

# Understanding Gratifications of Watching Danmaku Videos – Videos with Overlaid Comments

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**Abstract.** Danmaku comment is a comment technology that overlays user comments directly on the video and creates a co-viewing experience. It originates from Japan and becomes increasingly popular on video sharing sites in China, particularly among the young generation. This exploratory study investigates reasons for watching Danmaku videos through two focus group studies. The results show that the users who watch Danmaku videos found it a way to entertain themselves, to be in company, to have the sense of belonging, and to seek information. Those who do not watch Danmaku videos, however, complained about the abundance of information, the imperfect information quality, and the look and feel. We summarized scenarios suitable for Danmaku commenting from three perspectives: the content, the complexity of information, and the number of viewers. Possible improvements and new applications of Danmaku commenting were discussed.

**Keywords:** Danmaku comment · Gratifications · Co-viewing · Video-sharing sites

## 1 Introduction

In 2006, nicovideo.jp, the biggest video-sharing site in Japan, introduced a feature that projects user comments directly onto the video display [1]. These comments are scrolled across the screen, synchronized to the specific playback time point at which the users send the comments. At key moments of videos, there can be so many comments that the video is almost covered with user comments, which look like a bullet curtain, or “Danmaku” in Japanese. With the movement and synchronization of comment text, users feel like co-viewing the videos with other users who watch the same videos, but at different time and different places [2]. Figure 1 shows a screenshot of videos in bilibili.com (a popular Danmaku video website in China).

Danmaku video websites became increasingly popular in Eastern Asia. On February 13, 2015, the Alexa Rank of nicovideo.jp was 92 in global and 8 in Japan [3], and the rank of bilibili.com was 377 in global and 56 in China [4]. At first, online videos with Danmaku comment in China were only popular among comics, animations, and games communities. Recently, mainstream video sharing websites in China, including tudou.com, iqiyi.com, and letv.com, begin to introduce Danmaku comment.



**Fig. 1.** A screen shot of a video about Chinese food in bilibili.com (source: <http://www.bilibili.com/video/av543853/>).

In August 2014, Danmaku comment was even displayed on two movies in the cinema in China (i.e., *The Legend of Qin* and *Tiny Times 3*) [5]. Viewers in the cinema sent the comments via mobile phones.

Whereas objectors of Danmaku comment found overlaying comment on videos can cause distractions and destroys the aesthetics of the videos, supporters of Danmaku comment are enthusiastic and find that it provides unparalleled experience. It appears that Danmaku comment fulfills unique needs for users viewing certain types of content under certain contexts. Understanding of these needs would help designers build better user experience and provide inspirations for developing innovative forms of online co-viewing systems.

This paper reports an exploratory study to understand why the Danmaku users want to watch Danmaku videos and the gratifications they receive from such videos. We also investigated why the non-users refuse Danmaku comment. Furthermore, we explored the scenarios that are suitable for Danmaku commenting.

## 2 Content of Danmaku Comments

Unlike traditional post-viewing comments, users make Danmaku comments during viewing. Therefore the Danmaku comments can specifically tell about the current time point. This unique feature creates some content different from traditional video comments. After viewing popular videos in bilibili.com and the Danmaku comments in these videos, we listed some examples of Danmaku comments in Table 1.

**Table 1.** Examples of content of Danmaku comments

Content	Examples
Self-expression (To express their feelings, or ideas by Danmaku comment.)	<ul style="list-style-type: none"> <li>• A viewer simply shows that she or he is laughing by sending “2333” or “www” when the current content is funny.</li> <li>• A fan expresses enthusiasm when his or her idol appears in the video.</li> <li>• A viewer uses a short phrase or sentence to ridicule something at current content humorously.</li> </ul>
Company (To feel having the company with other viewers.)	<ul style="list-style-type: none"> <li>• A viewer sends a comment “+1” to agree with the comments from other viewers.</li> <li>• A viewer sends a comment “I’m also in XX (a place)” when she or he sees a comment “I’m in XX”.</li> <li>• A viewer sends a comment “7488 viewers, good morning!” when she or he is watching the video in the morning and notices that 7488 viewers are watching this video at that time.</li> <li>• A viewer sends a comment “High energy warning ahead!” when something surprising, frightening, or shocking will happen after a few seconds.</li> </ul>
Information (To provide or ask for information.)	<ul style="list-style-type: none"> <li>• A viewer sends the name of the background music at the current time point, when she or he sees a comment “What is the current background music”.</li> </ul>
Entertainment	<ul style="list-style-type: none"> <li>• A viewer sends a transliteration of foreign lyrics in the video. The transliteration has interesting meaning that is usually different from the original meaning.</li> <li>• A viewer sends pieces of JavaScript code. These advanced Danmaku comments display special effects or applications (e.g., Minesweeper), and may have no relation with the video.</li> <li>• A viewer uses a short phrase or sentence to ridicule something humorously.</li> </ul>

