Effects of an Intuitional Pictograph Comment Function in a Video Sharing Web System

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Abstract - Video sharing websites have spread throughout the world. Among the comments they contain are impression comments, which are one of the important factors determining the quality of video content. But if the posting process is complex or difficult, it is difficult to submit impression comments. Accordingly, we have developed a video sharing system named "Onion". One of the features of Onion is a pictogram comment function. The function consists of the scrolling wheel of a mouse and posting pictographs. We have experimented using the system and, as a result, obtained 13 videos, 738 views, 108 text comments, and 1,806 pictograph comments. The ratio of posted text comments is the same as before. The ratio of the posted pictograph comments is very large. We confirmed the utility of the system.

Keywords: video sharing, impression, comment, mouse wheel, pictograph

1 INTRODUCTION

In recent years, a great deal of video content has been shared owing to the enlargement of memory and hard disk drives, the spread of broadband, and the development of data compression technology [1]. There are many services using video content [2]. A video sharing website service is one such service. In particular, Nico Nico Douga [3] has become famous in the entertainment field. Users can post comments concerning particular video scenes. Comments include reviews, commentaries, impressions, dramatizations, and questions and answers. The actions of site users are divided into video search, viewing, and posting comments. But if it is complex and difficult for viewers to post comments, it becomes difficult to post their emotions or feelings to video. In this paper we propose an intuitional interface to post viewer's impression comments by using pictographs [4] and a mouse wheel device.

Chapter 2 explains the proposed video sharing system, and Chapter 3 shows the experiment. Chapter 4 describes the experiment results, and Chapter 5 is the conclusion.

2 PROPOSED MODEL

2.1 Composition of system

We have developed a video sharing website system called Onion. Table 1 shows a list of software that composes this proposed video sharing system. Figure 1 shows the software constitution of the system.

Table 1 Software constitution.

component	software	version
Web server package	XAMPP	for Windows 1.6.6a
Web server	Apache	version 2.2
RDBMS	MySQL	5.0.51a
Scripting language	PHP	version 5.2.5
View content	Flash	Professional 8
Video encoder	FFmpeg	rev. 16905

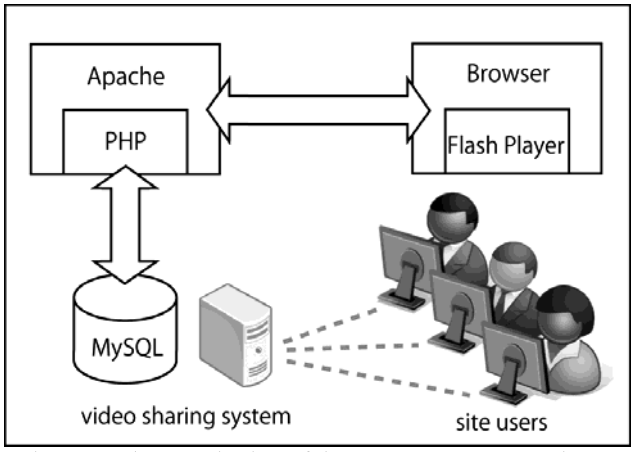

Figure 1: The constitution of the proposed system Onion

2.2 Function of system

The proposed system features an intuitional pictograph comment function. But the system also supplies some fundamental function services for site users like other video sharing systems. Figure 2 shows the top page of Onion.

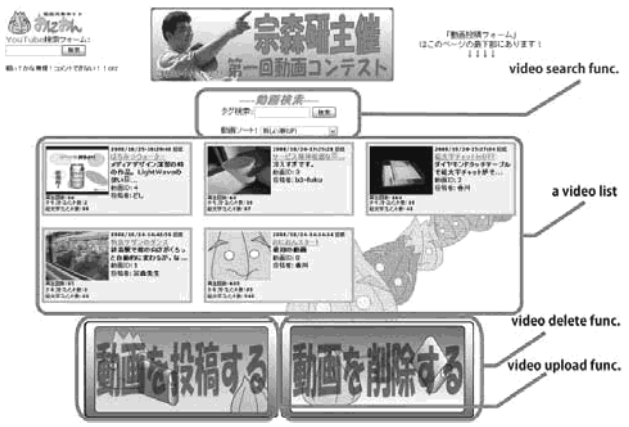

Figure 2: Top page of Onion.

