
Warmth	 <p>PSA C: Safe driving: Fasten your seatbelt while driving.</p>

This survey first measured the perception of the emotional orientation effect of public service advertising. In order to avoid emotional cognitive conflicts caused by audiences facing different emotional orientations at the same time, each public service advertisement case is provided with three 5-point questions. This part of the measurement refers to the measurement of the advertising watching effect by Hupfer (2006), and the specific question settings of the effective perception variables are formed through attention, feeling, and understanding. In addition, through Cronbach's test, the reliability of perceived variables for fear, humor, and warmth effects was 0.821, 0.842, and 0.859, respectively, which met the test requirements. Because the measurement is to measure the degree of difference in the perceived effectiveness of public service advertising audiences under the influence of background factors, an independent sample T test will be conducted combining gender, and then a one-way ANOVA (A statistical analysis method used to analyze the relationship between categorical and quantitative data) will be used to explain age, occupation, and country (see Figure 2).

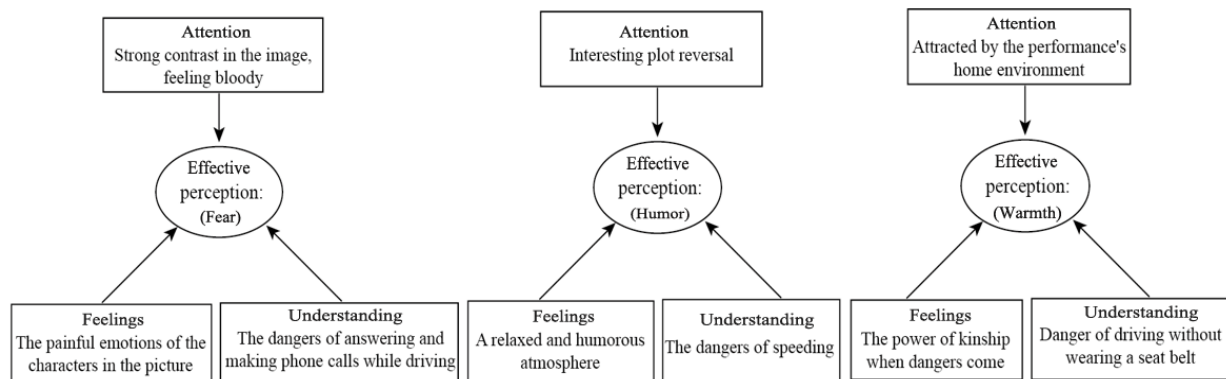


Figure 2. Effective perception measurement content.

Secondly, a survey was conducted on the effects of subject's actions on different emotional-oriented public service advertisements. After watching three groups of different emotional-oriented public service advertising samples, an investigation was conducted on attitude identification and behavior change. This part of the scale, compiled based on Pollay and Mittal (1993) and Davis (1983), consists of emotional, informational, and other indicators to constitute attitudinal identity variables; combine daily behaviors such as commenting and sharing to form behavioral change variables; and set specific questions. Through a check of Cronbach's α , the reliability was 0.816 and 0.826, respectively, meeting the test requirements. The purpose of this study is to measure the correlation between various levels of emotional orientation, effective perception in public service advertising, and attitudinal identification and behavior change. Methods such as correlation analysis and regression analysis are used to

conduct comprehensive data analysis on the impact of audience attitudes and behavior under background factors (see Figure 3).

