

기부캠페인 방송 연동형 데이터 서비스의 기부 의도 향상에 관한 효과성 연구

고 광 일

우송대학교 테크노미디어융합학부 미디어디자인·영상전공 교수

A Study on the Effectiveness of Donation Campaign Broadcasting linked Data Service on Donation Intention Improvement

Kwangil KO

Professor, School of Techno-Media Convergence, Woosong University, Daejeon 34606, Korea

[요 약]

우리나라는 지속적인 경제발전으로 평균적인 생활 수준이 꾸준히 향상됐지만, 근래 기부 참여율은 오히려 계속 감소하는 추세에 있다. 기존 연구에 의하면 기부에 참여하지 않는 이유로 기부단체의 신뢰성 문제가 큰 비중을 차지하며 수혜자의 감성적 스토리텔링이 기부 의도 향상에 긍정적임을 알 수 있다. 이 연구는 기부캠페인 방송 시청자의 기부 의도를 높이기 위해 기부단체의 신뢰성 정보와 수혜자의 스토리텔링을 제공하는 기부캠페인 방송 연동형 데이터 서비스를 제안하였다. 구체적으로, 기부캠페인 방송과 적절히 연동된 사용자 시나리오와 TV 플랫폼의 특성을 반영한 사용자인터페이스를 설계하고, 국제 데이터방송 표준인 MHP 기반의 데이터 서비스 저작도구를 활용하여 프로토타입을 개발하였다. 또한, 설문조사를 통해 이 데이터 서비스 활용이 시청자의 기부단체 신뢰도, 캠페인 호감도, 캠페인 참여 의사, 기부금 지불 의향 등에 통계적으로 유의미하게 긍정적 영향을 미침을 밝혔다.

[Abstract]

Although the average living standard has steadily improved due to the continuous economic development, the contribution rate of donations has been decreasing. According to the related researches, the credibility problem of donor organization is the major reason for not participating in donation, and the storytelling of donor beneficiaries is positive for the improvement of donation intention. This study devised a data service linked to the donation campaign broadcasting that provides donor organization credibility information and donor beneficiary storytelling to raise viewers' intention to donate. Specifically, we defined a user scenario and designed a user-interface that reflects the characteristics of the TV platform, and developed a prototype using a data service authoring tool. In addition, we surveyed that the data service had a statistically significant positive impact on the trust of the donor organization, the campaign attractiveness, and the willingness to participate in the campaign and to pay the donation.

색인어 : 기부, 기부 의도, 기부 캠페인 방송, 데이터서비스, DVB-MHP

Key word : Donation, Donation Intention, Donation Campaign Broadcasting, Data Service, DVB-MHP

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*Corresponding Author; Kwangil KO

Tel: +82-42-630-9343

E-mail: kwangil.ko@gmail.com

1. Introduction

1-1 Research Background

Donation means giving away money or things for free to help charity or public works[1]. Korea's average living standards have steadily improved due to continuous economic development, but according to a report by the Korea Labor Institute [2], the gap between the rich and the poor has deepened, and in 2017, the top 10% of incomes exceeded half of the total income. In response to this situation, the public welfare system for the support of the poor is strengthening, but this is not enough and the culture of donation at the private level should be further promoted. Intermittent media-led fundraising activities caused by disaster are also important, but the importance of long-term public participation in donations through non-profit organizations is increasing, and the strategic donation campaigns such as TV advertising and online community use are being carried out [3].

According to a government press release[4], the size of the donation relative to GDP of Korea in 2016 was 0.77 percent, less than half of that of the United States (2.08 percent). The rate of contribution participation has also been on the decline in recent years, which is 26.7 percent in 2017, significantly lower than that of Britain (67 percent) and Canada (82 percent). However, according to the 2019 National Statistical Office (NSO) survey[5], 39.9 percent of the respondents said they intend to donate money, and 26.7 percent said they intend to donate legacy. So If the government can address factors that hinder donations, it is expected that the culture of ordinary people's participation in donations will spread.

1-2 Related Works

According to a survey of people who have no experience in donating, the reasons for not making donations are found to be 'because they have no economic leeway' (51.9 percent), 'because they are not interested' (25.2 percent), and 'because they distrust the donor organization' (14.9 percent) [5]. Of these, the problem of distrust of donor organizations is judged to be the most urgent issue to be solved, increasing by a whopping 6.0%P over two years from 8.9% in 2017 to 14.9% in 2019 (see Table 1).

