

A study on the development of public campaign messages for organ donation promotion in Korea

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SUMMARY

This study aims to find an effective method of expressing a message in public service ads by investigating whether or not a message framing type affects the outcome. Specifically, the study looks into the effects of messaging on organ donation by identifying how the type of message framing (positive vs. negative) and appeal type (rational vs. emotional) affect the attitude and behavioural intention of the

consumer. The individual characteristics of each subject such as altruistic mind, level of self-monitoring and issue involvement were selected as intermediate variables that may affect the impact of a message. The study therefore tries to establish a proposition that can be used to generate an effective promotional message on organ donation in a systematic way.

Key words: evidence-based health promotion; frame analysis; health communication; Korea

INTRODUCTION

In January 2008, the organ donation of a boxing World Champion who became brain dead had a big influence on Korean society (Cho *et al.*, 2009). The corneal donation by Cardinal Stephen Kim Soo-hwan in February 2009 provided the momentum to turn the paradigm of organ donation in Korea upside down. Cardinal Kim donated his cornea as he had promised earlier in his life, and the number of organ and marrow donors suddenly increased. The number of registered potential donors reached 185 046 in 2009, a number that was 2.4 times greater than a year earlier when it was merely 74 841.

The Ministry of Health and Welfare and Vital Link have both been developing a number of promotional activities. As an organ donation culture promotion organization, the Vital Link organization, which was organized by healthcare providers, is made up of medical specialists of the Korean Society for Transplantation. It has been promoting organ donations since 2009.

To generate social interest and boost recognition regarding organ donations, the Ministry of Health and Welfare Korean Network for Organ Sharing (KONOS) is actively promoting campaigns making connections with social organizations and private corporations. To further develop a culture of organ donation, they designed customized promotion campaigns for core targets of local communities and related programmes (Lee, 8 February 2010).

To eliminate social bias regarding organ donation and to promote a culture of organ donation, the Ministry of Health and Welfare, in conjunction with Novartis Korea, held an online event for the general public, organ donors and organ recipients and their families (Lee, 14 September 2009).

To generate awareness, they disseminated information about organ donation by broadcasting public service advertisements on the radio, on cable TV stations and on Internet Protocol Television. In addition, they have also been promoting (to the general public) a walkathon for expected

haematopoietic stem cell donors and a sports day for organ recipients who are children (Ministry of Health and Welfare KONOS, 2013).

Vital Link—‘Seed of hope, life sharing planters’—consists of university students to promote social sympathy for organ donation as well as to introduce organ transplant and the roles of donation-related institutes and organizations. ‘Seed of hope, life sharing planters’ led online and offline promotions, which included producing a thousand blog articles, organ donation promotion User Created Contents, tours of domestic organ transplant-related institutes and hospitals and conducting street campaigns (Lee, 24 August 2012). Vital Link played organ donation promotion videos in subway trains to actively promote organ donations in corporation with Korea Pharmaceutical Manufacturers Association, a representative organization in the pharmaceutical industry.

In addition, by using music to which everyone can relate, Novartis Korea and the Korea Donation Network (an organization founded by Buddhists, Catholics and Vital Link to improve recognition of and build awareness about organ donation and to promote donations) held a concert as part of a campaign to remove societal and cultural prejudice about organ donations and to encourage participation (Woo, 23 April 2013).

However, the growing interest in organ donation subsided sharply 3 years later. Currently, the number of registered potential donors is <2% of the entire Korean population, which is much less than the number in the USA (over 30%), the UK (23%) and Japan (12%) (Maeil Business Newspaper, 2010).

Strongly influenced by Confucianism, Koreans have a strong belief in spirit and a repulsion regarding damaging the body (Lee, 2005). According to the survey on life share recognition conducted by the Ministry of Health and Welfare (on 1000 Korean citizens), most answered vague fear (48.2%) and damaging the body (36.9%) as the reasons for not having an intention to donate organs. They considered that the most effective promotion for such donations would be heavy promotions such as TV advertisements (Ministry of Health and Welfare, 2011).

According to the Korea Organ Donation Agency (Korean Organ Donation Agency, 2012), 368 people donated their organs in 2011; however, over 21 900 patients are in line to receive an organ transplant. The result of a

survey stated that the greatest factor hindering active organ donation in Korea is a lack of social awareness regarding organ donation. Another survey was conducted with 700 people, which included the general public, employees at NGO’s, personnel from the medical industry and the respondents also answered that the greatest reason that organ donation is not as active as it was is because of the ‘low social awareness of organ donation’. The second greatest reason was ‘lack of promotion’ (Kwak, 2012).

It is therefore crucial to promote the importance and necessity of organ donation—the sharing of precious life—and to make a concerted efforts to encourage it.

Public service advertising is a form of communication with the purpose of making the public aware of a social issue or problem in order to induce a change in their perception (Darlan, 1993). The aim of such advertising is to bring about a change in behaviour or an improvement in attitude for the common good (Bové and Arens, 1989).

Framing has been widely used as a paradigm to understand and study attitudes related to communication. There has been much research regarding this idea, which is related to the consumer’s psychological process when reviewing and judging given information (Hallahan, 1999).

Assuming the effects originate from the same basic health behaviour, hands-on health communication professionals should be concerned whether it is more beneficial to emphasize the positive effects of correct health behaviours or the negative effects of incorrect health behaviours. In health communication, a ‘message frame’, which is a message expression method that makes framing effective, has been classified and studied primarily as a profit and loss frame (Baek and Lee, 2013).

Previous research has dealt with the effect of message framing on health-related behaviours that can be classified as diagnose and prevention such as skin cancer prevention behaviours, breast cancer examinations and HIV testing.