Site users can upload their original videos by using the video upload function with attendant information and authentication. If they wish to delete their videos, they can

delete them using the delete function with a password, which they had set when they uploaded it. Site users can also view uploaded videos by using the video search function and the video list. If a site user finds a video to view, the user then views the video on a viewing page. Figure 3 shows a content screen of a viewing page.

Figure 3: A content screen of a viewing page.

The video replay screen consists of a video screen, a text comment function, a pictogram comment function, and some additional functions. The content screen is 600px in width and height. The video replay screen is 600px in width and 400px in height (aspect ratio is 3:2).

Posted text and pictograph comments by video viewers are displayed on the video replay screen and flow from right to left. The size of text comments is 25px in height. The size of pictograph comments is 40px in width and height. The velocity of flowing is 150px/sec. Each comment is displayed on the video replay screen for 4 seconds. Viewers can post their comments by using the text comment function and the pictograph comment function.

2.3 Pictograph comment function

The process of posting a pictograph comment is done by selecting a pictograph and scrolling mouse wheel. The selected pictograph is chosen from the pictograph comment area that provides nine kinds of pictograph comments. Figure 4 shows the list of nine kinds of pictograph comments.

Figure 4: List of pictograph comments.

Each kind of pictograph can switch to three grades by scrolling the mouse wheel. Those grades depend on the number of revolutions of the mouse. Figure 5 shows the strength list of pictograph comments, and Table 2 shows the chosen pictograph strength by mouse scrolling.

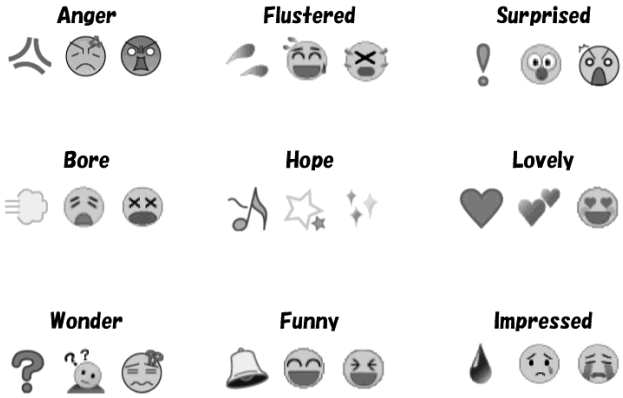

Figure 5: Strength list of pictograph comments.

Table 2: Chosen pictograph strength by mouse scrolling.

impression strength	Amount of offset
Strong	25～
Medium	10～24
Weak	2～9

Each pictograph on the strength list is schematized starting from the left in increasing order. Some of the pictographs were created by Munemori's group [5],[6].

2.4 "Resonance Sense" function

Onion restricts pictographs to nine kinds. In other words, the frequency of posting the same pictograph comments is increasing. So, Onion provides a RS function (abbreviated form of the Resonance Sense). This function is designed to share emotions among viewers. The RS function is used when a viewer posts a pictograph comment. If the same pictograph comments are posted by others in the same video scene, the size of the just posted pictograph comment becomes large according to the number of like comments. The just posted comment expands 25px in width and height by each identical comment. The maximum pictograph size is 200px. At the same time, the other different comments fade out for a given length of time. Even though the same pictograph comments are posted more than two in the same video scene, RS function counts once at each posted. Figure 6 (a) shows a screen of not using the RS function (before), and Figure 6 (b) shows a screen of using the RS function (after).

