

Research on the Relationships between Visual Entertainment Factor and Chat Communication

Tomoyasu Ogaki, Junko Itou, and Jun Munemori

Graduate School of systems Engineering, Wakayama University,
930, Sakaedani, Wakayama 640-8510, Japan
Faculty of systems Engineering, Wakayama University,
930, Sakaedani, Wakayama 640-8510, Japan
S115012@center.wakayama-u.ac.jp,
{itou,munemori}@sys.wakayama-u.ac.jp

Abstract. In this article, we analyze the effects of visual entertainment factors included in visual cues on chat communication aiming to enliven exchanging chat messages. Visual cues such as smileys, avatars and pictograms are essential to make our communication successful. However, visual cues can be used as only a substitution to express user's intentions. Therefore we propose a chat system with characters which change different forms according to chat messages input by users with visual cues and we investigate the effects on exchanging chat messages.

1 Introduction

The use of online communication is becoming widespread and the diversity of online communication tools has increased in recent years. For example, several online communication tools such as e-mail, chat system, and distance learning are currently in use. Further, varieties of chat systems provide features, from conventional text-based ones to those that use a graphical interface in which virtual 3D agents represent users in a virtual 3D space. Using visual cues including smileys, avatars and pictograms, users can visually express their emotions or intentions in their chat messages. Visual cues facilitate smooth communication between chat system users.

Many people use visual cues in their daily electronic text-based conversations. Over 70 % of cellular phone users use a pictograph in their communication according to an investigation that took into account people of all age groups from senior citizens to young people [1]. According to another research, approximately 90% of university students use emoticons in their daily e-mail messages [2]. Moreover, an investigation revealed that among young people aware of an avatar, approximately 50% used an avatar on the Internet and approximately 70% wanted to use an avatar [3]. Therefore, it can be deduced that the visual cues mentioned above are used by several people from different generations in their daily communication, including chat communication, and that visual cues are useful for everyday conversations.

Previous works on chat systems mainly discuss how visual cues can be used for smooth communication. In this work, we focus on the use of visual cues for creating a sense of fulfillment as well as for entertainment. We propose a chat system with visual entertainment factors and visual entertainment features that users can bring up to recreate their original characters through chat, and we investigate how visual entertainment features affect chat communication.

2 Application of Visual Cues to Communication Systems

2.1 Situations Where Visual Cues Are Used

Visual cues include emoticons, pictographs, and avatars. Emoticons are a combination of a character and the sign that can be employed to express a user's emotion. Emoticons are commonly used at the end of a sentence in e-mail, chat conversations, and even bulletin boards.

Pictographs consist of texts. It is used as a picture on cellular phones and instant messengers. Pictographs can be of various types, such as those expressing emotional states, or those depicting animals, plants, and buildings.

User's employ an avatar is as an agent chat, instant messengers and online games. An avatar is a human-like character that can easily express the user's emotions as well as emoticons and pictographs can do.

From the above explanation, it is clear that these visual cues play an important role in expressing a user's emotions and intentions more accurately in an e-mail or chat system.

2.2 Communication Systems

Many visual cues have already incorporate communication systems. Instant messengers are applications that enable the members logged into chat with one another. Latest instant messengers allow users to exchange messages containing pictographs, animations and sounds.

Koda proposed a communication tool that can write messages on a picture of a character displayed on the screen of the user's personal computer [4]. The user can choose from many different types of character templates according to the message content.

"MEDIAC Messenger" is a chat system that users can use 3D characters as their agents [5]. In this messenger, 3D characters perform various actions in the window on the desktop and react to the words typed in chat messages. This chat system focuses on the relationships among emotional words, the actions of the characters, and the reactions of the characters. This chat system also allows visual cues such as pictographs, smileys, and avatars. However, the main purpose of this system is to convey the user's emotions and intentions. Our aim is to use visual cue to obtain an active feedback and a passive response in a chat system.

3 Chat Systems with Visual Entertainment Features

3.1 Goal

Our goal is to evaluate the proposed chat system on the basis of its visual entertainment features. We used visual cues for not only smooth communication but also humorous communication: therefore, we introduced “evolving of a character” into our chat system as a visual entertainment features. We designed characters that can induce positive feelings in users by changing their aspects in order to confirm how the character affects users and whether it triggers chat communications.