Hitherto, studies have proved that the framing effect could be different, even for the same behaviour, depending on how it is recognized by an individual. These studies have also been attempting to find various moderators that affect the relative effect of a negative and positive frame. Certainly, the effect of message framing can vary depending upon the degree of an individual’s recognition of the level of danger accompanied

by specific behaviours. It also depends on individual characteristics such as knowledge and education level, attitude, involvement, need for recognition and values (Horton and Horton, 1990, 1991; Cacioppo and Gardner, 1993; Kopfman and Smith, 1996; Skumanich and Kintsfather, 1996; Smith, 1996; Zhang and Buda, 1999; Morgan and Miller, 2002a,b; Van den Berg, *et al.*, 2005).

This study aims to find an effective method of expressing a message in public service ads by investigating whether or not a message framing type affects the outcome. Specifically, the study will look into the effects of messaging on organ donation by identifying how the type of message framing (positive vs. negative) and appeal type (rational vs. emotional) affect the attitude and behavioural intention of the consumer. The individual characteristics of each subject such as altruistic mind, level of self-monitoring and issue involvement were selected as intermediate variables that may affect the impact of a message. The study therefore tries to establish a position that can be used to generate an effective public service advertisement on organ donation in a systematic way.

CONCEPTUAL FRAMEWORK

General definitions

Message framing

Message framing is a series of processes used to select specific elements of the message and make them distinctive. Even if the same persuasion message has the same contents, the meaning of the message could be different depending upon how the message is expressed. For example, in the advertisements, the message plays the most important role in persuading the audience to take action. Depending on how the message is expressed, the differences in the audience's behaviour can be distinctive.

Advertisement appeal

In advertising, appeal can be defined as a method of asking for responses from specific consumers based on the advertisement's contents. Advertisement appeal is an expression method used to deliver the advertisement to consumers, which aims to induce the attention or interest of consumers and influence the way they feel about products or services.

Altruism

Altruism is based on the inner psychological characteristics of humans in which the happiness of others is of primary interest and consideration. Altruism is the ethical concepts that all human actions seek to insure the happiness of others. An altruistic person puts the needs of others before his/her own needs. As such, altruism is contrasted with egoism in which self-interest is more important than the concern for the welfare of others. In altruism, the interests or virtues pursued by others become the most important obligation of action and the criteria for justice.

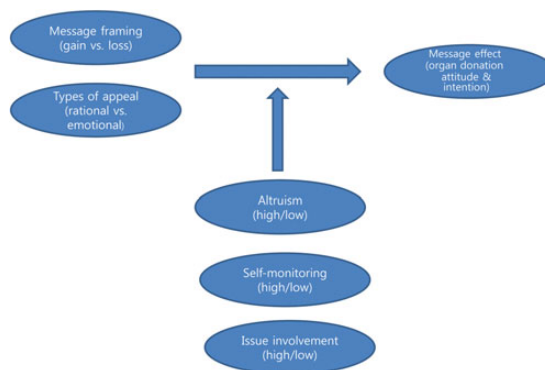
Self-monitoring

Self-monitoring refers to self-judgement in that an individual evaluates whether or not his/her actions are appropriate with regard to certain circumstances and then adjusts the degree of his/her behaviour to meet the contextual circumstances.

Issue involvement

Issue involvement refers to the degree of importance that people attach to their involvement and the degree to which they consider the behavioural issue to be personally important.

Conceptual diagram



LITERATURE REVIEW

Message framing

Framing is a comprehensive concept that says that the same message expressed using a different method will produce a different outcome (Kahneman and Tversky, 1979).

Positive framing is a form that emphasizes the benefit one can receive from behaving in a certain way, and negative framing focuses on the loss one will experience from behaving in a certain way (Levin *et al.*, 1998). The framing effect is the difference in the effect of the message caused by the different message delivery method emphasizing the benefit or the loss (Zhang and Buda, 1999).

The persuasive power of positive and negative framing of message has been studied using many theories and extensive research, but the results of these studies are mixed. First, the logical basis for the studies that claim that negative message framing is more effective than positive message framing are the prospect theory and the negativity bias hypothesis. Cohen (Cohen, 2010) observed the role of message framing, recognized threat and value compatibility with regard to the personal decision of organ donation. The study result showed that the risk played an important role in determining the organ donation decision of the participants. In particular, a low-risk participant recognized more value in organ donation in the loss frame than they did in the gain frame. On the other hand, McGregor *et al.* (McGregor *et al.*, 2012) studied the effect of a message frame on live organ donation and risk recognition and their result showed that the donation decision was significantly higher when the donation risk was lower in the gain frame.

The prospect theory developed by Kahneman and Tversky (Kahneman and Tversky, 1979) states that people generally respond differently to loss and gain, and when the amount of loss and the amount of gain are equal, people perceive the loss to be greater than the gain. That is, when people are exposed to a message that encourages them to take a risk, the reference point for the gain and loss they recognize changes depending on how the message is expressed. When the loss of not taking the action is emphasized (negative message framing), people are more likely to take the risk-seeking action. On the other hand, when the benefit of taking the action is emphasized (positive message framing), people are more likely to take the risk-averse action (Kahneman and Tversky, 1979).

The negativity bias hypothesis also claims that the persuasive power of negatively framed messages is greater than that of positively framed messages. Fisk (Fisk, 1980) proved the negativity effect, which means that people generally place more emphasis on negative information than positive

information when evaluating a target. Researchers have named perceived novelty (Fiske, 1980) and the nature of negative information—more diagnostic and informational than positive information (Maheswaran and Meyers-Levy, 1990)—as the factors that lead to the negativity effect. Lau (Lau, 1985) argued that negative information provides information in an unexpected and unfamiliar way, making it stand out. Therefore, when a person evaluates the given information, the person perceives the negative information as more reliable and informative than the positive information. Also, negative information triggers more information processing in one's head; therefore, when the consumer is making a decision, a greater influence is exercised on his/her cognitive dimensions (Richins, 1983; Coovert and Reeder, 1990).