Message delivery methods of donation promotion can generally be divided into 'image presentation', 'information delivery' and 'storytelling' methods. Among them, the storytelling method is more effective than image presentation or information transfer method, drawing sympathy from the message recipient. According to the studies that examined organ donation-related message effects, when compared with the effect between a

표 1. 기부하지 않는 이유 조사 결과

Table 1. Survey Result of Reason for Not Donating

Reasons for Not Donating	(Unit %)	
	2017	2019
because of no economic leeway	57.3	51.9
because of not being interested	23.2	25.2
Because of not knowing how to donate	4.1	3.0
because of distrusting the donor organization	8.9	14.9
Because of no direct request	6.3	4.9

storytelling-style message and an informational message that showed statistical figures related to organ donation, an effective emotional response to a storytelling-style message was high [6,7]. In addition, the intention of donation was found to be high when negative emotions such as sadness, anger, and fear from donation campaigns developed into compassion or guilt [8,9].

According to such researches, the donation campaign broadcast is an effective medium for generating strong intent to donate, considering that it is a media that can implement emotional storytelling using a comprehensive set of video, music and narration.

1-3 Research Subject

This study devised a donation campaign broadcast-linked data service aimed at improving the intent of viewers to donate. This data service provides viewers with the information that helps solve the distrust problem of donor organizations, which is an impediment to participation in donations, and the storytelling information of beneficiaries that is effective in improving the intention of donation. In addition, this data service is executed in conjunction with donation campaign broadcasting, so it has the characteristics of strengthening in a timely manner the viewer's intention of donation invoked through campaign broadcasting.

Specifically, this study designed user scenarios and interfaces for the data service linked to donation campaign broadcasting, and developed a prototype of the data service based on DVB-MHP (Multimedia Home Platform)[10] which is an international standard for data broadcasting. The impact of this data service on the intention to donate was also analyzed by surveying the 63 college students who had no experience in donating.

In the situation where the participation rate of donation continues to decrease due to the reliability problem of donor organizations, this research is meaningful in that it suggests the possibility of activating the culture of participation in donations by combining the donation campaign broadcasting and data service to solve the issue of distrust of donor organizations.

II. Data Service linked to Donation Campaign Broadcasting

2-1 User Scenario

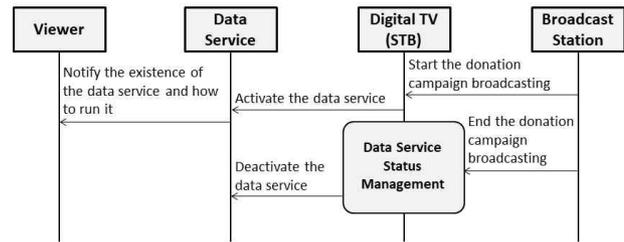
When watching a broadcasting program with an interlocked data service, it is common to avoid the automatic execution of the data service and to give viewers the authority to execute the data service. In other words, at first, it only informs a viewer of the existence and execution manner of data services with minimal graphics. The graphics usually shows icons suggesting certain color buttons on the remote controller and short phrases representing the functions of the data service. Recognizing the existence of the data service, a viewer presses the color button on the remote controller only when they want to execute the linked data service.

This data service is also activated when the donation campaign is broadcast and shows on TV screen the existence and execution manner of the data service currently linked to the donation campaign broadcasting. This data service is designed to be executed by pressing the red button on the remote controller. When a viewer press the red button on the remote controller within the time the donation campaign is aired, this data service is executed providing the information on the donor organizations and stories about the recipients of the donation.

