

The Survey of Usability Evaluation in Social Network Sites' Reply Mechanism

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Abstract. Social Network Sites' rapid development has attracted thousands of user, and help user connect with people in life. For the reason of building the good relationship with social interact, it provide a mechanism for user to keep in touch with their friends, such as Instant Message system or post articles on blogs, etc. Reply mechanism is the main part of Social Network Sites. Therefore, it has become more important to let users clearly understanding the message flow of a series of communications. In this paper, first we choose three sites that have amount of users worldwide: Facebook, Youtube and Reddit. After users finishing the System Usability Scale questionnaire, we will proceed to analyze the positives and negatives of these three social network sites. In the end, we will analyze and conclude all the questions and propose a new mechanism, also improve the interface of this reply mechanism in the future.

Keywords: Reply Mechanism, Message Flow, Social Network Sites.

1 Introduction

With the rapid development, Social Network Sites has attracted hundred millions of people, also connected with our lives closely. Recently, under the condition of prompt expanding Web2.0, all sorts of Social Network Sites appear in various ways domestically and internationally, such as Facebook、Youtube、Twitter. And because of the huge members, these Social Network Sites also become the selection of every enterprises or celebrities. Social Network Sites (SNSs) provide a mechanism for user to keep in touch with their friends, such as Instant Message system which can send private messages or post articles on blogs, etc. A social network site allows their users to post profiles and create personal networks for exchanging information with other users [1], as well as each SNSs may emphasis different features or functions according to the user's interaction. Reply mechanism is the main part of SNSs, by discuss and communication with each other to keep the relationship. Therefore, it is become more important to let user clearly understanding message flow of a serie of communications.

So far, however, all Social Network Sites have their own reply mechanisms, some are Linear Organization and the others are Hierarchical Organization or Net Organization. Also, their interfaces are shown differently from each other, and they have their own pros and cons. Therefore, the purpose of this research is to analyze all different types of reply mechanism, and find out the executive problems, improve it, and address a new reply mechanism eventually.

2 Literature Review

2.1 Social Network Sites (SNSs)

In 1954, J.A Barnes is the first man who addressed the concept of Social Network Sites. Social Network Site is a social network construction combined with lots of linked nodes, and every node represents a person or a group; connecting human's interrelations mutually. Social Network stands for various social relationships; we can see the connected relation between each node through it. These nodes represent an individual in the network, while connection is the relationship between the participants. There is a research shows that social network covers a large-scale aspect, from individual to country, and also plays an important role. In simplified way, social network is like a net picture, indicates all relative connections between each node.

Boyd and Ellison (2008) defined Social Network Sites (SNSs) as a services that allow users to: (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system [2]

Social Network Sites' (SNSs) provide a mechanism for user to keep in touch with their friends, such as instant message system which can send private messages or post articles on blogs, etc.

With the rise of social websites, the internet communication forms becomes different, people might connected with each other by the same interests and then communicate with each other through the internet, or created a social group on internet. Social websites provides the internet system for the users to communicate, share and discuss information and experience.

2.2 Message Chaining

Gerosa et al. (2005) defined the Message structuring in communication tools into three organizations: List structure, tree structure and graph structure. List structure is a particular case of tree structure, and tree structure is also a particular case of graph structure [3].

List structure is also called Hierarchical Organization, which present in a sequence relationship of reply mechanism, is listed according to the article's posting time, message title or author's name, and be used in e-mail and discussion list, and has no specific relationship between the messages.

Tree structure's every reply has a single father-message, users can choose one of comments to reply, and this structure may lead result to a divergent of the discussion. Graph structure establishes multiple relationships in each message. This structure may lead result to a convergence of the discussion [4].

Facebook's reply mechanism adopts the Linear Organization system, not only message flow; also the interface appears in this way. Facebook, the connections between comments and posts are obvious, but the relation of each comment under the posts is inexplicable.

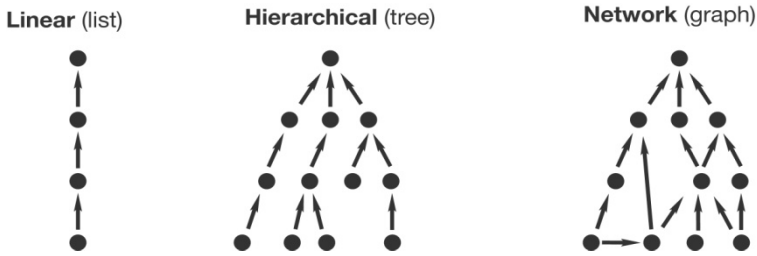


Fig. 1. Message structure

And Youtube chooses the Hierarchical Organization to be adopted in their reply mechanism; however, only the message flow appears in this way, while the interface is presented in a way similar to Linear Organization. They separate all the lines in the Hierarchical Organization, and show them apart, only present the latest comment of the line on the page. Therefore, all the users only can see the latest comment on the page, if they want to know more, they need to choose the button which shows “appear comments” to see the earlier comments.

2.3 System Usability Scale (SUS)

System Usability Scale (SUS) was exploited by Digital Equipment Co Ltd cooperation in 1986, which applied to measure user’s subjective reception. It was reliable, low cost, quick and dirty way [5]. This scale is composed by ten statements, crossed by positive and negative questions, the users are usually fill out the form after operating the system without discussion. The questionnaire is adopted with Likert Scale, from 1 for disagree deeply to 5 for agree deeply. The data information will be acquired by transforming the user’s choices through the formula. And the perfect score is 100, the higher score of the experimenter stands for the higher degree of satisfaction subjective for the system.