On the other hand, the attitudinal hypothesis provides theoretical evidence that positive framing is more effective. The attitudinal hypothesis assumes that when a consumer is exposed to an advertisement, the favourable or unfavourable emotional response towards the ad affects the consumer's attitude towards the product (James and Hansel, 1991). The emotional response from seeing an ad influences the consumer's attitude towards the ad, and furthermore affects the consumer's attitude towards the product or brand and therefore his/her behavioural intentions. That is, a negative message arouses negative emotions in consumers, inducing an unfavourable response, while a positive message arouses positive emotions. And these emotions ultimately affect the decision-making process.

Advertising appeal

The types of appeal used in advertisements are generally categorized into rational appeal that calls for a logical judgement and emotional appeal that appeals to the senses. Rational appeal—also called information appeal—projects the information objectivity and logically whereas emotional appeal produces feelings and forms an environment that influences the attitude and behaviour of the consumer rather than providing concrete information. Emotional appeal includes positive emotions such as love, humour, pride and joy; and negative emotions such as threat, guilt and shame (Kotler and Armstrong, 1991).

Each type of advertisement (rational and emotional) has a different effect, so it is impossible to conclude one type is more effective than the

other. Some studies claim that ads with rational appeal have a greater effect (Zielske, 1982; Golden and Johnson, 1983), whereas other studies report that ads with emotional appeal have a greater effect (Bagozzi and Moore, 1994; Flora and Mailbach, 1994). Golden and Johnson (Golden and Johnson, 1983) showed that participants prefer thinking advertisements over feeling advertisements and perceive the information provided by the former more useful, thus resulting in a higher purchase intention. In the study of Flora and Mailbach (Flora and Mailbach, 1994) on the relative impact of rational and emotional public service advertising on AIDS, it was shown that emotional advertisements have a higher noticing rate and were more effective in making people curious about AIDS.

Altruism

Altruism has been defined in numerous ways by many scholars. Staub (Staub, 1978) defined altruism as an action that results in benefit—not personal benefit or social compensation but benefit for others. Rushton (Rushton, 1980) described it as ‘social behaviour carried out to achieve positive outcomes for another rather than for oneself’. Batson (Batson, 1991) called it a voluntary and intentional action with the purpose of providing benefits to others without the expectation of external rewards.

People who attribute to self rather than context and who consider themselves altruistic are likely to behave altruistically (Baron and Byrne, 1991; Moorman and Blakely, 1995). Under circumstances that could easily be avoided, people are likely to be motivated to help others for altruistic reasons—sympathizing with others—rather than egoistic reasons (Griffin *et al.*, 1993).

In many studies, altruism has been shown to be a significant psychological variable in the willingness to communicate with family members about organ donation and the attitude and behaviour towards organ donation.

Self-monitoring

Self-monitoring is defined as a tendency to observe, control and manage oneself according to various situational cues in order to assess if one’s expressive behaviour is socially appropriate (Snyder, 1974). High self-monitors are more influenced by social situations than others. That

is, they are sensitive to how others perceive their behaviour and self-presentation. Conversely, low self-monitors do not pay much attention to whether or not their behaviours are socially appropriate.

Research on self-monitoring has been conducted in the persuasive message field (e.g. advertising). Some studies have shown that people with different levels of self-monitoring prefer different types of ads.

According to the study by Snyder and DeBono (Snyder and DeBono, 1985), high self-monitors were favourable towards image-oriented ads and showed a higher willingness to purchase or try a product. In contrast, the low self-monitors were favourable towards product quality-oriented ads.

A study by Attridge and Snyder (Attridge and Snyder, 1989) showed the same result—the high self-monitors were more favourable towards image-oriented ads, whereas the low self-monitors were more favourable towards product quality-oriented ads. Jones (Jones, 1994) investigated the relationship between the level of self-monitoring and advertising strategy (image-oriented and quality-oriented) and the response of consumers was, again, shown that high self-monitors evaluate image-oriented ads as more appealing and effective. Based on these studies, it can be concluded that one should use images to persuade high self-monitors and rational appeals such as quality and property to persuade low self-monitors.

In the study by Wang (Wang, 2012), which identified the role of self-monitoring in predicting a person’s willingness to register as a potential organ donor, self-monitoring was a significant moderator in an individual’s willingness to discuss the matter with family. However, there are studies that claim that there is no relationship between self-monitoring and preference on the type of advertisement (Bearden, *et al.*, 1989; Browne and Kaldenberg, 1997).

Bearden *et al.* (Bearden *et al.*, 1989) proved that the response of high self-monitors and low self-monitors on image-oriented ads and quality-oriented ads were not discriminative. Browne and Kaldenberg (Browne and Kaldenberg, 1997) also did not support the correlation between self-monitoring and the preference for image-oriented ads. However, the difference in preference by gender was significant: female respondents preferred image-oriented ads more than male respondents did and were more affected by interpersonal influence.

Issue involvement

Involvement is generally defined as personal relevance and importance regarding a certain object. Petty and Cacioppo (Petty and Cacioppo, 1986) described consumer involvement by dividing it into two routes, which comprise the elaboration likelihood model. They asserted that when a consumer is exposed to a certain message, he/she starts to process the message. In doing so, the consumer selects one of the two routes for persuasion depending on his/her level of involvement. That is, a consumer with low-involvement processes the message through the peripheral routes, while a consumer with high involvement would do so through central routes.

