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A Method to Success of "*Oshigatari*" Recommendation Talk by Asking to Create Search Queries While Listening

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Abstract

"*Oshigatari*" is a Japanese term that refers to when a person talks to recommend his/her favorite content, actors, artists, and so on to others not only for his/her enjoyment but also because he/she wants others to be equally passionate about this subject. However, people often have difficulties conveying their enthusiasm and giving convincing recommendations. We conducted surveys using *Yahoo! Crowdsourcing* and found that 80.3% of respondents have unsuccessful experiences of recommending content to others. Therefore, the objective of our study is to maximize the success of *Oshigatari* with a little effort. In this study, we proposed a method asking the listeners to imagine generating a search query while listening to the recommendation talk (*Oshigatari*) to increase the likelihood of the listeners becoming interested. In addition, we experimented and found that our method increased the rate of successful recommendations.

Keywords: Recommendation Talk, Interest Change, Active Behavior, Search Queries

1. Introduction

In the 1970s, people used the term "otaku" to refer to fans of pop culture in Japan. At the time, people associated the term "*otaku*" with words such as "moe" and "*Akihabara-kei*" and used it to refer to fans of anime, Japanese manga, video games, and so on. Since then, it has become a general term that is frequently used in the media. In recent years, Japan has had a widespread custom to refer to the content, and people passionately support it as "*Oshi*." On October 5, 2020, NHK's Asaichi, an information program in morning, conducted a survey where they asked people to share the content or people they favored (*Oshi*). In addition to idols and actors, 44,690 responses concerned various genres, including anime characters and historical figures [1]. Thus, the culture of expressing one's passion for favorite content as one's "*Oshi*" is widespread among people of all ages and genders, and there are many people who enjoy it as a part of their daily lives.

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People often hope to recommend and let others know about the merits of the content or people who they favor (*Oshi*) and have conversations and shared experiences. There are also cases where one gives recommendations to those unfamiliar with the content. In addition to talking about the merits of their favorite celebrity or character, they may also lend CDs or DVDs or take people to live performances.

However, a person who listens to the recommendation about the speaker's favorite content or people (*Oshi*), is often less familiar with it. In that case, there is a big gap between the speaker's (recommender) and the listener's enthusiasm. As a result, the listener may not become interested, and even if they borrow a CD or DVD, they may not necessarily play it, and attending a live performance may not seem worthwhile.

In this work, we firstly conducted a questionnaire survey on *Yahoo! Crowdsourcing* [2] with 1,000 people who had the experience of recommending their favorite content or people (*Oshi*) to others. We found that 80.3% of respondents had unsuccessful experiences of giving recommendations, e.g., the other person was not interested in the recommended content. Many of the respondents explained that this was because they could not speak convincingly. This study addresses two main problems: listeners not being sufficiently interested in the recommended content, and that the change of interest in the content depends on the speaker's way of talking.

We aim to realize a method to enable users to conduct successful recommendation talk in person-to-person situations, regardless of their speaking skills. Fisher et al. [3] have shown that the human brain creates the illusion of having much knowledge about a target and a solid connection to the target when searching for it, which suggests that the act of searching may be effective as a means of increasing interest. In other words, the possibility of becoming interested may increase by having the listener actively search for the recommended content. However, a listener might feel it is tedious to search for content using a smartphone or a PC while listening to the recommendation talk.

Therefore, we propose a method to reduce the effort of searching as much as possible while increasing the effectiveness of *Oshigatari* (the recommendation). The method requires a listener to imagine generating a search query in his/her brain as search activity. We hypothesize that creating a search query in the listener's brain without entering queries to any system increases the probability of being interested. To verify the hypothesis, we conducted an experiment in which participants watched a video of someone recommending content. We compared when the participants thought of a search query about the content and when they did not.

The contributions of our paper are as follows:

- We conducted a basic survey on "*Oshigatari*" recommendation talk and found that over 80% of people have unsuccessful experiences of *Oshigatari*.
- We proposed a method that increases the success of *Oshigatari* by having the subject think only about search queries while listening to *Oshigatari*.

2. Related Work

Several studies have investigated how to induce people's interest.