### 3 Uses and Gratification Theory

We study why to view Danmaku videos based on uses and gratifications theory. This theory explains how and why people use media in a social and psychological way [6, 7]. It suggests that a user’s selection of whether to use media is goal-directed and motivated [8]. Therefore by understanding gratifications we can answer the question why to view Danmaku videos. This theory was originally used in the studies of traditional media such as newspapers and televisions [9, 10]. With the development of the Internet

and other new media, the theory was improved and also applied in studies of new media [11].

Danmaku commenting provides a way to co-view. In a study about co-viewing with YouTube [12], researchers studied the motivations of viewing and sharing YouTube videos by uses and gratifications theory. They suggested that the motives of viewing YouTube included entertainment, information seeking, social interaction, and co-viewing.

Danmaku comment is produced by users, therefore we can see Danmaku videos as a kind of user-generated media (UGM). The content of UGM is created by users who may not be professional, with a certain amount of voluntary creative effort, and available publicly [13]. By uses and gratifications theory, previous research summarized gratifications from UGM in three ways: consuming the content (for information seeking and entertainment), participating in UGM (for social interaction needs and for community development) and producing new content (for self-expression and for self-actualization) [14].

## 4 Method

We used focus group method to explore general information about Danmaku comment and why people watch Danmaku videos. We chose focus group method because it can provide desirable information such as the perceptions, feelings and thinking of people about issues [15]. We conducted two focus group interviews to learn about why they like or dislike viewing Danmaku videos. We prepared questions for discussion, mainly about the gratifications of watching Danmaku videos, the criticisms about Danmaku comment, and the scenarios suitable for Danmaku commenting, but participants were also encouraged to say anything about Danmaku comment.

**Participants.** We recruited 11 participants in 2 focus groups. All participants had the experience of watching Danmaku videos. The information of them is shown in Table 2. We assigned both participants who usually watch Danmaku videos and participants who almost do not watch Danmaku videos in each group. Because participants have different opinions on Danmaku comment, they may express more information and provide new ideas that they may never think before.

**Procedures.** In each interview, after the moderator's introduction of this study, participants signed the informed consents and filled the background questionnaires. Then participants and the moderator sat around a table, got to know each other, and discussed issues about questions mentioned above. Drinks and snacks were provided to make the atmosphere relaxing and comfortable. The focus group interviews were recorded by video and audio recording, and transcribed after interviews. Then we tried to develop a framework from the records for answering the research questions and extract the related quotes in the records to support the framework. Finally we tried to explain the results and give answers to the questions.

**Table 2.** Participants of focus group interviews

Participant ID	Group 1	Group 2
A	F, 28, Master student, low, low; Movies, UGC, music	M, 23, PhD student, medium, low; Dramas, movies, news
B	M, 23, Master student, high, medium; UGC	M, 23, Master student, high, medium; Animations, UGC, music
C	F, 22, PhD student, high, medium; Variety shows	F, 21, PhD student, medium, low; Dramas, animations, movies
D	M, 27, Engineer, high, low; Dramas, UGC	M, 23, Master student, high, high; Animations (2-D is from Taiwan)
E	F, 21, Unemployed, high, high; Dramas, animations, UGC, music, games	M, 24, Master student, high, low; Dramas, movies, news
F	M, 23, Master student, medium, low; Animations, variety shows	

• Each interviewee's item contains their gender (F for female and M for male), age, occupation, frequency of watching online videos, frequency of watching Danmaku videos; genres that she or he usually watches (UGC means user generated contents).