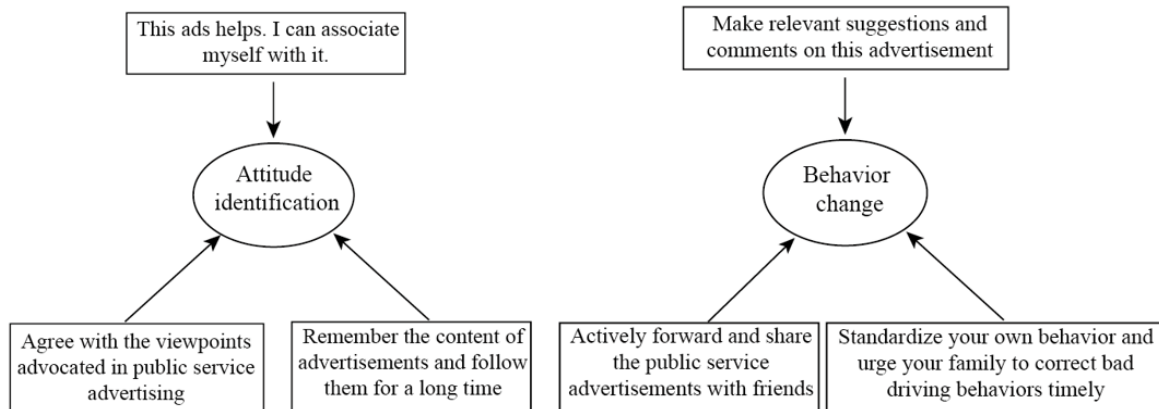


Figure 3. Attitude identification and behavior change measurement content.

The content setting of the survey follows the general reaction pattern of the advertising audience when watching public service advertisements, namely, awareness-attention-perception-identification-action, which consists of 19 questions. In addition to the basic situation survey, other topics have set five-level options for the Likert five-level scoring system, using 1-5 levels of numbers to represent "almost no", "relatively few", "moderate", "relatively high", and "extremely high" effects. The higher the score, the deeper the feeling. This scale consists of three dimensions of effective public service advertising: audience perception, attitude, and behavioral change, and has been used in more than two related studies (Lu, 2017; Wu & Song, 2014), achieving relatively reliable reliability and validity.

4.3. Data Collection and Statistics

The respondents in this survey are from multiple countries in the Asia-Europe region and are distributed in a dispersed manner. Therefore, online questionnaires, on-site methods, and commissioned methods are particularly used for questionnaire distribution and filling out. The online questionnaire is distributed and filled out in both Chinese and English using questionnaire stars through the internet, and the system automatically collects it. Site mode: It is mainly carried out by Gele University in Thailand, Bouren University in Thailand, and the main means of transportation in Bangkok. Way of entrustment: We entrust teachers and foreign students from teaching institutions of Hunan University in South Korea to help distribute questionnaires to complete the questionnaire survey of the Korean audience.

This study imported questionnaire data on perceptions of public service advertising effects and audience attitudes and behaviors into SPSS 22.0 statistical software for data processing and analysis. Firstly, descriptive statistical methods were used to calculate the average and standard deviation of participants in each category and topic. Then, variance was used to detect whether there were significant differences in perceptions of public service advertising effects between Eastern and Western audiences. For the questionnaire data on the attitudes and behaviors of public service advertising audiences, an independent sample T-test method is used, combined with age for analysis of variance. Then, a one-way analysis of variance is used to analyze the differences in age, occupation, and country. Afterwards, data analysis methods such as correlation analysis and regression analysis were used to conduct comprehensive data analysis on the impact of different countries, genders, and age groups on perceived effects, attitudes, and behaviors.

5. RESEARCH FINDINGS

5.1. Effective Perception of Emotional Orientation of Public Service Advertising by Different Audience Groups

Does the audience's perception of public service advertising vary due to factors such as gender, age, occupation, and country? Through analysis of variance, the average, standard deviation, t value, and P value of audiences with different background factors on the emotional-oriented effective perception hierarchy are summarized. The test results are shown in Table 2.

Table 2. Summary table of perceived differences in emotional orientation effects of different background variables (Continued from the next page).

No.	Background variables	Content	Effective perception (Warmth)	Effective perception (Fear)	Effective perception (Humor)
1	Gender	1.Male	t=-1.885	t=-1.701	No obvious difference
		2.Female	0.061* 2>1	0.090* 2>1	
2	Age	1.Under 18	F=9.5*** 1<3 3<5	F=6.714*** 2<3 3<5	F=4.4*** 1>3 3>5
		2.18-28			
		3.29-38			
		4.39-48			
		5.49-59			
		6.Above 60			
3	Occupation	1.Student	F=5.444*** 1<4	F=6.908*** 1<6	No obvious difference
		2.Professional			
		3.Company or unit staff			
		4.Freelance			
		5.Others			
		6.Home/No occupation			
4	Country	1.China	F=44.468*** 1<2 2<3	F=38.761*** 1>2 1<3	F=19.906*** 1>2 2<3
		2.Thailand/Korea			
		3.Western countries			

Note: The values in the table indicate whether each analysis item is numerically significant.* represent significant levels of 10%. *** represent significant levels of 1%.