Uchida [4] suggested that it is important to present the relationship between science and familiar events to raise awareness and interest in science. Uchida conducted activities that increased interest in science for children and their parents using kitchen science, combining cooking and science. Albert et al. [5] proposed an independent study program to motivate students to become interested in mathematics by setting easy-to-achieve goals. They found that the program could arouse students' interest in arithmetic activities which they had little interest in previously. Tainaka et al. [6] proposed a method of generating and presenting four-frame cartoons using photographs of animals in motion to encourage visitors to take an active interest in animals at zoos. They were able to increase the visitors' interest and awareness of the animals at the zoo. As described above, there have been many studies on how to arouse people's interest. The purpose of our study is to investigate whether it is possible to induce a person's interest by having them search for content when it is recommended.

Regarding the relationship between interest and behavior, people may take action after becoming interested or become interested after taking action. Setosaki et al. [7] investigated whether students' interest and motivation in art class changed depending on how they viewed a statue. They compared passively viewing the sculpture as it continued to rotate, and actively viewing the sculpture when the viewer moved or manipulated the statue by turning it themselves. The results showed that the active viewing method significantly increased the students' interest and motivation to study. The students said that they felt actively engaged and wanted to learn more about the statue and

other works of art. In addition, active learning has been showed to increase the students' motivation to learn and investigate further. However, the level of understanding of the content was equal to passive learning [8].

In this way, active behavior has been shown to increase one's interest in a subject. We judge that our method can increase people's interest in the subject and their willingness to investigate further by having them perform an action such as searching when recommending content.

There has been much research on recommendations. Luo et al. [9] conducted an experimental test to compare the sales by an employee and by a chatbot when each was used to inform customers of new services in financial services. The results showed that chatbots generated four times as many sales as inexperienced employees and about the same number as skilled employees. However, when they told customers that the conversation was with a chatbot, the sales dropped by about 80%. In terms of trust in media advertising, the trust in recommendations from friends was as high as 90%, trust in online consumer opinions was 70%, but trust in video and banner ads was very low, at 30% [10]. In addition, this result indicates that human recommendation, especially recommendations from friends and acquaintances, is superior to other methods from the viewpoint of reliability. We believe that the same is true for the "*Oshigatari*" recommendation talk we focus on.

3. Survey on the Recommendation Talk (*Oshigatari)*

We conducted a questionnaire survey about the "*Oshigatari*" recommendation talk from September 11 to September 12, 2020. This questionnaire recruited 500 males and 500 females who had experience of recommendation talk about their favorite content or people to others via *Yahoo! Crowdsourcing* [2]. We analyzed the results using 811 responses, excluding 189 unserious responses.

Table 1 shows examples of *Oshi* (favorite content or people) that participants answered. We can easily understand that there are many different kinds of "*Oshi*" (people, things, and activities).

Fig. 1 shows the relationship between the participants' strengths and weaknesses in speaking and the success rate of their recommendation talks. We asked respondents to self-evaluate their own strengths and weaknesses by answering the question, "Are you good or bad at talking to others?" From this figure, about 80% of respondents had unsuccessful experiences of recommendation talk. In addition, it is clear that the success rate of people who are not good at talking is lower than that of people who are good at talking, and it is especially difficult for the former to succeed.

Table 1. Some examples of "*Oshi*" gathered from the survey.

People	Things	Activity
Actor	Comic	Cooking
Idol	TV animation	Singing
Character	TV programming	Shogi (Japanese chess)
Voice Actor	YouTube	Traveling
YouTuber	Movies	Make something by hand
Pianist	Cosmetics	Drawing a picture
Artist	Games	Collecting points
Baseball Team	Music	Yoga
	Fashion	Sports
	Books	Visiting cafes
	Cars	Building a computer
	Railroad	Fishing
	Motorcycle	Touring
	Plastic Model	Blogging
	Musical Instruments	Mountain climbing
	Opera	Gardening
		DIY
		Investment

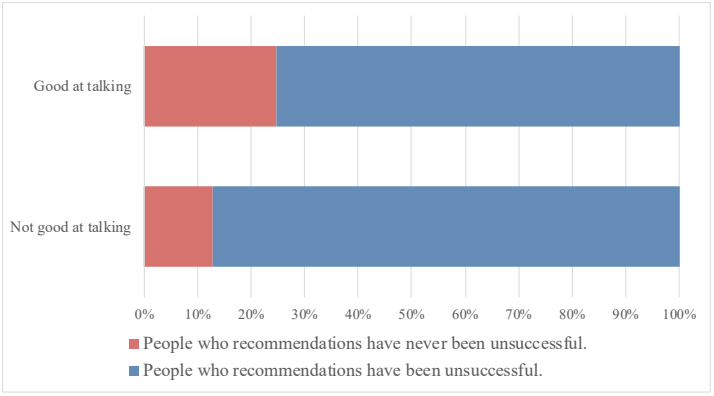

Fig. 1. The relationship between the participants' strengths and weaknesses in speaking and the success rate of their recommendation talk

