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# Analysis of the acceptability of the "information health" concept : Consideration of the possibility of beneficiary payment

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## 1. Background

The current information platform is under the negative effects of the attention economies such as filter bubble, echo chamber and so on. These problems inhibit individuals from properly understanding information on the Internet and cause individuals to make incorrect decisions.

Digital platforms and SNSs, the actors that control information on the Internet, are dealing with these issues on their own initiative, but have yet to reach a drastic solution. The 2021 United States Capitol attack, in which social networking sites were noted to have had a major impact, is fresh in our memories. Even if this is not such an extreme case, we are often deceived by fake news or exposed to biased information in our daily lives.

## 2. Prior research: “Toward a Wholesome Platform for Speech: Digital Diet Declaration”

With this background, the concept of "information health" was proposed in Japan by Toriumi and Yamamoto (2022) and has attracted much attention. Toriumi and Yamamoto (2022) indicate the importance of "information health" in the context of the problems caused by the "attention economy" described by Wu (2017) and the problem of fake news identified by Bradshaw et al. (2021). Toriumi and Yamamoto (2022) describe "information health" as follows,

“Today, when the flow of information in the space for public discourse has undergone a great transformation, it is indispensable that we achieve a state of affairs in which we have acquired a certain degree of immunity (critical faculties) to fake news—that is to say, information health—by coming into contact with a well-balanced variety of information.”

## 3. Objective

This study defines “information health” as the realization of appropriate information browsing behaviour and discusses the methodologies and environments to realize informational health.

In particular, this study analyses the feasibility of the concept of "information health" from an economic perspective. Because, even if "information health" is a beneficial concept, legal and technological actions are required to realize this concept, and especially technological actions require

a degree of cost.

More specifically, this study will set the following research questions and design the survey.

Who will pay the costs of realizing "information health"?

#### 4. Conducting the survey

This study investigates the demand potential of the concept of "information health" and also estimated the willingness to pay of individuals for the realization of "informational health". This study also investigated the basic perceptions about information environment of individuals before that.

The survey was carried out through an crowdsourcing Services in November 2022. A total of 2,197 responses were collected. The basic attributes of the sample are as follows.

Table. 1. Basic attributes

sex	ratio	age	ratio	Years of internet use	
male	38%	Under 20s	19%	min	0
female	60%	30s	34%	median	20
other	2%	40s	29%	average	18.7
	100%	50s	13%	max	47
		Over 60s	4%		
			100%		

#### 5. Key Survey Findings

First of all, many individuals are currently unknown to issues such as "filter bubbles" and "echo chambers". On the other hand, despite of this situation, when we explain the concept of information health, more than 60% of the respondents agree with the concept. But, at the same time, we found that there is a segment of the population, about 10%, that is resistant to this concept.

Fig. 1. Ever heard of the "echo chamber"?

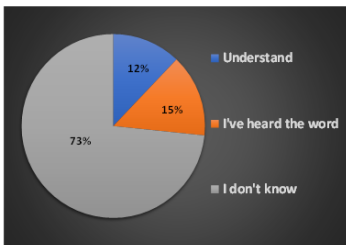


Fig. 2. Ever heard of the "filter bubble"?

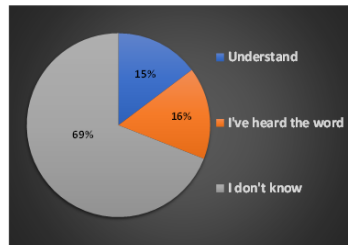
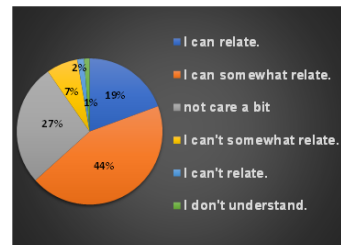


Fig. 3. Concern for "information health"



As noted above, many individuals are sympathetic to informational health, on the other hand,

individuals tend to have a bias that they consume information in a healthy way. According to the survey, when the healthiness of their surroundings is scored at 50, they recognize themselves to be about 10 points healthier.

Table. 2. Subjective Health Level

min	0
median	60
average	58.79
max	100

## 6. Estimation of WTP

For individuals with this perception, the survey estimated the amount of WTP for services to achieve information health. The Contingent Valuation Method (CVM) was used to estimate WTP. Specifically, four levels of prices were set based on the WTP obtained from the free response method in the preliminary survey, and estimation was conducted using the single-bound dichotomous choice. In the estimation, the Turnbull method was used to obtain Kaplan-Meier and Spearman-Karber estimators.