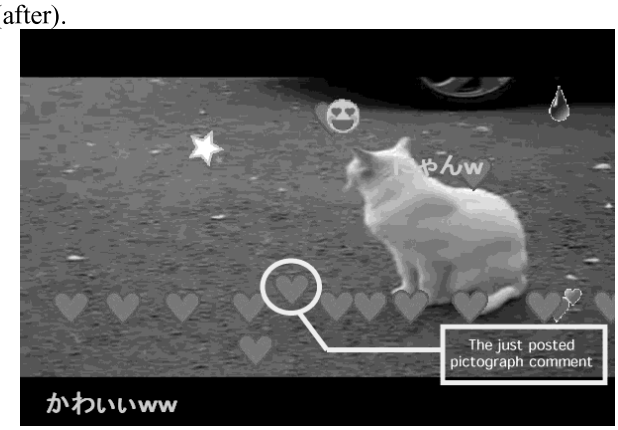

Figure 6 (a): A screen of not using the RS function (before).

Figure 6 (b): A screen of using the RS function (after).

3 EXPERIMENTS

We have carried out experiments by using the Onion system to prove utility of pictograph comments. The participants ranged from teenagers to those in their fifties in the experiments. Part of the experiments were carried out at a university festival. They were divided into 2 groups. One of the groups called the "view group" consisted of eighteen video view users (as viewers) and the other group called the "upload group" consisted of eleven video upload users (as uploaders). The view group included seven Wakayama university students and eleven members of the general public. The upload group consisted of Wakayama university students.

3.1 Material

For experiments, participants of the view group used computers equipped with a wheel mouse and were connected to 100 Mbps Ethernet LAN. The computers had sufficient speed to process streaming media and depicting screens.

The contents of video are shown below.

No.1: The automatic turn of a seat on a limited express
No.3: A vending machine with an interesting movement
No.10: An elevator
No.11: The backlashing of a picture
No.12: Playing in Shirahama
No.13: I'm breaking a watermelon
No.14: I'm eating sushi in large quantities
No.15: A dance show
No.16: Though I am lively, I am lonely
No.17: An encounter with a cat
No.18: Sculptures
No.19: Self-satisfaction
No.20: An analysis experiment of gum

3.2 Method

We shall now describe the experiment procedure of the view group and upload group participants. Figure 7 shows a scene of viewing a video (the view group).

3.2.1 Method for uploaders

(1) They uploaded some original videos beforehand using Onion.
(2) After the viewers posted comments, the uploaders checked the comments uploaded to their videos.

3.2.2 Method for viewers

(1) Search the randomly posted videos using Onion.
(2) View video on a content screen.
(3) Post comment using both comment functions.

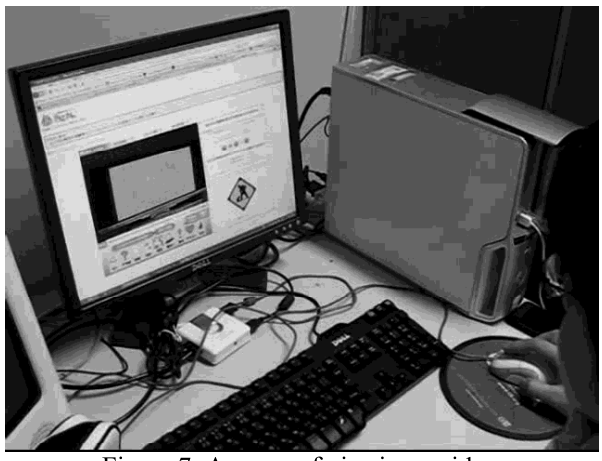
Figure 7: A scene of viewing a video.

After the experiments, we distributed questionnaires to all the experiment participants.

4 RESULT AND DISCCUSION

4.1 Results of Experiments

The results of the experiments are shown below. We got 13 videos, 738 views, 108 text comments, and 1,806 pictograph comments. Figure 8 shows the number of the posted comments for each video.