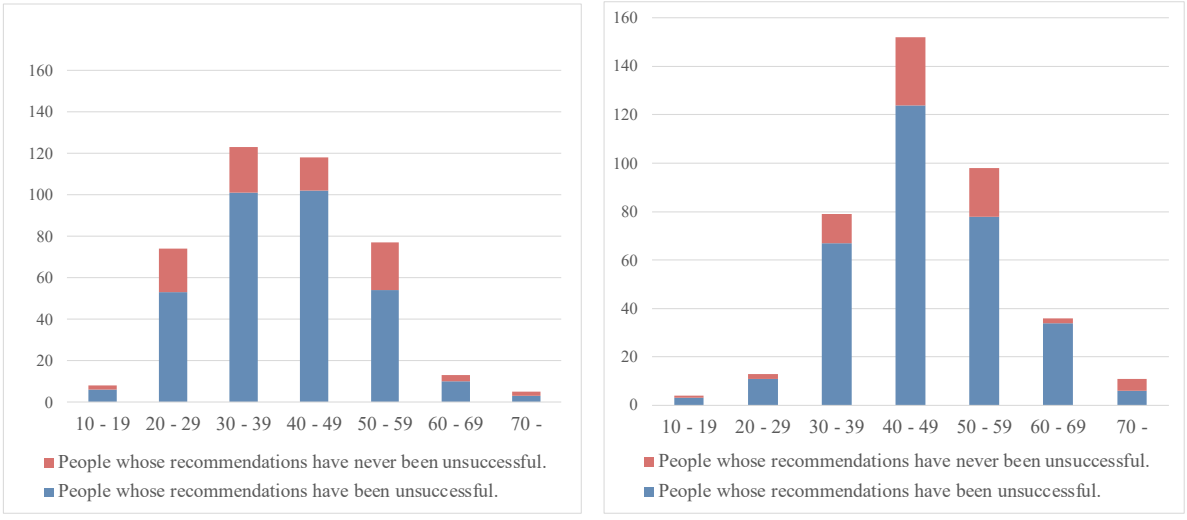

Fig. 2. Success rate of recommendation talk by age (left: female, right: male)

Table 2. Some examples of failed recommendation talks

Failed example	I couldn't talk about the artist's merits to my friends, so I couldn't convey the appeal.
	Even if they listened to me, the conversation ended up being limited to the topic at hand.
	It seemed that my explanation was difficult to understand, and I was told, “Another time.”
	The other person got bored with the recommendation talk.
	Even though I tried to get them interested, they never talked about it again, perhaps because I didn't communicate it well.

Fig. 2 shows the success rate for each age group in females and males. The number of respondents is biased by age because we used *Yahoo! Crowdsourcing*. These results indicate that regardless of gender or age, successful recommendation talk is difficult to achieve, and many people have unsuccessful experiences of recommendation talk.

From the question about the unsuccessful experience, there were comments like “I could not convey the goodness of my favorite things well” and “The other person got bored with the recommendation talk” (Table 2). However, it is a problem if the user’s speaking skill determines whether the content is interesting or not when we originally wanted the user to see the interest in the content itself. Therefore, this research aims to realize successful person-to-person recommendation talk (*Oshigatari*) regardless of the user’s speaking skill.

4. Proposed Method

We aim to make people (listeners) interested in recommended content (*Oshigatari*) regardless of the speaker's speaking skill when making the recommendation. Setosaki et al. [7] found that inducing active behavior generates interest effectively. Among such behavior, the act of searching creates the illusion that the human brain is knowledgeable about the content [3]. Thus, we speculate that searching is an effective means of generating interest in the content. In addition, based on consumer behavior models such as AISAS [11], users interested in a product or service are likely to search for it later, so there may be a relationship between interest and search behavior.