• For frequency, high means 3 times per week and above. Medium means once or twice per week. Low means the frequency lower than once per week.

## 5 Results

By analyzing the interviews, we explain why people like or dislike watching Danmaku videos from three perspectives: gratifications that viewers gained from watching Danmaku videos, negative factors that make some people dislike Danmaku comment, and the scenarios suitable for Danmaku comment.

### 5.1 Gratifications of Watching Danmaku Videos

We extracted four types of gratifications from Danmaku comment: entertainment, feeling of being in company, sense of belonging, and information seeking.

**Entertainment.** People watch Danmaku videos for entertainment. They see Danmaku comments as interesting re-creations. The synchronicity of the video and comments creates a special way to entertain. As 2-B said, many interesting points can only be pointed out instantly but not after viewing. Participants in both of the two groups mentioned that they watch Danmaku comment to see humorous comments, interesting transliteration of songs in foreign languages, and special effects from advanced comments such as JavaScript codes or special characters.

All experienced viewers said to see humorous comments is an important reason why they like watching Danmaku videos. Most of these comments are short phases or sentences to humorously ridicule the people or things at current time point. For example, in a video about astronomy, a big black hole is shown in the viewer's screen, the narrator is saying "the absolute extinction is coming", and the atmosphere is

chilling. Just at this time, there flies over a comment “I can only see my face” (because of the reflection of the screen). This sentence is called “TuCao” in Chinese or “Tsukkomi” in Japanese. In two focus groups, the word “TuCao” appeared 45 times in total. 1-E said sometimes Danmaku comment is even more interesting than the video.

**Feeling of Being in Company.** People watch Danmaku videos as a way of co-viewing. 1-E said sometimes she hardly finds a friend watch an animation with her, but she can easily find many co-viewers in Danmaku comment. She also said she enjoys the exciting atmosphere when dense Danmaku comments cover the screen. The comment “High energy warning ahead!” (i.e., something surprising, frightening, or shocking will happen a few seconds later) makes her feel like interacting with the user who probably watched the same video several days ago and sent this comment. 2-B said that when something scaring appears in the screen, many comments will also appear to cover it, and the video will not scare him. 1-D said he watches Danmaku comment usually when he is watching videos alone (except the situation that he just wants to watch Danmaku comment). 2-D summarized that Danmaku comment is like a “cloud friend” who watches videos with him. Sometimes it is a learned scholar, sometimes it is a funny comedian.

**Sense of Belonging.** People watch Danmaku videos because they feel like belonging to a group that shares same interest of them. As 1-B said, at first Danmaku commenting was popular in animation, comics, and games community. He said many of these people enjoy staying indoor and therefore have less time meeting friends face to face, but they still need to belong and want to communicate with others, especially people who have common interests and opinions with them. Danmaku commenting provides a good way to fulfill these needs. 2-B also said that he sees Danmaku comment as a form of online forums, where people with common interests discuss with others.

Sympathy between users is important. 1-E said Danmaku comments are interesting when users have the same interest and sympathy with each other. 1-B also said he dislikes the Danmaku comments from the user who has nothing in common with him. Other participants, including non-users, also agree to the importance of sympathy in Danmaku comment.

Although people watch Danmaku videos for company and for the need to belong, most viewers do not have social interaction with other viewers. The experienced viewer 2-D said he never made friends by Danmaku videos. He may discuss with other comments, but does not care who sent these comments. 1-B even said he had viewing Danmaku videos for four years, but had no account at any Danmaku video website.

**Information Seeking.** People watch Danmaku videos for information. 1-C and 1-E said sometimes they enjoy the background music at a specific time point in a video and want to know the name of the music. They can always find the name in Danmaku comments. 1-B and 2-D said sometimes they can find translations in Danmaku comments when they are watching videos in foreign languages without subtitles. Also, when they cannot understand the story at a specific time point because they lack the knowledge about related allusions or background information, they can find explanations in Danmaku comments. 2-B also regards the “High energy warning ahead”,

mentioned by 1-E above, as useful information. 1-A, 2-C and 2-B also said they watch Danmaku comments when they want to see opinions from other people.