From the statistical results in Table 2, it can be seen that in the research on emotional-oriented audiences' effective perception of public service advertising, there are significant differences in effective perception at all levels based on background variables. Therefore, the hypothesis H1 of this study is confirmed: there are significant differences in the perceived effectiveness of public service advertising among different social groups. Specific analysis shows that in gender variables, effective perception (warmth) $t = -1.885$ and effective perception (fear) $t = -1.701$ present weak differences, while there is no significant difference in effective perception (humor). From the perspective of overall perception, the average analysis shows that female audiences perceive greater effects than male audiences. It can be seen that in the perception effects process of public service advertising watching, male and female audiences show more similarities than differences. Among them, female audiences, influenced by their physiological characteristics, have more detailed emotional characteristics, and while facing more stimulating scenarios such as warmth and fear can trigger more obvious emotional expressions, This finding is consistent with the statement made by Jiang and Yan (2010) in their research on advertising effectiveness from a gender perspective.

This study found significant differences in the perception of the effects of emotional orientation under the influence of age. In the perception of warmth effects, as the age of the audience increases, the perception effect presents a gradient growth trend. This is because as the audience's age increases, they are at different stages of life, have different family identities, and have significant conditions for feeling and empathy. Therefore, in the warmth-oriented effective perception that focuses on the interpretation of family members' affection, the elderly have a significantly higher perception ability than the young due to their strong sense of substitution. In the perception of humor effects, the overall trend of change is opposite that of warmth effects, with a decreasing trend of significance as the audience's age increases. Humor-oriented public service advertising mainly focuses on unexpected reversals of plot interpretation. Young audiences maintain a strong curiosity about new things, can adapt to plot changes easier, and their perception ability is significantly higher than that of the elderly. This analysis result is similar to the research results of Wu and Song (2014). At the level of effective fear perception, the effect is often influenced by the amount of threat information, which leaves a positive or negative impact on the psychological status of the audience and belongs to the type of emotional orientation with high uncertainty.

There are significant differences in the perceived warmth and fear of the emotional orientation effect of public service advertising among audiences engaged in different occupations. Different occupations represent differences in their education, income, and other aspects, as well as different social environments. Therefore, there are significant differences in the perceived effects of different emotional orientations. In terms of perceived warmth or fear, the average results of students are relatively low. Compared to other occupations, the students are younger, have simple social experiences, have a weak sense of emotional substitution, and are less sensitive to the perception of the emotional introduction effect of public service advertising. Other professionals, such as teachers, doctors, and artists, have a high level of professional culture, have the ability to further analyze and process, and are sensitive to the perception of warmth and fear effects in emotional orientation. Due to their high age, relatively free time, and relatively stable social environment, the home audiences are more eager for warmth and emotional orientation, and the stimulation of fear is more intense. They are more sensitive to the perceived effects of emotional guidance.

From the analysis of audience geographical background, it can be seen that audiences in Eastern and Western countries have long been affected by different geographical environments, climates, and cultures and have formed different psychological perspectives and emotional feelings in the face of information transmission. Therefore, there are significant differences in the impact of national factors on perceived effects. Currently, social culture is rich, human ideology is diverse, and Eastern and Western cultures in the emotional expression of public service advertisements present a trend of mutual integration and interweaving. Under this influence, audience groups present different emotional effects and perceptions. The effective dissemination of visible advertising requires the common support of Eastern and Western cultures and transcends cultural differences. As researchers, we should deeply analyze the emotional characteristics presented by multiculturalism so that public service advertisements can carry certain cultural significance while disseminating public service information, meet the psychological expectations of audiences in different regions, and generate internal emotional resonance effects.

5.2. Selection of Audience Groups' Perception of the Effect of Emotional Orientation (Fear, Humor, or Warmth) in Public Service Advertising

From the above research, it can be seen that audiences' perception of the emotional orientation effect of public service advertisements shows differences due to background factors, among which fear and warmth show significant differences in age, occupation, and country factors, while humor only shows differences under country and age factors. Therefore, through frequency analysis, the audience's choice of three different emotional orientation effects is analyzed.

Table 3. Analysis of the selection of emotional orientation (Fear/Humor/Warmth) effective perception.