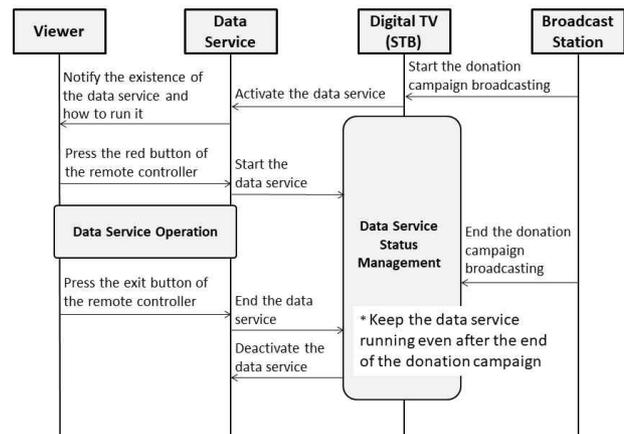
The information of the donation organization usually shows the objective information proving the major activities of the donation organization and the transparency of the accounting, and the story of the recipient of the donation shows the emotional story of the actual recipient, such as the person featured in the campaign. If the data service is not executed until the end of the donation campaign broadcast, the data service will be deactivated with the end of the donation campaign broadcast, and the graphics informing the existence of the data service will disappear.

A Viewer can use the functions of the data service with the direction buttons and the ‘OK’ button on the remote controller, and use the ‘Exit’ button to terminate the data service at any time. Once executed, the data services do not automatically terminate after the end of the donation campaign broadcast because shutting down the data services voluntarily executed by the viewer regardless of the viewer's intention is negative to the user experience of the data service.

Figure 1 shows the user scenarios for this data service. Figure 1-(a) shows when the data service is not executed until the end of the donation campaign broadcast, and Figure 1-(b) shows when the data service is executed beyond the end of the donation campaign.



(a) In case of not running the data service until the end of the donation campaign.



(b) In case of running the data service beyond the end of the donation campaign broadcast

그림 1. 데이터서비스의 사용자 시나리오

Fig. 1. User Scenario of the Data Service

2-2 User Interface

Based on the research of [11], the user interface of the data service is not more than one-third of the TV screen, and all functions of the data service are available with only left and right buttons and confirmation buttons. The data service can be terminated at any time with one operation (i.e., exiting the data service by pressing the 'Exit' button and omitting the window for confirming the viewer's intention).

This interface design reflects the nature of the TV platform that the primary purpose of watching TV is to watch broadcasting and the remote controller is not convenient for users to manipulate data services. The details and screen composition of the additional information to be displayed in the data service are designed in consultation with the campaign advertisers.

Figure 2 shows the user interface of the data service. Figure 2-(a) shows that the data service can be executed with the red button of the remote controller during the donation campaign broadcast. Figure 2-(b) shows the initial page of the data service introducing the donor organization (UNICEF). Figure 2-(c) contains information proving the transparency of the donor



(a) notifying the existence of the data service



(b) introducing the donor organization



(c) proving the transparency of the donor organization



(d) storytelling of the recipient of the donation

그림 2. 데이터서비스 사용자인터페이스
Fig. 2. User Interface of the Data Service

organization. Finally, Figure 2-(d) tells the details of the Ottoman family's story and how donations benefit the Ottoman family, as introduced in the donation campaign. In the lower right corner of the plane, the information required to operate the data service is displayed. Viewers can switch the pages of the data service with

the left and right buttons on the remote controller, and the 'Exit' button can shut down the data service at any time.

2-3 Prototype Implementation

A prototype of this data service was developed using the 'AltiComposer' [12] to analyze the impact of this data service on viewers' intention to donate. Altycomposer is an MHP-based data service authoring tool. MHP is an international standard for data broadcasting established by Digital Video Broadcasting (DVB) [13], a European standard for digital broadcasting. AltiComposer provides the functions such as WYSIWYG-style UI design, specifications of JavaScript per UI component, and easy animation effects of UI components, enabling easy creation of data services. After authoring a data service, through the automatic coding function, AltiComposer can generate the executable code of the data service that can be run in the MHP middleware.

AltiComposer designs data service UI hierarchically with concepts of 'Scene', 'Plane', 'Shot', and 'Actor'. The Scene defines a unit of action for a particular purpose, such as login, and the Plane defines a unit of screen manipulation that make up the scene, such as input of the login ID. The Shot is a unit of reaction to remote controller operations, such as a focus shift for login ID input, and the Actor is a Java object that makes up the UI, such as a login button. The 'Transition' between Scenes, Plain and Shots, and the 'Animation' of the Actors are defined for each remote controller manipulation, and they are programmed using the scripting function based on JavaScript.

This data service consists of four Scenes such as 'Service Announcement', 'Introduction to Donations', 'Transparency of Donations', and 'Recipient Stories', and ten Planes including 'Donation Logo', 'Donation Introduction' and 'Remote Control Information', and 29 Actors including various icons, photos, and texts. There is only Transitions between Scenes and Planes in response to the viewer's remote control. Since no action like focus shift exists, no Shot is defined.