However, within the broad category of searching, the act of searching is carried out over several steps. At first, a user imagines a search query to obtain information. Then, the user inputs the search query into a search engine using a smartphone or PC. After that, the user selects a desired result page that matches his/her search intention from the list of search results, reads information on the selected page, and clicks links on that page to obtain more information. If the information obtained does not satisfy the user, the user returns to imagining a search query.

In this research, we want to reduce the listener's effort when he/she is listening to "*Oshigatari*" recommendation talk. Therefore, we only use "a user imagines a search query to obtain information" as the searching process because imagining a search query would be less burdensome for listeners and is thought to increase their interest.

Therefore, we propose a method in which listeners think of search queries while listening to a speaker's "*Oshigatari*" recommendation talk in order to increase the listener's interest, regardless of the speaker's speaking skill (see Fig. 3).

5. Experiment

5.1. Overview

To evaluate the proposed method, we conducted an experiment to clarify how the listener's interest changes before and after listening to the recommendation talk, when the listener imagines a search query in his/her brain, and when he/she does not.

In this experiment test, we asked participants to watch a video in which the speaker (recommender) talked about his/her favorite content (hereafter referred to as the "recommendation video"). We investigated how the participants' degree of interest changed before and after watching the video.

We asked two female speakers to record the recommendation talk as a video in this experiment. To prevent the participants from becoming bored while watching the recommendation videos, we asked them to talk for up to seven minutes. The reason for setting the time to seven minutes was that some users in our preliminary experiments felt that 10 minutes was too long for a recommendation, and we thought that five minutes was too short a recommendation time. The speakers were disguised by using avatars in order to standardize the experimental conditions and prevent the speaker's facial expressions and mood from affecting the participants' interest in the

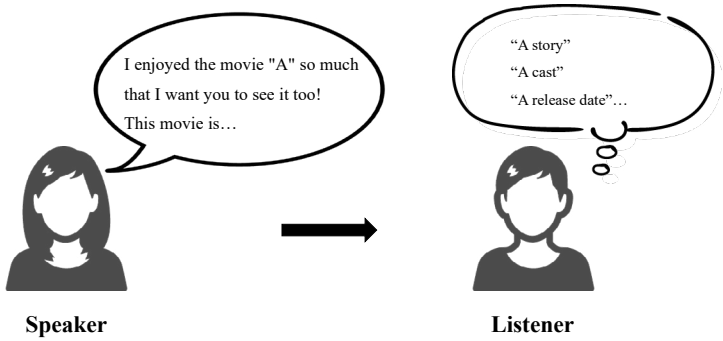

Fig. 3. Proposed method

Fig. 4. Screenshot of a recommendation video

content (see Figure 4). The participants watched the avatar talk without any other visual information such as subtitles or images of the recommended content. In this recommendation, one recommended the comic *"The lady will be an idol"* [12], and the other recommended the comic *"Oten no Mon"* [13]. The reason for selecting these comics as the recommended content was that the first volume of these two comics was available on the Web site of the publisher for free. Then, participants could read these comics easily after the experiment.

We defined the condition in which the participants were asked to imagine a search query while watching the recommended video as the "with query thinking" condition. The condition in which they watched the recommended video without any instructions was the "without query thinking" condition.

To compare the results among the participants, we divided the participants into two groups, one for each situation. Once their participation in the experiment was confirmed, the participants were asked to respond on a six-point Likert scale (1: do not read at all to 6: read very often) to show how familiar they were with the comic recommended. Based on the answers obtained, the two groups were assigned so that the degree of familiarity was equal.

Fig. 5 illustrates the flow of the experiment. Before the experiment, we asked the participants to say how much they knew about the two recommended topics (prior knowledge) and to rate on a six-point Likert scale how interested they were in these topics (prior interest) (1 - not at all interested, 6 - very interested).