Variable	Option	Frequency	Percentage (%)
Effective perception (Fear)	93	42.857	42.857
Effective perception (Warmth)	83	38.249	81.106
Effective perception (Humor)	41	18.894	100
Totally	217	100.000	100.000

It can be seen from [Table 3](#) that 93 subjects selected effective perception (fear) as the most obvious emotion-oriented public service advertisement. The following are effective perception: warmth and humor. Therefore, the hypothesis H2 of this research is that it is confirmed that emotionally oriented (fear, humor, or warmth) public service advertisements trigger differences in audience perception of the effects of choice. Public service advertisements guided by emotions such as warmth and fear can trigger the release of positive and negative emotions in the audience. The warmth effect in public service advertisements is often interpreted through the plot settings of family, love, and friendship, making it easier for the audience to be involved with a strong sense of emotional substitution. The fear effect often displays negative results in a real environment, using intensity to stimulate the audience's sense of fear to enhance self-protection awareness. Humor effects, viewed from the perspective of stimulation, belong to a relatively mild emotion and are often conveyed through a relaxed and pleasant process, which may result in a slightly lower perception of the audience's effect.

5.3. Impact of Perception of Emotional Orientation Effects of Public Service Advertising on Audience Attitudes

By watching public service advertisements, people understand the content and plot and make emotional changes. Through psychological mechanisms such as association and thinking, they generate attitude recognition. The perceived intensity of emotional orientation affects the degree of attitudinal recognition, which is ultimately reflected in behavioral performance. This is consistent with the research path of scholars [Bagozzi and Moore \(1994\)](#) in child abuse-themed public service advertising, which uses emotional orientation to trigger emotions such as sadness and anger among viewers and obtains the public service information conveyed by the advertisement from the audience's attitude, ultimately achieving donation behavior. Therefore, after conducting a perceptual analysis of the emotional orientation effect of public service advertising in the early stages, further research on the audience's attitude recognition will be carried out to ultimately implement changes in audience behavior and achieve the best emotional orientation effect.

Based on hypothesis question 3, linear regression analysis is used to verify the impact of public service advertising on emotional orientation, effective perception, and audience attitude recognition, and also to test whether there is a correlation between effective perception and attitude recognition variables.

Table 4. Analysis of effective perception and attitude recognition.

Name	Attitude recognition	Effective perception (Fear)	Effective perception (Warmth)	Effective perception (Humor)
Attitude recognition	1.0	-	-	-
Effective perception (Warmth)	0.586*** (p=0.000)	1.0	-	-
Effective perception (Fear)	0.446*** (p=0.000)	0.635*** (p=0.000)	1.0	-
Effective perception (Humor)	0.544*** (p=0.000)	0.567*** (p=0.000)	0.483*** (p=0.000)	1.0

Note: The values in the table are the coefficients of significance between options. *** represent significant levels of 1%.

It can be seen from [Table 4](#) that attitude recognition and effective perception in public service advertising: warmth ($r=0.586$, $p=0.000$) and humor ($r=0.544$, $p=0.000$) are highly related, among which attitude recognition and effective perception: fear ($r=0.446$, $p=0.000$) are relatively low but reach a significant level. This is consistent with the research conclusion of [Elpers, Mukherjee, and Hoyer \(2004\)](#), which showed that people are more interested in humorous advertisements and have a more positive recognition attitude. There is a significant correlation between perception of emotional orientation effects and attitude recognition in public service advertising, and further regression analysis can be conducted separately.

Table 5. Regression analysis of effective perception(fear)and audience attitude recognition.

	Standardization coefficient beta	t	P	VIF	R ²	Adjust R ²	F
Constant	-	8.437	0.000***	-	0.199	0.195	53.441***
Perception (Fear)	0.446	7.31	0.000***	1			

Note: The values in the table are used to determine if there is a significant linear relationship between the options. *** represent significant levels of 1%.

Table 6. Regression analysis of effective perception (humor) and audience attitude recognition.

	Standardization coefficient beta	t	P	VIF	R ²	Adjust R ²	F
Constant	-	9.044	0.000***	-	0.296	0.292	90.278***
Perception (Humor)	0.544	9.501	0.000***	1			

Note: The values in the table are used to determine if there is a significant linear relationship between the options.*** represent significant levels of 1%.

Table 7. Regression analysis of effective perception(warmth)and audience attitude recognition.

	Standardization coefficient beta	t	P	VIF	R ²	Adjust R ²	F
Constant	-	7.537	0.000***	-	0.343	0.34	112.267***
Perception (Warmth)	0.586	10.596	0.000***	1			

Note: The values in the table are used to determine if there is a significant linear relationship between the options.*** represent significant levels of 1%.