III. Effectiveness Analysis of Data Service

3-1 Experiment Method

In order to analyze the effect of the use of the data service on viewers' donation intention, an experiment was conducted on 63 college students who had no donation experience. Along with the donate intention, the impact on the donation attitude was also

표 2. 기부 태도와 기부 의도 설문 항목

Table 2. Survey Items for Donation Attitude and Intention

Types	Survey Items
Donation Attitude	(Interest) I'm interested in the donation campaign.
	(Reliability) I trust in the donation campaign.
	(Favorability) I like the donation campaign.
Donation Intention	(Participation) I'll take part in the donation campaign.
	(Recommendation) I will recommend a donation campaign around.
	(Payment) I am willing to pay for the donation.

analyzed, which refers to emotional attitudes toward campaigns such as trust in donor organizations, interest in campaign activities and favorability. When the donation attitude is positive, the donation intention that indicates the actual willingness to pay the donation also improve.

Group-A (31 persons) provided a donation campaign broadcasting with the data service linked to it, and Group-B (32 persons) is required to watch a typical form of donation campaign broadcasts that are not linked to the data service. After watching the donation campaign broadcasting, a survey of the items as shown in <Table 2> was conducted to measure donation attitude and donation intention for each group. The answers to the questionnaire were composed on the Likert 5-point scale from "① Very Not" to "⑤ Very Yes" . The survey results were analyzed using the IBM SPSS Statics program.

3-2 Experiment Result and Analysis

<Table 3> shows the analysis results of the t-test by questionnaire about the donation attitude. In the campaign interest category, there was no statistically significant difference in significance level ($p \leq 0.025$) between Group-A (using the data service) and Group-B (not using the data service). Regarding the campaign reliability, Group-A ($M = 4.91$) answered that the group trusts donors statistically significantly compared to Group-B ($M = 3.63$). Regarding the campaign favorability, Group-A ($M = 4.69$) liked the campaign statistically significantly compared to Group-B ($M = 3.61$). The reason why the campaign favorability is high is that the recognition of the campaign activity of the donor organization is favorably recognized as the trust of the donor organization increases.

<Table 4> shows the analysis results of the t-test by questionnaire for the donation intention. In all categories, Group-A scored significantly higher than Group-B. This can be interpreted as that the increased trust in the donor organization

표 3. 그룹-A와 그룹-B의 기부 태도 설문에 대한 t-검정 분석

Table 3. t-test Analysis of the Donation Attitude of Group-A and Group-B

Item	Group	M	SD	t	p
Interest	Group-A	4.69	0.63	1.48	0.150663
	Group-B	4.23	0.92		
Reliability	Group-A	4.91	0.10	5.35	4.32E-05
	Group-B	3.63	0.69		
Favorability	Group-A	4.69	0.63	3.91	0.000665
	Group-B	3.61	0.77		

표 4. 그룹-A와 그룹-B의 기부 의도 설문에 대한 t-검정 분석

Table 4. t-test Analysis of the Donation Intention of Group-A and Group-B

Item	Group	M	SD	t	p
Participation	Group-A	4.77	0.44	4.46	0.000162
	Group-B	3.69	0.75		
Recommendation	Group-A	4.69	0.48	3.82	0.000815
	Group-B	3.77	0.72		
Payment	Group-A	4.61	0.50	4.37	0.000204
	Group-B	3.62	0.65		

and the favorability of the campaign' had a positive impact on the intention of participating in the campaign and the willingness to pay donations. Note that Group-A and Group-B have a lower intention to pay donations compared to the willingness to participate in the campaign. This suggests that a variety of methods of sponsorship are needed other than the monetary payment that is economic burdensome.

Based on the results of these experiments, we can see that the data service is a suitable tool to increase the promotion effect of the donation campaign.