In the experiment, we first instructed the participants about the experimental procedure and guidelines, such as watching the recommendation videos while thinking of the speaker as a friend or acquaintance and not doing any

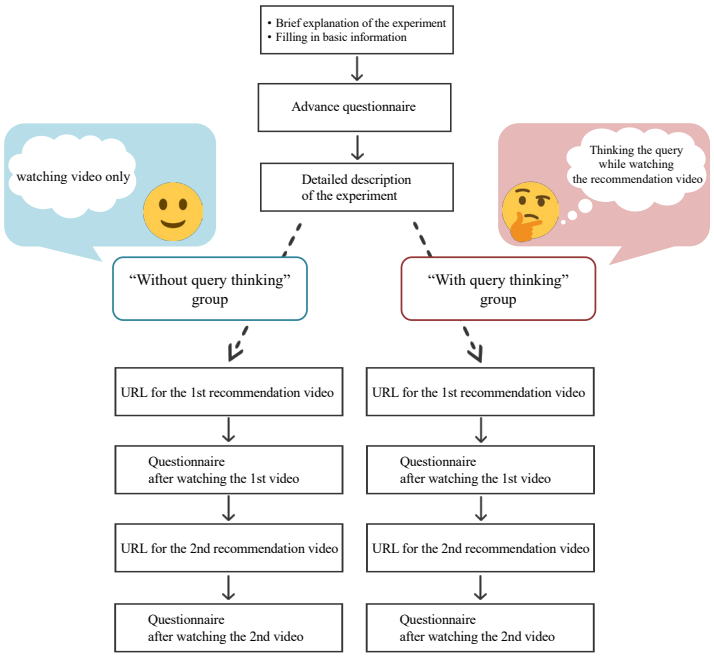

Fig. 5. The flow of the experiment

other tasks. Then, we asked the participants in the search query group to think about how they would search for the content while watching the recommendation video. We used diagrams and concrete examples to explain that a search query is a word or phrase entered into a search engine. After the instructions, we asked the participants to watch the recommendation videos. The order of the recommendation videos was randomized.

After watching each video, we asked the participants to rate how interested they were in the recommended content after watching the video (whether their interest changed) on a six-point Likert scale and whether they actually wanted to watch, play, or investigate the content in more detail. In addition to these questions, we asked participants in the search query group to provide the queries they had thought of while watching the recommendation video. We asked them to express the search query as a single word or multiple words separated by spaces. Here, we clearly stated that there was no limit to the number of search queries as long as there was more than one.

5.2. Results

The number of participants in this experiment was 18 (14 males and four females). We firstly excluded one participant who responded with similar sentences in all the ratings and the same descriptive responses. So, nine participants with query thinking and eight without query thinking were used to analyze this experiment.

Fig. 6 shows the distribution of the interest ratings before viewing a recommendation video and after viewing a recommendation video using the box-and-whisker plot for each group in the "*The lady will be an idol*" condition (hereafter referred to as condition A, in the left figure) and for each group in the "*Oten no Mon*" condition (hereafter referred to as condition B, in the right figure). Table 3 summarizes the overall average interest rating.

These figures and table showed that interest after viewing the recommendation video was higher than interest before viewing the recommendation. In addition, more respondents in the group with query thinking gave higher interest ratings than those in the group without query thinking. Almost all the participants in the query thinking group generated "<comic title> and <character name>" as a query. Other examples of generated queries were "<comic title> and <scene type>" "<comic title> and <historical fact>" and so on. Many respondents looked up the

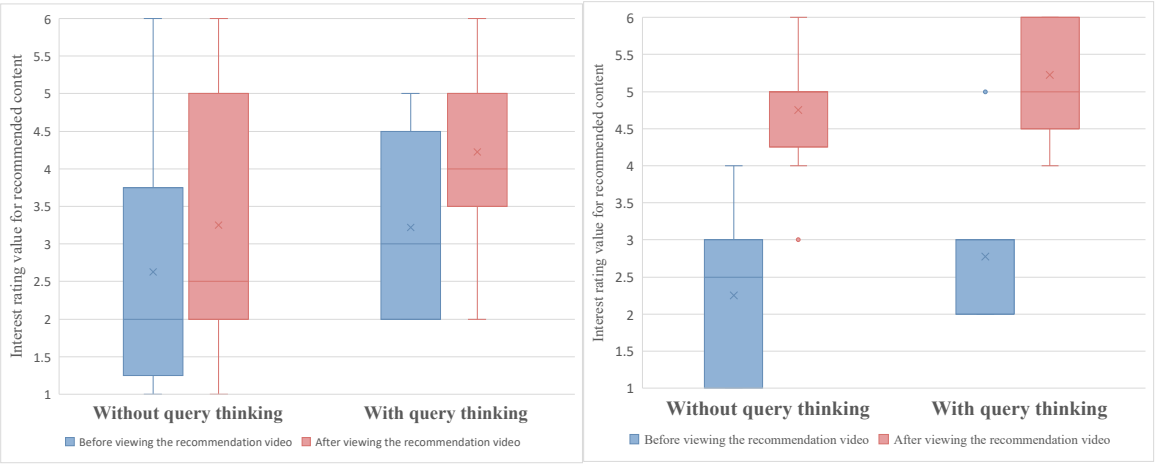

Fig. 6. Interest rating values before and after viewing the recommended video (left: condition A, right: condition B)