Put another way, when the significance, relevance or involvement of the message is low, a consumer is influenced by peripheral cues such as the charm of the messenger, context, feelings and emotions aroused by the message rather than the actual message itself. However, if a consumer perceives the message as important, relevant or interesting, he/she will pay close attention to it. Thus the consumer will actively think about the proposed arguments and cognitively respond to them. Therefore, message variables such as the quality of the message will play a significant role in inducing the consumer to change his/her behaviour. Early research by Petty and Cacioppo (Petty and Cacioppo, 1979) provided clear evidence for the opinion that high involvement in an issue improves message processing. Highly involved individuals think about message-centred information such as the quality and strength of arguments and elaborate on them. By way of contrast, low-involved individuals tend to pay more attention to peripheral factors (Skumanich and Kintsfather, 1996). Aldoory (Aldoory, 2001) proved that the cognitive analysis of a message influences an individual's involvement in health messages. The study also stated that involvement is a major variable that affects how much a consumer tries to pay attention to the message and understand it. Thus, highly involved individuals are likely to process the persuasive message more elaborately, and their attitude and behaviour will be greatly influenced by the rational message that calls for cognitive information processing.

Jung and Villegas (Jung and Villegas, 2011) examined the effect that positively and negatively framed messages had on advertisement attitudes regarding involvement and nicotine addiction as

intervening variables. The study's result showed that the message framing effect was different depending on the level of involvement and nicotine addiction, revealing that those who had a higher involvement with the smoking issue preferred the negative message more than those who had a lower involvement. Donovan and Jalleh (Donovan and Jalleh, 2000) provided information about virtual new immunization for infants and young children, framed with positive facts (a 90% possibility of no side effects) and negative facts (a 10% possibility of side effects). The study's result showed that framing had no effect on the high-involvement respondents, whereas it had more of an effect on the low-involvement respondents.

HYPOTHESIS

The following hypotheses were organized based on the literature review.

Hypothesis 1. The effect of a public service advertisement on organ donation will be different depending on the type of message framing (positive vs. negative).

Hypothesis 1.1. The attitude towards organ donation by subjects who saw the ad with a positive message will be different from that of the subjects who saw the ad with a negative message.

Hypothesis 1.2. The intention to donate an organ by the subjects who saw the ad with a positive message will be different from that of the subjects who saw the ad with a negative message.

Hypothesis 2. The effect of a public service advertisement on organ donation will be different depending on the appeal type of the message (rational vs. emotional).

Hypothesis 2.1. The attitude towards organ donation by subjects who saw the ad with rational appeal will be different from that of the subjects who saw the ad with emotional appeal.

Hypothesis 2.2. The intention to donate organ by subjects who saw the ad with rational appeal will be different from that of the subjects who saw the ad with emotional appeal.

Hypothesis 3. The effect of a public service advertisement on organ donation will be different depending on the type of message framing (positive vs. negative) and the appeal type (rational vs. emotional).

Hypothesis 3.1. A subject's attitude towards organ donation will be different depending on the type of message framing and appeal type.

Hypothesis 3.2. A subject's intention to donate an organ will be different depending on the type of message framing and appeal type.

Hypothesis 4. Altruistic subjects will be affected by a public service advertisement on organ donation.

Hypothesis 4.1. Altruistic subjects will have a more positive attitude towards organ donation.

Hypothesis 4.2. Altruistic subjects will have a higher intention to donate an organ.

Hypothesis 5. The effect of a public service advertisement will be different depending on the level of self-monitoring (high vs. low).

Hypothesis 5.1. The attitude towards organ donation will be different by the type of ad depending on the subject's level of self-monitoring.

Hypothesis 5.2. The intention to donate an organ will be different by the type of ad depending on the subject's level of self-monitoring.

Hypothesis 6. The effect of a public service advertisement on organ donation will be different depending on the level of issue involvement (high vs. low) by appeal type of the ad (rational vs. emotional).

Hypothesis 6.1. The subject's attitude towards organ donation will be different depending on his/her level of issue involvement by the appeal type of the ad.

Hypothesis 6.2. The subject's intention to donate an organ will be different depending on his/her level of issue involvement by the appeal type of the ad.

METHOD

In this research, an experiment was conducted to study the effect of public service advertising on organ donation by the type of message framing and appeal type. The experiment was in the format of two by two factorial design (2 positive framing vs. negative framing \times 2 rational appeal vs. emotional appeal) and used the between-subjects design. A total of 185 university students were selected as the subjects and the experiment took place in April 2012. Excluding the incomplete response, the data collected from 180 respondents were used for the analysis.

Stimulus

Four types of public service advertisements on organ donation were created as sample advertisements for this study: (i) positive rational ad, (ii) positive emotional ad, (iii) negative rational ad, and (iv) negative emotional ad. To increase the generalizability of the stimulus, the researcher asked 40 people to determine whether or not the ads were produced correctly. Each type of message framing was rated on seven-point scale for the following statements: 'This ad emphasizes the positive outcome from donating an organ' and 'This ad emphasizes the negative outcome from not donating an organ.' Also, each appeal type was rated on seven-point scale for the following statements: 'This ad approaches the organ donation issue in a rational manner' and 'This ad approaches the organ donation in an emotional manner.' As a result, it was concluded that the four types of ads were produced to meet the purpose of the experiment.

Procedure and measures

The experiment was divided into two parts: pre-survey to collect information and the main experiment. Two weeks prior to the main experiment, subjects were given a questionnaire that asked them to evaluate personal characteristic-related variables such as issue involvement, altruism and self-monitoring.

The study participants were provided a questionnaire and an organ donation leaflet designed for experiment treatment. After allowing the participants to go over the experimental advertisement carefully, they were asked to answer the questionnaire on organ donation vows, which included questions on visiting organ donation-related institution's websites, and opinions on after-death organ donation.

For issue involvement, the questionnaire employed statements used by Cheah (Cheah, 2006) and the subjects were to rate each statement on a seven-point scale. Statements were: (1) Organ donation is an important matter to me. (2) Organ donation is relevant to me. (3) Organ donation does not mean anything to me. (4) Organ donation is important for me. (5) Organ donation is not my field of interest. (6) Organ donation is trivial to me. Among these statements, (3), (5) and (6) were reverse coded.