It can be seen from the analysis of Table 5, Table 6 and Table 7 above that in the regression analysis of public service advertising emotional orientation, effective perception, and attitude recognition, the variable collinearity performance VIF is all less than 10, so the model does not have multiple collinearity issues, and the model is well constructed. The analysis of the results of the F-test shows that the significance P value is 0.000***, showing significance at this level, so the model basically meets the requirements. From the perspective of the standardized regression coefficient, the values of effective perception: warmth ($\beta=0.586$), humor ($\beta=0.544$) and fear ($\beta=0.446$) β are all positive, and the effective perception (warmth) value is the highest, which is close to the other two types of values. It can be seen that there is no significant difference in the impact of the three emotional orientations on attitude recognition. The effective perception of emotional orientation in public service advertising can positively affect the audience's attitude recognition, and the results confirm that hypothesis 3 of this research is supported.

5.4 Impact of Perception of Emotional Orientation Effects of Public Service Advertising on Audience Behavior

From the above research, it can be seen that the perceived intensity of public service advertisements with different emotional orientations positively affects the degree of the audience's attitude recognition, which is ultimately reflected in behavioral performance. Therefore, based on hypothesis question 4, a linear regression analysis is used to further test the impact of audience attitudes on behavioral change intentions in order to explore whether the different effective perceptions of emotional orientation in public service advertising can have a positive impact on audience behavior and promote attitude recognition with public service advertising for behavior change.

Table 8. Analysis of effective perception and behavior change.

Name	Behavior change	Effective perception (Fear)	Effective perception (Warmth)	Effective perception (Humor)
Behavior change	1.0	-	-	-
Effective perception (Warmth)	0.568*** (p=0.000)	1.0	-	-
Effective perception (Fear)	0.372*** (p=0.000)	0.635*** (p=0.000)	1.0	-
Effective perception (Humor)	0.535*** (p=0.000)	0.567*** (p=0.000)	0.483*** (p=0.000)	1.0

Note: The values in the table are the coefficients of significance between options. *** represent significant levels of 1%.

From Table 8, it can be seen that behavior change and effective perception in the emotional orientation of public service advertising: warmth ($r=0.568$, $p=0.000$) and humor ($r=0.535$, $p=0.000$) are highly correlated, and behavior change is moderately correlated with effective perception: fear ($r=0.372$, $p=0.000$), both reaching significant levels. From the overall correlation coefficient analysis of behavioral change and effective perception, warmth is the most relevant, followed by humor and fear. It can be seen that emotional-oriented behavior change in public service advertising is closely related to effective perception, and when the audience is oriented by humor and warmth, the behavior change is more likely to be promoted. From the above analysis, it can be seen that there is a significant correlation between perceived emotional orientation effects and behavior change in public service advertising, and further regression analysis can be conducted separately.

Table 9. Regression analysis of effective perception(fear)and audience behavior change.

	Standardization coefficient beta	t	P	VIF	R ²	Adjust R ²	F
Constant	-	6.899	0.000***	-	0.139	0.135	34.59***
Effective Perception (Fear)	0.372	5.881	0.000***	1			

Note: The values in the table are used to determine if there is a significant linear relationship between the options.*** represent significant levels of 1%.

Table 10. Regression analysis of effective perception(humor)and audience behavior change.

	Standardization coefficient beta	t	P	VIF	R ²	Adjust R ²	F
Constant	-	6.259	0.000***	-	0.287	0.283	86.341***
Effective perception (Humor)	0.535	9.292	0.000***	1			

Note: The values in the table are used to determine if there is a significant linear relationship between the options.*** represent significant levels of 1%.

Table 11. Regression analysis of effective perception(warmth)and audience behavior change.

	Standardization coefficient beta	t	P	VIF	R ²	Adjust R ²	F
Constant	-	4.946	0.000***	-	0.323	0.32	102.476***
Effective perception (Warmth)	0.568	10.123	0.000***	1			

Note: The values in the table are used to determine if there is a significant linear relationship between the options.*** represent significant levels of 1%.