### 6-1. WTP for filter bubble elimination

In order to estimate the WTP for the filter bubble elimination, this study set up the following two service scenarios: a news site and a shopping site..

“ Consider the situation in which all news provided on the Internet is now in a filter bubble. Suppose that an application is now available that allows you to adjust and select the information you want to know, rather than having the news (or shopping) sites pre-select the news (or recommendation) they present to you. If this application costs \_\_\_ yen per month, would you want to use it? ”

Table. 3. WTP for filter bubble elimination

news site		shopping site	
Kaplan-Meier	95.51 yen (0.62€)	Kaplan-Meier	84.33 yen (0.55€)
Spearman-Karber	130.53 yen (0.85€)	Spearman-Karber	116.91 yen (0.76€)

Calculated at the rate at the time of publishing (1 euro = 154.34 yen)

### 6-2. WTP for fake news elimination

Similar to the previous section, this study next estimated the WTP for fake news elimination.

The service scenario for fake news elimination was set up as follows.

“ Consider a filter that completely removes fake news that may be mixed in with the online news that you see on a daily basis. If this filter costs \_\_\_ yen per month, would you want to use it? This filter can be used on all your devices at the same time, and this filter can remove fake news of all genres.”

Table. 4. WTP for fake news elimination

fake news	
Kaplan-Meier	142.78 yen (0.93€)
Spearman-Karber	207.20 yen (1.34€)

### 7. Analysis of factors affecting WTP

The previous section estimated WTP, and this section analyses the individual attributes that affect these WTPs to determine which individuals have a greater preference for filter bubble and fake news elimination. The personal attributes for analysis in this study are as follows.

- Sex: dummy with female
- Age: actual number
- Subjective health level: scores indicated in Section 5
- Supported political party: dummy with ruling party
- Fake news ratio: subjective fake news content ratio on media (%)
- Household income: median of class per million yen
- Amount: amounts presented in CVM's questionnaire.

Table. 5. Estimation results

	filter bubble (news)			filter bubble (shopping)			fake news		
	Estimate	Pr(> z )		Estimate	Pr(> z )		Estimate	Pr(> z )	
(Intercept)	2.843	0.000	***	2.729	0.000	***	3.966	0.000	***
Sex	-0.306	0.014	*	-0.261	0.041	*	-0.302	0.016	*
Age	-0.006	0.328		-0.017	0.006	**	-0.011	0.065	.
Subjective health level	0.008	0.033	*	0.007	0.104		0.000	0.987	
Supported political party	0.183	0.188		0.535	0.000	***	0.189	0.179	
Fake news ratio	0.009	0.003	**	0.011	0.000	***	0.007	0.014	*
Household income	0.000	0.370		0.000	0.962		0.000	0.358	
Amount	-0.873	0.000	***	-0.801	0.000	***	-0.899	0.000	***

Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1

The results of the estimation are shown in Table 5. The estimation was conducted using a logistic model with the acceptability of the offered amount as the explained variable.

## **8. Summary and discussion**

This study analysed the acceptability of the "information health" concept by estimating WTP for filter bubble and fake news removal. Through this study, the following points became clear.

First, individuals' understanding of issues related to the information environment, such as echo chambers and filter bubbles, is currently not widespread enough. Then, many individuals were found to be sympathetic when the concept of information health was explained to them. However, the results suggested the existence of a kind of normality bias, in which the average individual consumes information more correctly than those around them.

Second, based on the analysis of the WTP, the amount that individuals can pay for the realization of "information health" is about 100-200 yen (around 1 Euro) per month at the level of individual services. There are certain technical and institutional costs associated with the realization of information health, some of which may be borne by individuals as beneficiaries.

In addition, This study found that individuals oriented toward informational health were more likely to be male and more likely to be individuals who felt that there was a lot of fake news in the world. The results also suggest that individuals with higher subjective information health for filter bubble removal are more willing to use such services.

The findings of this study can be fundamental material for discussing the design of policy interventions. It also has certain contributions to the discussion on rules for technological functions (e.g., guidelines for AI utilization). Additional findings could be derived by further refining the analysis of this study.

## **Reference**

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