For altruism, the subjects rated the following statements on a seven-point scale: (1) I enjoy helping others even with small things. (2) Overall,

I consider myself a warm-hearted person. (3) Generally, I am kind and soft. (4) If I have to save someone's life, I do (would do) so regardless of the size of the sacrifice. (5) I like to work for the welfare of others. (6) My family tends to help those who are living in a worse condition than we are. (7) I completely agree with the saying 'Giving is better than receiving.'

For self-monitoring, the scale developed by Snyder (Snyder, 1974) was employed. The total number of 'Yes' and 'No' answers were added to calculate the level of self-monitoring of each subject.

The main experiment began 2 weeks after the pre-survey was distributed. One of the four different types of ads (positive rational, positive emotional, negative rational and negative emotional) was given to each subject. Each subject was asked to look at the ad and mark how much he/she agreed with the questions on attitude and opinion towards organ donation. The questions to measure the opinion and attitude towards organ donation were organized based on the measurement tools used in other advanced studies (Morgan and Miller, 2002a,b; Thompson, *et al.*, 2004; Lee and Choi, 2008). Regarding the attitude towards organ donation, the subjects were asked to use the seven-point scale to rate the following sentences: (1) I support organ donation for organ transplants. (2) I believe organ donation is an important decision that helps someone. (3) I feel uncomfortable about donating an organ. (4) I think organ donation is a natural way to extend another's life. (5) I consider organ donation unlawful.

In addition, the participants were asked to report on a seven-point scale how well they could put their thoughts on organ donation to action; organ donation intention, asking about organ donation to related institutions or visiting websites and intention to donate organs after death.

RESULTS

Homogeneity test

This study used the Kolmogorov–Smirnov test to verify the normal distribution of data-calculated through descriptive statistics and make a decision regarding the analysis method for the questionnaire. The results are as follows.

The Kolmogorov–Smirnov test results showed a normal distribution for issue involvement,

altruism, organ donation attitude and organ donation intention ($p > 0.05$). Therefore, Student's *t*-test was adopted. To verify the homogeneity of general matters of the participants based on advertisement types, this research conducted a cross-tabulation analysis for gender differences and a one-way ANOVA for age differences.

The gender difference according to advertisement type was 66.1% for female and 33.9% for male. The results of the gender group homogeneity test did not show a significant difference, which means it has homogeneity. The age difference according to advertisement type did not show a significant difference in group homogeneity on age. Therefore, it has homogeneity.

This study conducted a one-way ANOVA to verify the differences of issue involvement, altruism, organ donation attitude and organ donation intention based on advertisement type. Table 1 shows issue involvement, altruism, organ donation attitude and organ donation intention based on advertisement type. As shown in Table 1, none of the four groups showed a significant difference in altruism, organ donation attitude or organ donation intention. Therefore, they have homogeneity.

Reliability verification and factor analysis

This study used Cronbach's alpha coefficient as the reliability coefficient to determine stability, and consistency, and to estimate the possibility on each item collected through the research.

This study used principle component analysis to understand meaningful process by reducing and compressing related variables. An Eigenvalue that shows how much a factor can explain the total distribution was set at over 1. To maintain the mutual independency of calculated factors at an over 1 Eigenvalue and over 0.40 factor loading, this study used varimax rotation among orthogonal rotation methods.

Issue involvement and altruism measurement scales are classified as two independent factors with an Eigenvalue over 1. Therefore, they have discriminant validity. They also have over 0.40 of loading, which is comparatively highly loaded in each factor. Therefore, they have convergent validity. According to the factor analysis of the measured items, there were two factors from 13 items. Based on the results of the issue involvement and altruism analysis, this study named Factor 1 as 'issue involvement' and Factor 2 as 'altruism'.

Table 1: Issue involvement, altruism, organ donation attitude and organ donation intention difference test by ad type (homogeneity test)

	<i>n</i>	Average	Standard deviation	<i>F</i>	<i>p</i>
Issue involvement					
Positive/rational	42	4.40	1.142	1.691	0.171
Positive/emotional	48	4.17	1.382		
Negative/rational	46	3.79	1.366		
Negative/emotional	44	4.09	1.266		
Altruism					
Positive/rational	42	3.48	0.896	0.453	0.715
Positive/emotional	48	3.53	0.751		
Negative/rational	46	3.62	0.902		
Negative/emotional	44	3.66	0.573		
Organ donation attitude					
Positive/rational	42	3.00	0.676	2.266	0.082
Positive/emotional	48	3.15	0.978		
Negative/rational	46	2.73	1.116		
Negative/emotional	44	2.75	0.786		
Organ donation intention					
Positive/rational	42	4.40	1.023	2.852	0.055
Positive/emotional	48	4.07	1.142		
Negative/rational	46	3.30	1.478		
Negative/emotional	44	4.48	1.465		

Each factor's variance explanation power was 40.970% for Factor 1 and 14.006% for Factor 2. Therefore, it was explained for 54.975% in total. Since a higher Eigenvalue and variance explanation power indicates the importance of a factor consisting of one concept, we can say that 'issue involvement' and 'altruism' can be considered as important factors in this order. There were two factors from eight items according to the factor analysis of the measured items. In addition, based on the results of the organ donation attitude, organ donation intention analysis, this study named Factor 1 as 'organ donation intention,' and Factor 2 as 'organ donation attitude'.

Each factor's variance explanation power was 40.506% for Factor 1 and 20.609% for Factor 2. Therefore, it was explained for 54.975% in total.

Since a higher Eigenvalue and variance explanation power indicates the importance of a factor that consists of one concept, we can therefore say that 'organ donation intention' and 'organ donation attitude' can be considered as important factors in this order.