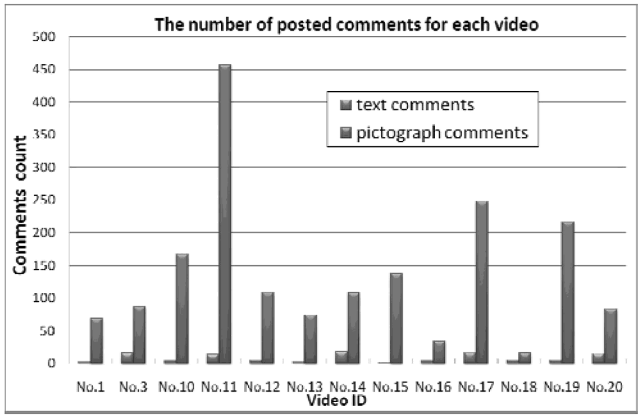

Figure 8: Number of posted comments.

The number of posted pictograph comments was more than the number of text comment for all uploaded videos. Posted pictograph comments accounted for 94% of the total posted comments, indicating that viewers prefer the pictograph comment function to the text one for expressing their emotions. Figure 9 shows the ratio of total pictograph comments. Figure 10 shows the number of posted comments for the three grades. Table 3 shows the number of posted comments in a viewing.

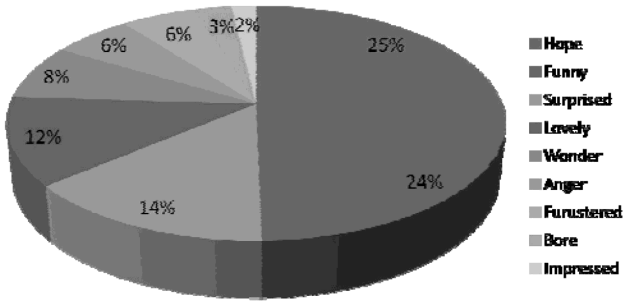

Figure 9: The ratio of total pictograph comments.

The ratio of posted pictograph comments expressing "Hopeful" was 25% and "Funny" was 24%. It means that these two kinds of pictograph comments occupied about half of the total pictograph comments. Conversely, the ratio of "Impressed" and "Bored" pictograph comments occupied only a small percentage. It indicates that some of the extreme or negative comments were posted less.

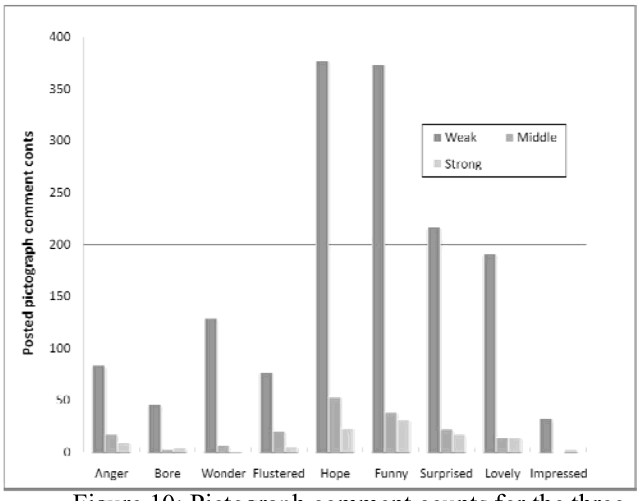

Figure 10: Pictograph comment counts for the three grades.

We got 1,527 weak grade pictographs, 173 middle grade pictographs and 106 strong grade pictographs. Thus, the weak grade pictograph comments occupied 85% of the total posted, indicating that the viewers prefer posting soft expressions to extreme expressions.

Table 3: The number of both posted comments

	Text Nico Nico Douga	Text Onion	Pictograph Onion
Average	0.131	0.19	3.17
Median	0.134	0.123	2.631
Expectation	0.125	0.146	2.447

The number of total posted pictograph comments was 16.7 times that of text comments. There was no significant difference between the number of posted text comments of Onion and the number of posted text comments of Nico Nico Douga. This indicates an increase of posted emotional comment counts.