## 5.2 Negative Factors

Some people do not watch Danmaku videos for three main reasons: the abundance of information, the imperfect information quality, and the look and feel. First, 1-A, 1-D, 1-F, 2-A, and 2-E said the information of Danmaku comments is too abundant. The abundant information distracts them when watching videos. 2-E said Danmaku comment is garish and adds cognitive loads to him. Second, the content of some Danmaku comments is not satisfying. 1-B, 1-E, and 2-E said Danmaku comment contains too much individual expression of emotion. 1-B is tired of the conflicts between fans in Danmaku comment. 1-E said she has to accept all opinions including those she does not agree with, because viewers cannot reply to or argue with other commenters. 1-A, 1-B, and 2-B also complained that some comments contain spoilers about endings and reduce the suspense of stories. Third, 2-C and 2-E think the look and feel of Danmaku comment, such as font styles and colors, still needs improvement. 1-A and 2-C think Danmaku comment destroys the artistic conception of videos.

Although non-users think the information is too abundant, experienced participants seems not to care about this. 1-E said the atmosphere is exciting and the video looks funny with a thick covering of comments. 1-B also said he sometimes does not watch a video until the amount of Danmaku comments is large enough. When non-user 2-E said one or two comments on the screen is good, 2-B disagreed and said he thinks the comments should cover 1/3 area of the screen. 1-D also said many comments at the same time usually convey the same meaning, and therefore actually the information is not abundant. In addition, to reduce distraction, users can set the transparency of comments in some Danmaku video websites such as bilibili.com.

For the content, many Danmaku video websites provide different kinds of filter functions (e.g., the NG function in nicovideo.jp) to shield users from disgusting information. Users can hidden the disgusting comments by keywords, user IDs, algorithms by the website, etc.

For the look and feel issues, experienced viewers in the two interviews did not reply to non-users' statements about the imperfect look and feel of Danmaku. They may not care about it.

## 5.3 Scenarios

We summarized the scenarios that are suitable for Danmaku from the following three perspectives.

**Content.** A video may be suitable for Danmaku commenting if it is relaxing, such as a funny comedy, a variety show, or a user-generated video. 1-D said he likes to turn on the Danmaku function when he is watching humorous animations. 1-B and 1-E said they think many of their friends who like animations, like watching animations with Danmaku comment. 2-D also watches animations with Danmaku comment. 1-C said

when she thinks the video is witless, she sometimes turns on Danmaku function to see interesting TuCao or Tsukkomi (i.e., short phrases or sentences to ridicule the people or things humorously) from others. On the contrary, Danmaku commenting is not suitable for some serious videos. 1-E thinks that many Danmaku comments are emotional and short, and therefore not suitable for discussing something seriously. 2-B thinks that Danmaku comments make serious videos relaxing. He does not turn on Danmaku function when watching a serious video at the first time. 2-A also said he likes watching serious videos such as news and military but dislikes watching Danmaku videos.

**Complexity.** A video may be suitable for Danmaku commenting if the content is not complicated for viewers. 2-E said the amount and complexity of information that a video conveys can influence whether the video is suitable to play with Danmaku comment. For example, 1-B said he watches videos about games with Danmaku comment because these game videos do not require much thinking. 2-D said he thinks the stories of most animations move on slowly, and this is one of the reasons why he watches animations with Danmaku comment. 2-B and 2-C said they would like to see Danmaku comment when watching a video for the second time (or more). Because they have already known the content, they can pay more attention to Danmaku comments. 1-C said she does not want to see Danmaku comment when watching videos requiring much thinking, such as the stories of Holmes.

**The Number of Viewers.** A video may be suitable for Danmaku commenting if the viewer is watching the video alone. People regard Danmaku commenting as a way of co-viewing. 1-B and 2-D said when they are watching videos with friends, they usually do not need Danmaku comment (unless they specially want to watch Danmaku comment for entertainment or information).