Hypothesis testing results

Hypothesis 1 stated that the effect of a public service advertisement on organ donation will be different depending on the type of message

framing. Regarding the attitude towards organ donation, the subjects who received the ad with positive message framing had a more positive attitude towards organ donation ($M = 3.08$, $SD = 0.849$, $p < 0.05$) compared with those who received the ad with negative message framing ($M = 2.74$, $SD = 0.963$, $p < 0.05$). Regarding the intention to donate an organ, the subjects who received the ad with a positive message had a higher intention ($M = 4.22$, $SD = 1.095$, $p < 0.05$) than the other group ($M = 3.88$, $SD = 1.581$, $p < 0.05$). Since the difference was not statistically significant, Hypothesis 1.1 was accepted while Hypothesis 1.2 was rejected.

Hypothesis 2 stated that the effect of a public service advertisement on organ donation will be different depending on the appeal type of the message (rational vs. emotional). The subjects who received the ad with rational appeal showed a more positive attitude towards organ donation ($M = 2.86$, $SD = 0.937$, $p < 0.05$) compared with those who received the ad with emotional appeal ($M = 2.96$, $SD = 0.909$, $p < 0.05$); however, the difference was not statistically significant. Thus, Hypothesis 2.1, which predicted that the attitude towards organ donation would be different depending on the appeal type, was rejected.

In the case of the intention to donate an organ, the subjects who received the ad with rational appeal had a higher intention to donate an organ

($M = 3.82$, $SD = 1.389$, $p < 0.05$) than the other group ($M = 4.27$, $SD = 1.316$, $p < 0.05$). Thus Hypothesis 2.2, which predicted that the intention to donate an organ would be different depending on the appeal type, was accepted.

Hypothesis 3 stated that the effect of a public service advertisement on organ donation will be different depending on the type of message framing (positive vs. negative) and the appeal type (rational vs. emotional). First, when looking at the descriptive statistics for the attitude towards organ donation by message framing type and appeal type, the subjects who received the ad with emotional appeal showed a more positive attitude ($M = 3.15$, $SD = 0.978$, $n = 48$) compared with the subjects who received the ad with rational appeal ($M = 3.00$, $SD = 0.676$, $n = 42$) in the group that received the ad with positive message framing. In the group that received the ad with negative message framing, the subjects who received the ad with emotional appeal also showed a more positive attitude ($M = 2.75$, $SD = 0.786$, $n = 44$) compared with the subjects who received the ad with rational appeal ($M = 2.73$, $SD = 1.116$, $n = 46$).

Table 2: The attitude towards organ donation by message framing type and appeal type

Source	Type III sum of squares	df	Mean square	F	p-value
Framing type	4.963	1	4.963	5.971*	0.016
Appeal type	0.340	1	0.340	0.409	0.523
Framing type × appeal type	0.178	1	0.178	0.214	0.644
Error	146.286	176	0.831		
Sum	1677.360	180			

* $p < 0.05$.

Table 3: The intention to donate an organ by message framing type and appeal type

Source	Type III sum of squares	df	Mean square	F	p-value
Framing type	5.255	1	5.255	3.137	0.078
Appeal type	8.307	1	8.307	4.958*	0.027
Framing type × appeal type	25.762	1	25.762	15.377***	0.000
Error	294.862	176	1.675		
Sum	3286.778	180			

* $p < 0.05$.

*** $p < 0.001$.

As shown in Table 2 and 3, the message framing type had a significant impact on attitude towards organ donation ($F = 5.971$, $p < 0.05$). However, the appeal type did not have a statistically significant impact on attitude; thus Hypothesis 3.1 was rejected.

Meanwhile, when looking at the descriptive statistics for the intention to donate an organ by message framing type and appeal type, in the group that received the ad with positive message framing, the subjects who received the ad with rational appeal showed a more positive attitude than the subjects who received the ad with emotional appeal. By way of contrast, in the group that received the ad with negative message framing, the subjects who received the ad with emotional appeal showed a more positive attitude than the subjects who received the ad with rational appeal (Table 4 and 5).

Hypothesis 4 stated that the more altruistic person will have a higher intention to donate an organ. Looking at the impact of altruism on attitude towards organ donation, R^2 (R) explained 4.5% of the impact and it was shown that altruism has a positive impact on attitude ($\beta = 0.213$, $p < 0.01$). That is, it can be predicted that the more altruistic person will have a more positive attitude towards organ donation. Therefore, Hypothesis 4.1 was accepted.

Looking at the impact of altruism on the intention to donate an organ, R^2 (R) explained 26.2% of the impact, and it was shown that altruism has a positive impact on intention ($\beta = 0.511$, $p < 0.001$). That is, it can be predicted that the more altruistic person will have a higher intention to donate an organ. Therefore Hypothesis 4.2, which stated that more altruistic subjects will have a higher intention to donate an organ, was accepted.

The correlation between altruism and the attitude towards organ donation was explained by $r = 0.213$ ($p < 0.01$), and the correlation between altruism and the intention to donate an organ was explained by $r = 0.511$ ($p < 0.01$). This means that a more altruistic person will have a more positive attitude towards organ donation and a higher intention to donate an organ.

Hypothesis 5 stated that the effect of a public service advertisement will be different depending on the level of self-monitoring (high vs. low). To verify Hypotheses 5.1 and 5.2, the mean value of self-monitoring was calculated to be 6.87. The mode was 6 and the median was 7. The subjects with a score < 7 were considered as low

Table 4: The impact of altruism on attitude towards organ donation

	<i>B</i>	Standard error	β	<i>t</i>	<i>p</i>	<i>F</i>	<i>p</i>	<i>R</i> ²
(Constant)	2.020	0.313		6.445	0.000	8.483**	0.004	0.045
Altruism	0.250	0.086	0.213	2.913**	0.004			

***p* < 0.01.**Table 5:** The impact of altruism on the intention to donate an organ

	<i>B</i>	Standard error	β	<i>t</i>	<i>p</i>	<i>F</i>	<i>p</i>	<i>R</i> ²
(Constant)	0.880	0.409		2.151	0.033	63.039***	0.000	0.262
Altruism	0.888	0.112	0.511	7.940***	0.000			

****p* < 0.001.**Table 6:** The attitude towards organ donation depending on the level of issue involvement by the appeal type of the ad

Source	Type III sum of squares	<i>df</i>	Mean square	<i>F</i>	<i>p</i> -value
The level of issue involvement	7.519	1	7.519	9.436**	0.003
Appeal type	0.918	1	0.918	1.153	0.285
The level of issue involvement × appeal type	2.367	1	2.367	2.971	0.087
Error	101.199	127	0.797		
Sum	1161.680	131			

***p* < 0.001.

monitors, while those with a score >7 were considered to be high self-monitors.