Table 3. Average of interest rating values after viewing recommended videos

	Interest before watching the recommended video	Interest after watching the recommended video	Difference	Active motivation after viewing recommended videos
Without query thinking (condition A)	2.63	3.25	0.63	3.25
Without query thinking (condition B)	2.25	4.75	2.50	4.50
With query thinking (condition A)	3.22	4.22	1.00	4.33
With query thinking (condition B)	2.78	5.22	2.45	5.33

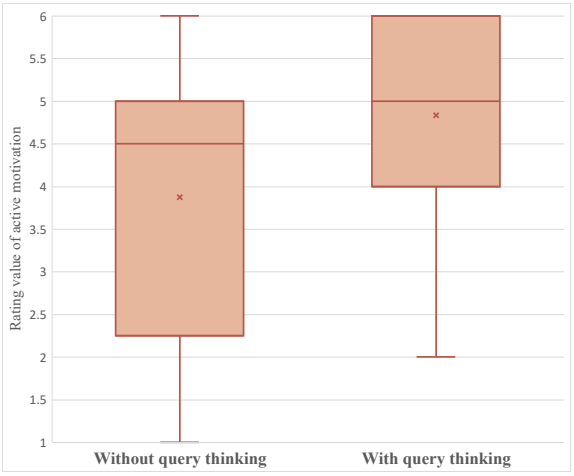

Fig. 7. Rating value of active motivation after viewing recommended videos

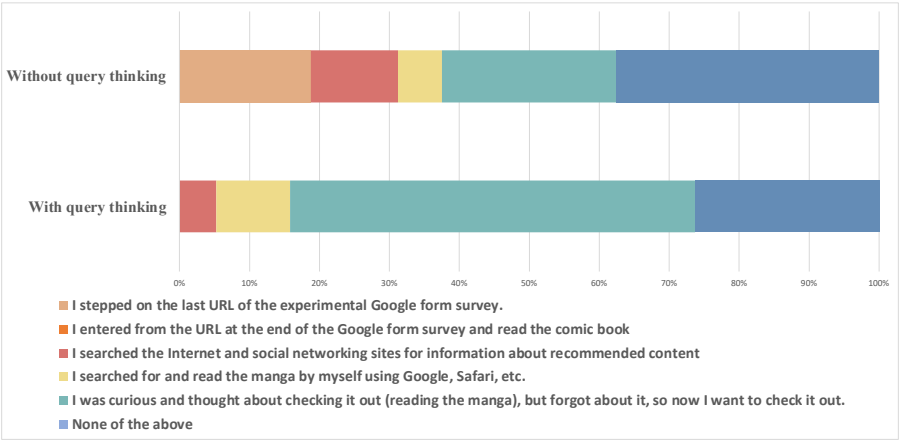

Fig. 8. Results of questionnaire on behavior after viewing recommended videos

comic's title and the names of the characters, but other queries varied from person to person.

Fig. 7 shows the distribution of active motivation ratings after viewing the videos. The results showed that the participants in the group with query thinking rated their active interest higher than the participants in the group without query thinking. In addition, the group without query thinking had a generally dispersed evaluation.

Fig. 8 shows the questionnaire results about whether the participants actually checked out or read the recommended comic, which was administered about a week after viewing the recommendation video. The results showed that participants in the group without query thinking acted more toward the recommended comic than those in the group with query thinking.

5.3. Discussion

The results showed that the average interest rating after viewing the recommendation video was higher than that before viewing the video in both conditions. The experimental results showed that interest evaluation values and active motivation after viewing the video were higher in the group with query thinking than for those without query thinking. These results suggest that having the participants think about the query while listening to the recommendation may increase their interest after the recommendation.