Figure 11 shows the number of RS functions.

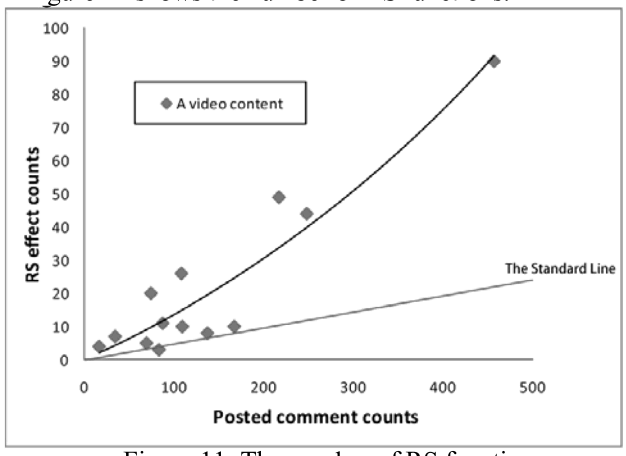

Figure 11: The number of RS functions.

The standard line indicates a value if each pictograph comments is posted evenly in all scenes. The standard line was calculated by values of average length of 11 videos (118.2sec).

The number of RS function occurrences was related to the number of posted comments. Therefore, the same pictograph comments that were posted by several viewers were concentrated in the same video scene. Then, the curve of the graph is above the standard line. It indicates that previously posted pictograph comments influence other viewers who watch the same video.

If they use the RS function, they may be able to get a sense of synchronization in disparate places.

4.2 Questionnaire results

4.2.1 Questionnaires for the upload group

Evaluations of part of the questionnaire were rated on a scale of one to five. "5" is the highest score and "1" is the lowest. Table 5 shows a part of the questionnaires for the upload group. The evaluation scores of the questionnaires were the average and the standard deviation of eleven video upload users.

Table 5: Questionnaire results for the upload group.

Questionnaire items	Evaluation (AVG) / (STD)	
	Text	Pictograph
Do you feel delightful if your videos get some comments from viewers?	(4.4)/(0.6)	(4.2)/(0.6)
Do you feel sad if your videos get no comments from viewers?	(4.1)/(1.0)	(3.8)/(1.1)
Do you have more incentive to next videos if your videos get comments?	(4.1)/(0.7)	(4.1)/(0.8)

We carried out a T-test and found that there was little difference in evaluations between text and pictograph comments (Table 5), indicating no difference between the two functions. Thus, we can conclude that the pictograph comment function gave satisfaction for video upload users just like the text comment function.

4.2.2 Questionnaires for the view group

The results of the questionnaires for the view group may be summarized as follows.

1) Viewers can post whenever they wish.
2) Viewers do not have to "read" pictographs.
3) Viewers can grasp the comments of viewers at once.
4) Pictographs can be a distraction from watching video.
5) Range of expression is reduced.

The overall results indicate that pictograph comments have a high level of visibility and some problems (4, 5). So, pictograph comments require some method for solving these problems.

5 CONCLUSION

In this paper, we proposed an intuitional pictograph comment function for posting the emotions of viewers. The features of this function are using pictographs and a mouse wheel. This function was adopted in "Onion," a video sharing system we have developed. The pictographs of the system can switch through three grades by mouse scrolling.

We carried out experiments using "Onion" for twenty-nine participants who were divided into view and upload groups. We obtained 13 videos, 738 views, 108 text comments and 1,806 pictograph comments in the experiments. The results of the experiments indicated the following.

1) Viewers prefer the pictograph comment function to text one for posting their emotions.
2) Viewers prefer posting soft expressions to extreme expressions.
3) The same pictograph comments posted by several viewers concentrated in the same video scenes. The number of RS function occurrences were related to the number of posted comments.

Therefore, the proposed pictograph comment function is better than the text comment function for expressing spontaneous reactions.

In the future, we would like to discuss the video tags and java script of HTML, which are related our system.

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