It was shown that, after watching the positive emotional ad, the low self-monitors had a more positive attitudes towards organ donation ($M = 3.67$, $SD = 0.614$, $p < 0.01$) than the high self-monitors ($M = 2.93$, $SD = 0.988$, $p < 0.01$). And the difference was statistically significant. Similarly, the low self-monitors had a more positive attitudes towards organ donation ($M = 3.26$, $SD = 0.991$, $p < 0.05$) than the high self-monitors ($M = 2.50$, $SD = 1.185$, $p < 0.05$) after watching the negative rational ad. The difference was also statistically significant.

For the positive rational ad and the negative emotional ad, the level of self-monitoring did not have a significant impact on attitude. Therefore Hypothesis 5.1, which stated that attitude towards organ donation will be different depending on the level of self-monitoring (high vs. low) by the type of ad, was accepted. For the intention to donate an organ, no statistical significance was found for any types of ad. Thus, Hypothesis 5.2, which predicted that the intention to donate an

organ will be different depending on the level of self-monitoring by the type of ad, was rejected.

Hypothesis 6 stated that the effect of a public service advertisement on organ donation will be different depending on the level of issue involvement (high vs. low) by appeal type of the ad (rational vs. emotional). To verify Hypotheses 6.1 and 6.2, the mean value for issue involvement was calculated as 4.11. Both the mode and median were 4. The subjects with a score <4 were considered low-involved individuals, while those with a score >4 were named highly involved individuals.

The highly involved individuals showed a more positive attitude towards organ donation after watching the rational ad ($M = 3.10$, $SD = 0.926$, $n = 41$) than the low-involved individuals ($M = 2.35$, $SD = 0.770$, $n = 30$). In direct contrast, the low-involved individuals showed a more positive attitude after watching the emotional ad ($M = 2.79$, $SD = 0.785$, $n = 32$) than the highly involved individuals ($M = 3.00$, $SD = 1.064$, $n = 28$).

As shown in Table 6 and 7, the level of issue involvement had a statistically significant impact on attitude towards organ donation ($F = 9.436$,

Table 7: The intention to donate an organ depending on the level of issue involvement by the appeal type of the ad

Source	Type III sum of squares	df	Mean square	F	p-value
The level of issue involvement	92.314	1	92.314	63.287***	0.000
Appeal type	15.669	1	15.669	10.742***	0.001
The level of issue involvement × appeal type	0.048	1	0.048	0.033	0.857
Error	185.248	127	1.459		
Sum	2490.889	131			

*** $p < 0.001$.

$p < 0.01$). On the other hand, the appeal type did not have a significant impact. Also, the interaction effect between the level of issue involvement and the appeal type was not significant with a significance level of 0.5. Thus, Hypothesis 6.1, which predicted that a subject's attitude towards organ donation will be different depending on the level of issue involvement by appeal type of ad, was rejected.

Regarding the intention to donate an organ, both the highly involved individuals ($M = 5.26$, $SD = 1.212$, $n = 28$) and the low-involved individuals ($M = 3.60$, $SD = 1.181$, $n = 32$) showed a higher intention to donate an organ after watching the emotional ad. Both the level of issue involvement ($F = 63.287$, $p < 0.001$) and the appeal type ($F = 10.742$, $p < 0.001$) had a statistically significant impact on the intention to donate. However, the interaction effect between the two was not significant. Therefore, Hypothesis 6.2, which predicted that subjects' intention to donate an organ will be different depending on the level of issue involvement (high vs. low) by appeal type of the ad (rational vs. emotional), was rejected.

DISCUSSION AND CONCLUSION

This study aimed at identify whether or not four different types of advertisement created using two types of message framing (positive vs. negative) and two types of appeal (rational vs. emotional) would have a different impact on a subject's attitude towards organ donation and his/her intention to donate. Personal characteristic variables—altruism, self-monitoring and issue involvement—were set as intervening variables.

As a result of the experiment, the subjects who received the positively framed ad showed a more positive attitude towards organ donation, and the subjects who received the ad with emotional

appeal showed a higher intention to donate an organ.

On the other hand, the interaction effect on the attitude towards organ donation, when the type of message framing and appeal type were combined, was not statistically significant. However, the interaction effect on the intention to donate an organ was statistically significant. In terms of the four types of ads, the subjects who watched the negative emotional ad showed the highest willingness to donate an organ. That is, the subjects who watched the negative emotional ad among the four combinations from positive vs. negative framing and rational vs. emotional appeal had the highest intention to become an organ donor. Jung and Villegas (Jung and Villegas, 2011) also studied the effect of message framing regarding non-smoking messages, indicating that the effect of a negative framing message was higher than a positive framing message in terms of impacting a participant's decision to stop smoking. A participant with high involvement in the smoking problem showed preference for the negative message, whereas a participant with low involvement preferred a positive message. Furthermore, a study conducted by Cohen (Cohen, 2010) revealed that loss-framed messages were more effective for low-risk participants.