For movies, all participants said that it is not suitable to present Danmaku comments in the cinema for three reasons. First, as 1-C and 1-E said, a viewer in the cinema cannot turn off the Danmaku comment if she or he does not want to see it, whereas the Danmaku comment in the online videos can be turned off. In the cinema, viewers cannot set the transparency or filters, which they can set in online videos. Therefore currently, Danmaku comment in the cinema forces viewers to see it, and this may annoy viewers. Second, 2-B pointed out that a comment delays and is actually not synchronized to the related time point, because viewers cannot pause the movie and then send out comments as they usually do in websites. Also, viewers hardly come up with interesting high quality comments in such a short time in the cinema. Third, as 2-C and 2-E said, Danmaku comments may destroy the artistic conception, which is important for movies.

## 6 Discussion and Conclusion

The most distinctive feature of Danmaku comment is that comment text are scrolled simultaneously with the video. This feature satisfies gratifications that users cannot get from the traditional post-viewing commenting videos.



Danmaku commenting provides a special way of entertainment and information retrieval. When watching traditional online videos, viewers usually comment after watching the video. They tend to make comments from an overall perspective and many details are hard to recall. However in Danmaku videos, the synchronic feature makes it possible to mark the interesting points and other information related to the current playback time.

Danmaku commenting also satisfies needs for company and belonging and provides a way for social media co-viewing. The focus groups highlighted the importance of sympathy between users. People feel more comfortable if users who sent Danmaku comments have common interests with them. Therefore we think besides transparency and filter functions, grouping users by interest can also reduce the discontent about unpleasant information. If users can join in different groups like in online forum websites and have the choice to only see the Danmaku comments from his or her groups, the amount of information may be acceptable for more people and viewers will be less likely to see unpleasant comments.

We also found that people who like watching Danmaku videos may tend to have higher polychronicity (the preference to involvement in two or more events at the same time [16]) and seek for more information. Participant 1-B and 2-B, who usually watch Danmaku videos, said that they like multitasking. 2-A and 2-E, who rarely watch Danmaku videos, clearly said they dislike multitasking. Danmaku videos require viewers to watch the video and comments at the same time. Therefore watching Danmaku videos can be considered as multitasking. Previous research shows that the overall behavior intention to multitasking with multiple smart devices can be affected by motivations [17]. One of these motivations is perceived usefulness. Computer polychronicity is a key driver of perceived usefulness [18]. Therefore it is reasonable to assume that higher polychronicity may lead to more Danmaku watching, but it still needs further research.

From the function of providing information, we think Danmaku comments can also be used to automatically abstract tags of a video and used for searching. During-viewing Danmaku comments are more likely to record the details of the videos than traditional post-viewing comments. If we have effective algorithms to screen these abundant comments, Danmaku comment can be useful for video searching. Besides this potential new application, 2-D said Danmaku comments can be used to detect key time points of the video and add key frames for previewing, because at key time points, the number of comments is usually larger than that at other time points. 2-D also thinks Danmaku commenting can be used in online course videos. The Danmaku comments may provide helpful information or knowledge from other learners. It will make the viewer feel like having an intelligent desk mate.

There are some limitations. We only conducted two focus groups. Some researchers suggested that for a simple research question, the necessary number of focus group may be three or four [19]. Also, the participants were not diverse enough to represent the main Danmaku users. The participants ranged in age from 21 to 28, all with high education levels. Main Danmaku users are the 90 s generation [20], and thus future research of teenagers is necessary. In addition, except one viewer from Taiwan, we only investigated viewers in mainland China. Many Danmaku viewers are in other

countries and territories in Eastern Asia, such as Japan. Therefore cross cultural research is needed.

Despite of these limitations, we provided an overview of Danmaku comment. People watch Danmaku comments for entertainment, satisfying the need for company and the need to belong, and information seeking. Non-users complained about the abundance of information, the imperfect information quality, and the look and feel. Danmaku commenting is suitable when the video is relaxing, the content is not complex for the viewer, or the viewer is watching the video alone. We also proposed some possible improvements and new applications of Danmaku commenting. Future research may explore (1) the detailed reasons for watching Danmaku videos by investigating more diverse users and considering more factors such as the individual characteristics, and (2) improvements and new applications of Danmaku commenting.

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