3.2 Evolving of a Character

The designed character evolves into newer forms according to the words, smileys, and emoticons used in chat messages. The overview of the evolving of a character is shown in Fig.1.

The characters change their forms when the number of input chat messages exceeds a threshold value. When a user inputs “positive” words or smileys often, the state of the character changes to that on the left side in the second step with a high probability, as shown Fig.1. On the other hand, when a user inputs more “negative” words or smileys, the state of character tends to change to that shown on the right side in the second step. The “Positive” words includes “happy”, “delight”, “smile” and so on. The “Negative” words includes “angry”, “tired”, “sad”, “bored”, and so on. This system accepts twenty types of keywords and seven types of characters.

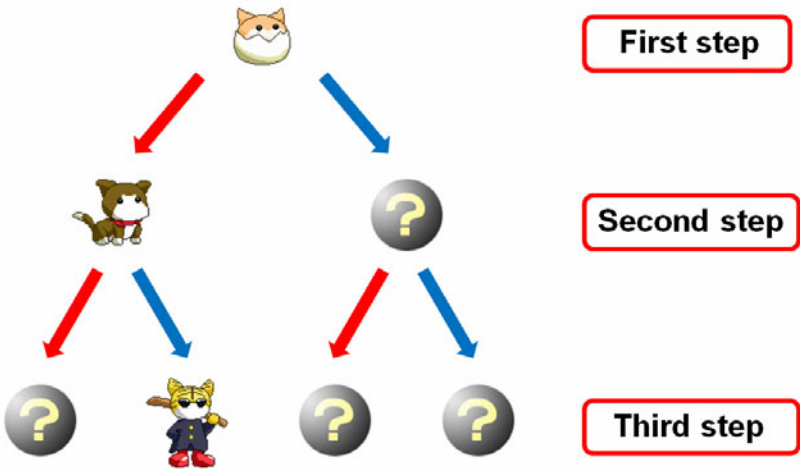


Fig. 1. Evolving of a character

3.3 System Structure

Our chat system consists of a server and multiple clients. When users start the client system, some windows open up on their screen as shown in Fig.2.

The right window displays characters or the users' avatars, chat logs, input forms and a list of emoticons. In the top portion of this window, users' avatars perform various acts and evolve according to the chat text input by users.

After user A inputs a message in the field provided in the chat window and sends it to the server, the server extracts a keyword from the sent message by morphological analysis to determine the action that character A should perform. The instructions for the action that the character should perform and user A's message are sent from the server to each client. When a user selects an emotion icon from the list as an input, a balloon containing that emotion icon is displayed.

The left window displays a list of smileys. Smiles are divided into five categories: "delight", "angry", "sorrow", "surprising" and "others". Users can easily input smileys into chat messages from this list.