The result of this research proves that incorporating emotional appeals in an organ donation communication strategy is more effective in changing behaviours than in changing the attitude of a subject (McAllister, 1995). Existing public service ads regarding organ donation have been using positive framing; however, the subjects in this study were more persuaded by negative framing, which was new to them. The assertion that emotional appeal is an effective appeal type is based on the fact that emotional acceptance happens before rational acceptance during informational processing. It is also based on the fact that subjects' low involvement in public service

ads leads to peripheral route processing, in which emotional aspects are considered more important than the characteristics of the message and rational aspects (Robinette *et al.*, 2001).

Among the personal characteristic variables, altruism and issue involvement had a positive impact on the intention to donate an organ. That is, the more altruistic the subject is and the higher the subject is involved, the higher the intention to donate an organ.

After watching the four types of ad, the low self-monitors had a more positive attitude towards organ donation compared with the high self-monitors for the positive emotional ad and negative rational ad. In other words, the level of self-monitoring was not related to a type of message framing or appeal type; however, it was found that the low self-monitors had a more positive attitude towards organ donation. When investigating the effect of the level of self-monitoring on attitude towards organ donation and the intention to donate, not considering the difference by type of ad, the impact was not statistically significant, but the result shown was quite interesting. The high self-monitors had a more positive attitude towards organ donation, but the low self-monitors had a higher intention to donate. This shows that low self-monitors, who care less about whether their self-expression is socially appropriate and express themselves based on their own principles, have greater power of execution.

In terms of issue involvement, the level of issue involvement (high vs. low) by appeal type (rational vs. emotional) did not result in a statistical significance for attitude and intention. However, when the appeal type was not considered, the highly involved subjects had a more positive attitude towards organ donation than the low-involved subjects. This result implies that the ad will be more impactful when consumers are highly involved in this issue.

It is important to convince people that the organ donation issue is highly meaningful and to at least inform them of the fact that donating organs can help save lives (Cohen, 2010). In order to increase the public's involvement with the organ donation issue, an effort is needed to explain the importance and meaning of organ donation and to draw people's attention to this issue. A series of activities, which deliver basic information and increase familiarity with and good feelings about organ donation, could be effective; for example, TV and Internet advertisements can be

strengthened to raise awareness and increase the public's involvement in organ donation. If the campaign messages are 'delivered repeatedly and consistently over a long time period, then the chances of a successful campaign are maximized' [(Siegel, 2002), p. 159].

Historically, Korea has been heavily influenced by Confucianism and Koreans have traditionally overprotected their bodies. An old saying 'The beginning of filial duty is to maintain your body undamaged' clearly shows the Confucian moral. Such Confucian philosophy may be related to the repulsion Koreans feel by destroying a human body. In order to increase issue involvement, it is necessary to induce the general public's interest in organ donation and motivate participation. For example, it is important impart an idea that it is relevant to Koreans by saying 'My family and I may need to receive an organ from another.' According to the 'Life Sharing Awareness Survey' presented in 2012 by the Ministry of Health and Welfare, 48.2% of the respondents who answered that they have no intention of donating an organ said it was because they have vague fears, while 36.9% said they felt repulsed by the idea of damaging their body. The reason for the low organ donation rate in the Hispanic community is due to the general public's lack of knowledge about this issue and distrust in the healthcare system (Frates *et al.*, 2006). Therefore, it is crucial to search for measures that will eliminate the vague fears that people have about donating an organ.

Since the subjects of this research only included university students, there is a limit with respect to the generalization of the results to all age groups. Variables, such as individual thoughts and past intentions, knowledge and attitudes, recognized risk and prior attitudes, have been proved to be important predictors in the message processing strategy in many healthcare studies (Smith *et al.*, 1994; Morgan and Miller, 2002a,b; Cohen, 2010). It was also reported that communication with family members regarding organ donation has a big impact on the real execution of organ donation (Morgan and Miller, 2002a,b; Morgan, 2004; Bresnahan *et al.*, 2007). It is also needed to assess 'memorability of persuasive messages about organ donation, as a time lag often exists between the persuasive message and the desired behaviour of signing a donor card' [(Smith *et al.*, 1994), p. 3].

Future researches should select subjects from various age groups and diversify the variables and appeal types that affect public service ads.

The Korean Organ Donor Program suggested the following measures to effectively promote organ donation in Korea: (1) start an organ donation promotion project with institutions, enterprises and organizations by signing an agreement; (2) find donors by holding lectures continuously and regularly; and (3) print a regular publication and booklets to educate the general public.

Health professionals interested in increasing rates of organ donation need to 'identify the thought and intent of the population they wish to persuade and wage a persuasive campaign that presents appropriate messages in order to persuade the group in question to sign organ donor cards' [(Smith *et al.*, 1994), p.17].

Everyone involved in organ and tissue transplantation, including physicians and medical institutions, must 'respect and consider the best interest of the patient and honor the ethical, moral and religious values of society and not be tempted to seek personal fame or financial reward' [(Abouna, 2003), p. 67]. Those who are familiar with organ donation should frankly and sufficiently explain what organ donation is all about and describe what will happen after a person's organs have been donated. They should also consider whether prospective organ donors can decide for themselves about whether or not they wish to donate their organs and help insure that they are free to make that decision without any manipulation or force. While prospective donors are alive, the Principle of Non-maleficence shall be a top priority. Even if an organ donor has made the decision to donate his/her organs, if the organs are extracted after that decision has been made and the donor is expected to die, the doctor's operation to extract the donor's organs could be considered to be a crime even if the donor has agreed to the organ extraction (Hou, 2000).

One can never over-emphasize the importance of promotion to encourage organ donation. Considering the ripple effect of the media, it would be necessary to utilize the various media—television, radio, newspaper, magazines, Internet and social networking services—for campaigns along with promotion programmes. This study provides a practical guideline for differentiating an organ donation message in order to launch an effective public communication campaign. It can be used not only for advertisements but also for other forms of promotional material such as leaflets and pamphlets to encourage organ donation in Korea through more persuasive and effective messaging.

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