Looking at the results of the individual experiments, it became clear that there were three patterns: those who did not increase their interest in either content after viewing the recommendation video, those who increased their interest in only one of the contents, and those who increased their interest in both contents. The participants whose interest in only one of the two contents increased may have increased because it was their favorite topic or theme, but the participants whose interest in both contents increased may have increased independently of the subject matter. Therefore, among the groups with and without query thinking, we picked up the experimental participants whose difference in interest evaluation values for both contents were two or higher than that before watching the video and whose evaluation values were four or higher. Even if the difference of the evaluation value was 1, the participants who responded with an interest evaluation value of 5 or 6 were also included in the group. The results showed that 25% of the total respondents in the group without query thinking and 67% of the total respondents in the group with query thinking increased their interest ratings for both contents. This suggests that asking listeners to think of a query when making a recommendation may be effective, independent of the subject matter of the recommended content.

The results of the questionnaire survey conducted about a week after the video viewing experiment showed that some of the participants in the without query thinking group read or looked up the recommended comic, but some of them just clicked on the URL on the page after the experiment and did not read it, or were not interested in it and did not think of searching for it. Many of the respondents in the with query thinking group were also found to be in the same situation. Although the percentage of "None of the above" tended to be smaller in the group with query thinking than in the group without query thinking, the percentage of "I was curious about it but had forgotten about it" was large, indicating that few participants actually investigated or read the comic. This suggests that asking respondents to think of a query at the time of recommendation tends to make them interested in the subject matter independent of the subject matter, but it did not solve the problem of "forgetting about it after being curious about it."

In this experiment, to lower the hurdle to search for the experiment participants who became interested after receiving a recommendation, we put a URL at the end of the experiment questionnaire and created a situation in which they could immediately access the site. However, none of the participants read the comic from the URL, suggesting that they were satisfied just by clicking on the URL after recommending it and that it did not lead to a search. One psychological effect is the "Zeigarnik effect," in which people remember things they could not accomplish or were interrupted more often than things they could accomplish [14]. In the movie/game listening experiment, after the participants were asked to think of a query, the experimenter did not present anything to them, which may have induced them to search for the query because it had not been accomplished (incomplete). On the other hand, in the comic inference listening experiment, we presented a URL on the last page of the experiment, which may have been perceived as a state of accomplishment (completion) by the participants who only saw the URL or clicked on it once, and may not have induced them to search for the URL. Therefore, as a method to induce a search in the future, we can intentionally create a state of incompletion without presenting information about recommended contents at the query thinking stage, or we can provide feedback when the user has forgotten about the recommended contents even though they were interested in them after the recommendation. We plan to explore ways to do this.

5.4. Applications

There is much research on recommendations. It is very important for recommendation systems to increase the

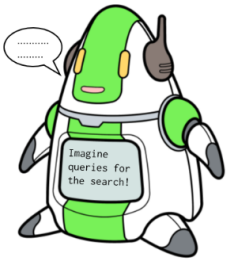

Fig. 9. A robot recommends content for a user while displaying "Imagine queries for the search!"

success of recommendations for users. Therefore, many researchers studied on improving the accuracy of recommendations for a target user and providing additional information of interest. Our method provides a novel axis for increasing the success of recommendations. For example, a robot giving a recommendation talk while displaying "imagine queries for the search" would be able to increase the success of recommendations by a robot only by asking to imagine queries for search (see Fig. 9).

6. Conclusion

This study proposed a method that induces interest in recommended content by asking the subject to imagine search queries while listening to recommendation talks. Then, we investigated the usefulness of our method. The experimental results suggest that the group with query thinking (proposed method) increased interest regardless of the subject matter. However, a questionnaire one week after the experiment revealed that many respondents "had been curious and thought about checking it out (reading the comic), but had forgotten about it." In addition, it was suggested that presenting a related URL immediately after a recommendation may reduce the inducement to search because the user may perceive that the matter they were interested in and were thinking of investigating has been completed.

The goal is to build a system to be used for "*Oshigatari*." We told the participants to think of a search query while listening to the recommendation video in the experiment. However, it is not natural to tell them to think of a search query while listening to the recommendation video. Therefore, we would like to use the system to induce the user to want to search naturally. For example, we thought that if a third party, the system, is shown entering and searching for a query during recommending, the listener receiving the recommendation would be more likely to try to come up with a search query. We also expect that by showing the part where the system is entering the search query and blurring the part concerning the search results, we can create a sense of incompleteness in the search process, which may lead people to look up the query after the recommendation. In the future, we plan to study mechanisms that naturally remind people to search and that make them want to search.

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