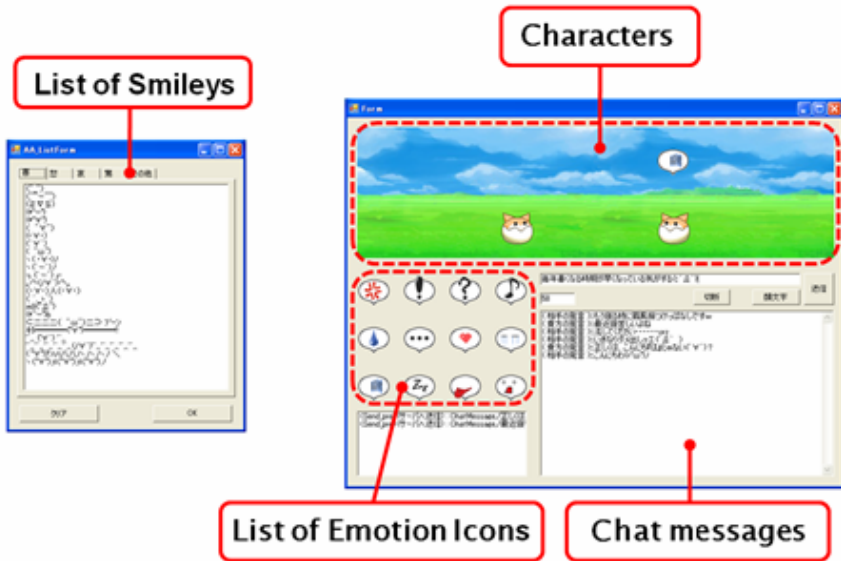


Fig. 2. Overview of proposed system

4 Experimental Results

To investigate the role of visual entertainment features in triggering chat communication, we performed an evaluation experiment using three types of chat systems: (a) text-based chat, (b) avatar chat, and (c) chat with an evolving avatar. In chat system (a), users can input only text. In chat system (b), they can use text as well as an avatar that doesn't change its form. Chat system (c) is the proposed chat system.

The experimental subjects were ten college students: they were divided into five pairs. They were made to sit away from each other to prevent them from knowing their partner's emotions or reactions. We instructed each subject to freely chat online for 15 min using smileys and/ or emotion icons. They used the chat systems in order of chat system (a) to chat system (c).

The result is summarized in Table.1. Averages were calculated for each type of data. The table entry "visual cue" indicates that the corresponding average is for those users that selected smileys and emotion icons. From Table.1, it is clear that the participants had a tendency to use visual cues actively and the number of messages and wordage increased significantly when they used chat system (c). This result shows that use of visual entertainment features triggers user's conversations and does not disturb the exchange of messages between users.

Table 1. Averages of different kinds of chat-related data

	(a)	(b)	(c)
number of messages	17.88	20.25	23.00
total wordage	273.50	319.25	369.63
visual cues	0.13	4.00	9.74

The results of a questionnaire filled out by the subjects are provided in Tables.2 and 3. From table 2, it can be understood how chat system (c) affects chat conversation. From the evaluated values listed, it can be concluded that the character and other emoticons did not disturb the chat communication between users and that the participants could communicate as smoothly using chat system (c) as they did using a traditional chat system such as system (a).

Table 2. Effect of the chat system with an evolving character on chat conversations

Questionnaire Item	Average
(i) Use of the chat system with an evolving character disturb your chat conversation (1: yes - 5: not at all)	4.2
(ii) Use of the chat system with an evolving character makes you input messages in a proactive (1: not at all - 5: yes)	3.9
(iii) Emoticons are useful in chat conversation (1: not at all - 5: yes)	4.2

According to Table.3, the evaluated value for "ease in conversing" for chat system (c) was 4.1 and the decentralized value was 0.1. On the other hand, the decentralized value of the same item for chat system (a) was 0.8. This implies that most subjects tend to feel that they can easily exchange messages using chat system (c). From these results, we deduce that our proposed chat system enlivens chat conversations with the

help of visual entertainment features that help trigger a dialogue between subjects and that the subjects enjoy their chat.

Table 3. Evaluation of each chat system

Questionnaire Item	(a)	(b)	(c)
Ease in conversing	3.0	3.5	4.1
Fun in conversing	2.8	3.7	4.6
Triggering of conversations	2.3	3.5	4.4

5 Conclusions

In this article, we discussed the effects of visual entertainment features on the chat conversations of users in a chat system. By a comparison test of three types of chat systems, we were able to confirm that visual entertainment features trigger the exchange of chat messages.

In this experiment, we used each chat system only once and for a short term. Therefore, we could not observe how the continual use of our chat system affects chat conversation. In the future, we plan to consider this point and improve our chat system.

References

1. MyVoice Communications, Inc. The research on commonly-used function of cellular phone (2008), <http://www.myvoice.co.jp/biz/surveys/11601/>
2. Okamoto, E.: Research on transition of emotion by face mark, Sonoda Women's University (2002)
3. NTT ADVERTISING, Inc. The research on utilization and recognition of 'avatar' in internet sites, NEWS RELEASE (October 17, 2007), <http://www.ntt-ad.co.jp/news/20071017/20071017.pdf>
4. Koda, T.: Development and Analysis of an Emotionally Expressive Communication Tool "Petaro". The Transaction of Human Interface Society 8(1), 101–108 (2006)
5. Itou, J., Hoshio, K., Munemori, J.: A Prototype of a Chat System Using Message Driven and Interactive Actions Character. In: 10th International Conference on Knowledge-based Intelligent Information & Engineering Systems, KES 2006 (2006)