From the analysis results in the [Table 9](#), [Table 10](#) and [Table 11](#) above, it can be seen that in the regression analysis of effective perception and behavior changes of emotional orientation (fear, humor, or warmth) in public service advertising, the variable collinearity performance VIF is all less than 10, so the model does not have multiple collinearity issues, and the model is well constructed. According to the analysis of the results of the F-test, the significance P-value is 0.000***, showing significance at this level. The original assumption that the regression coefficient is 0 is rejected, so the model basically meets the requirements. From the perspective of standardized regression coefficient, the values of effective perception: warmth ($\beta=0.568$), humor ($\beta=0.535$), and fear ($\beta=0.372$) β are all positive, indicating that on the impact of effective perception on behavior change, humor and warmth are higher than fear. This indicates that the stronger the audience's perception of the effects of emotional orientation (warmth or humor), the more likely it is to directly promote behavior changes in the audience. The results confirm that hypothesis 4 of this research is supported.

6. CONCLUSION

The results of this study show that audiences of public service advertising have significant differences in their effective perception of public service advertising when facing emotional orientation (fear, humor, or warmth) due to different ages, occupations, and countries. For example, the subjects come from different countries with different cultural backgrounds, growth environments, and educational levels, resulting in significant differences in the degree and type of effective perception. The results confirm that hypothesis 1 and 2 of this research are supported. At the same time, in order to achieve a more effective emotional orientation effect, it is necessary to conduct a combined analysis of different types of fear, humor, and warmth. The background factors of the audience are also important considerations in the formulation of design strategies.

People can obtain public service information from watching public service advertisements to generate feelings and form attitudes and behaviour changes based on this. In this continuous process, due to the influence of different personal factors, the changes in attitudes and behaviours caused by different levels of effective perception are

different. The more positive the effective perception of advertising, the stronger the audience's attitude recognition and behaviour change. The average score of each question on the audience's attitude recognition is between 3.917 and 3.41, and on the behaviour change, it is between 3.922 and 3.166, which is between "moderate", "relatively high", and "extremely high", indicating that the audience's attitude recognition and behaviour change are positive under the influence of the effective perception of emotional orientation. Moreover, effective perception has good correlation and prediction abilities in the stratification of attitude recognition and behaviour change. Through regression analysis, it can be inferred that effective perception has a strong positive impact on audience attitudes and behaviour, indicating that a better effective perception can promote audience recognition of public service advertising opinions and actual behavior. In summary, research hypotheses three and four have been verified, and the results are valid.

This study used differential analysis and descriptive analysis to statistically analyze 217 valid questionnaire data and compare and analyzed the perception of emotional orientation in public service advertising by audiences from different backgrounds in order to understand the differences in the effectiveness of public service advertising with different types of emotional orientation. Furthermore, correlation analysis and regression analysis were used to confirm the positive impact of perceived emotional orientation effects of public service advertisements on audience attitude recognition and behavioral changes. It can be seen that the audience's attention, understanding, and other emotional feelings towards public welfare information during the viewing of public service advertisements are all regarded as the perception of the effect guided by emotions, and the intensity of this perception directly affects their action change.

7. FUTURE IMPACT

Emotion, as a means of stimulation, has the function of motivating, inducing, and guiding the attitude and behavior of the audience. Through the guidance of different emotional types such as humor, fear, and warmth, it helps the public to associate themselves and generate emotional identification during viewing, leading to recognition of viewpoints and long-term attention to relevant information. It can be seen that combining the characteristics of audiences of different ages and countries and using design methods to strengthen the emotional orientation effect of public service advertisements can effectively improve the audience's attitude and identity, condense emotional energy, form a group social influence, and stimulate the audience's active response and participation in public service events.

The future development of public service advertising should also keep up with the pace of the times, fully integrate the power of science and technology, explore penetration channels and communication models, use multiple channels such as design and experience to attract public attention, release emotional information with effective, fast, and accurate characteristics, achieve different emotional guidance effects, interact with the audience, form emotional identification, and promote attitude and action change. To provide more research ideas for emotional guidance strategies in public service advertising through this promotion.

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INSTITUTIONAL REVIEW BOARD STATEMENT

The Ethical Committee of the Krirk University, Thailand has granted approval for this study on 13 January 2022 (Ref. No. 2022-0113).

TRANSPARENCY

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

COMPETING INTERESTS

The authors declare that they have no competing interests.

AUTHORS' CONTRIBUTIONS

Both authors contributed equally to the conception and design of the study. Both authors have read and agreed to the published version of the manuscript.

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