IV. Conclusion

This study designed a donation campaign broadcasting linked data service for the purpose of improving the donation intention of viewers by resolving the problem of distrust of donor organizations and reinforcing storytelling of beneficiaries. Specifically, we designed a user interface that considers the characteristics of the TV platform and user scenarios operated in conjunction with donation campaign broadcasting. We also developed a prototype based on the international standard DVB-MHP using a data service authoring tool. Using this prototype, we analyzed the effect of the data service on viewers' donation attitude and donation intention. 63 undergraduates with no experience in donating were divided into two groups, one group (Group-A) was required to use (the prototype of) the data

service when watching the donation campaign broadcasting and the other group (Group-B) was not allowed to use the data service. Then, two groups were surveyed on the donation attitude and donation intention.

In conclusion, Group-A scored significantly higher than Group-B in the reliability of the donor organization and the favorability of the campaign. This is because Group-A has improved the trust in the donor organization through the data service, and the familiarity with the campaign as they learn more the beneficiary's pain and benefits from the donation. In all questionnaires asking for the donation intention, Group-A scored significantly higher than Group-B, which can be interpreted as the improvement of donor organization's credibility and campaign's attractiveness led to the campaign participation intention and payment intention.

According to the survey results, all groups showed lower intention to pay contributions than their intention to participate in the campaign. This may be affected by the limitation that the survey subjects consisted only of undergraduate students. In general, undergraduates tend to be passive in paying donations because they are consumers, not producers. Therefore, for more objective analysis, it is necessary to extend the survey to the production subject (e.g. the office workers in their 30s to 50s).

In spite of the limitation, this study is meaningful in that it suggests a new way to revitalize the donation culture by experimentally verifying that a data service linked with donation campaign broadcasting can improve viewers' intention to donate.

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References

[1] Naver Korean Dictionary, <https://ko.dict.naver.com/>

[2] M. K. Hong, "Top Income Share by 2017", Monthly Labor Review, Korea Labor Institute, Feb. 2019.

[3] M. S. Suh, J. W. Ahn, and D. Y. Oh, "Difference of Advertising Effects According to Donation and Appeal Types in Non-profit Organization Advertising", *The Journal of Korea Association of AD&PR*, Vol 87, No 87, 2010.

[4] "How to Improve and Activate the Transparency of Donations", Press release from Prime Minister's Office of Government

Policy Coordination, <https://www.gov.kr/portal/ntnadmNews/1619753>

[5] "2019 Social Survey Results", Press release from National Statistical Office, <https://www.gov.kr/portal/ntnadmNews/2038095>

[6] J. E. Kopfman and S. W. Smith, "Understanding the audiences of a health communication campaign: A discriminant analysis of potential organ donors based on intent to donate", *The Journal of Applied Communication Research*, Vol. 24, No. 1, 1996.

[7] J. E. Kopfman, S. W. Smith, J. K. Ah Yun, and A. Hodges, "Affective and cognitive reactions to narrative versus statistical evidence organ donation messages", *Journal of Applied Communication Research*, Vol. 26, 1998.

[8] J. H. Kim and J. H. Kim, "Effective Message Strategy for Charitable Donation Campaign with Mortality Salience", *The Korean Journal of Advertising*, Vol. 26, No. 5, 2015.

[9] K. H. Chu and J. Y. Kim, "The Effects of Sad Donation Advertising on Donation Behaviors: Mood Valence vs. Mood Variation", *The Journal of Product Research*, Vol. 33, No. 6, 2015.

[10] "Digital Video Broadcasting (DVB): Multimedia Home Platform (MHP) Specification 1.2", ETSI, DVB, 2007.

[11] Kwangil KO, "A TV Viewer's Modality-based Searching System Designed for Running on TV Set," *The Journal of Digital Contents Society*, Vol. 11, No. 3, 2010.

[12] "altiComposer2.0 - Interactive TV Authoring Tool", <https://www.digitalbroadcasting.com/doc/alticast-launches-interactive-tv-authoring-to-0001>

[13] DVB Home page : <https://dvb.org/>



고광일(Kwangil KO)

1995년 : 포항공과대학교 전자계산학과 (학사, 석사)
 1999년 : 포항공과대학교 컴퓨터공학과 (공학박사)

1999년~2010년 8월: (주)알티캐스트 사업품질관리본부 본부장 및 서비스개발사업팀 팀장
 2010년 9월~현재: 우송대학교 테크노미디어융합학부 영상콘텐츠전공 교수
 ※ 관심분야 : 디지털방송 소프트웨어, 스마트TV방송UI/UX, 소프트웨어공학, 요구분석공학, N-스크린 서비스, 소프트웨어 교육