The grade is between 0-100, the higher the grade is, the easier those users are able to interact with the website will be. A score will be received after calculating the SUS, and it stands for the composite analysis from all the users about whether they can operate the system easily or not, also, it can be applied to be compared with other system. However, the individual score of each question is meaningless; therefore, they should not be compared or applied in other way.

3 Method

This research is aimed at executing the Usability Test about the reply mechanism adopted in three famous social website, Facebook, Youtube and Reddit. First, experimenters need to fill out the questionnaire which is adopted with System Usability Scale (SUS). And there are ten questions in the questionnaire which are adjusted to this experiment.

Table 1. System Usability Scale (SUS) for our research

System Usability Scale (SUS)	
1.	I think that I would like to use this reply mechanism frequently.
2.	I found the reply mechanism unnecessarily complex.
3.	I thought the reply mechanism was easy to use.
4.	I would need the support of a technical person to be able to use this reply mechanism.
5.	I found the categorized result in this reply mechanism were well sensible.
6.	I thought there was too much inconsistency in this reply mechanism.
7.	I would imagine that most people would learn to use this reply mechanism very quickly
8.	I found the reply mechanism very cumbersome to use.
9.	I felt very confident using the reply mechanism.
10.	I needed to learn a lot of things before I could get going with this reply mechanism.

The questionnaire is adopted with Likert Scale, from 1 for strongly disagree to 5 for strongly agree, and allows participants to choose.

So far, Facebook is the most famous social website worldwide, also with maximum members. According to the previous research about the classification of reply mechanism, the comment flow in Facebook is belonging to Linear Organization, and the interface also shown in this way. The appearance of the comment is ordered by time, the latest comment will appear in the bottom.

So far, Youtube is the biggest website for users to share videos, and its reply mechanism is belonging to Hierarchical Organization, users can reply to other comments. However, their interface appears in the way similar to Linear Organization, the latest comment will show on the top; the responds for the specific comments are ordered by time, same as the all comments.

Reddit is a social website to share news and entertaining information, users can comment on every article by clicking up or down, and the articles are ordered by the grades. Their reply mechanism is same as Youtube’s, also belongs to Hierarchical Organization, also the interface is shown in this way. The users are allowed to reply to other comments, and the response will appear under the comments; therefore, there is an initial classification between the comments.

And then, after finishing the SUS questionnaire, every experimenter will be interviewed about the pros and cons of these three social websites, and their comments will be recorded.

At last, the data from the SUS questionnaire will be calculated, the followings are calculating measures: (1) the original score of odd number questions minus 1 leaves the due score. (2) 5 minus the original score of even number questions leave the due score. (3) Plus all the due score of each question, and then multiply 2.5 to get the total.

Proceed to evaluate each reply mechanism of these social websites, the grade is between 0 to 100, the grade are more higher, and the users are able to interact with the website more easier.

And after analyzing all the positives and negatives from the feedback comments, a new reply mechanism will be proposed.

4 Result

There are thirty-five participants in this research; their basic infomations are showed under the Table2-Table5:

Table 2. Gender

Gender	Quantity	Percentage
Male	25	71.43%
Female	10	28.57%

Table 3. Age

Age	Quantity	Percentage
Under 18	0	0.00%
18-22	5	14.29%
23-27	27	77.14%
Above 28	3	8.57%

Table 4. Education

Education	Quantity	Percentage
Under senior high	0	0.00%
College	10	28.57%
Above Master's Degree	25	71.43%

Table 5. Frequency of using SNSs per Day

Frequency of using SNSs per Day	Quantity	Percentage
Almost no	0	0.00%
2-5times	8	22.86%
5-10times	11	31.43%
Over 10 times	16	45.71%

Then, calculating the SUS test's scores of Facebook, Youtube and Reddit. The results are showed under the Table6:

Table 6. SUS test's score of three SNSs

SNSs	Score
Facebook	70
Youtube	57.5
Reddit	45.2

We can find that the scores of Facebook’s reply mechanism are the highest, whereas Youtube and Reddit’s score aren’t over 60 yet. We can only compare the pros and cons of the reply mechanism, because we can’t compare the score of the question from the SUS individually. According to the result, we find out that the reply mechanism applied in the Facebook is best, Reddit is worst, and Youtube is between both of them. And then we start to analyze the interview results from the 35 users, and marshal the positives and negatives of these three reply mechanism. (Table 7)

Table 7. Interview Result

SNSs	Advantages	Disadvantages
Facebook	Ease of use Clearly Fast	Can’t reply to other comments. Message flow of all comments is confused
Youtube	Can reply other comments Clearly Interface Showed the top-ranked comments	Message flow is confused Hard to find out someone’s comment The sequence of comments is complicated
Reddit	The hierarchy is clearly and ease of understanding Can reply other comments	Too many hierarchies lead the interface become more complicated

According to the analysis results, the overwhelming superiority in the Facebook is the fast and instinctive reply mechanism; however, as there are too many comments, and the comments lines will be hard to read due to the length, also complicate the whole comments skeleton. Youtube and Reddit can aim some comments to reply is the most welcome advantage, but it also lead their interface become more complicated contrast to Facebook.

5 Conclusion

According to the analysis result, we performed a new reply mechanism, and improved the functions which make users confused, also add some functions that most participants want.
(<http://zoro.ee.ncku.edu.tw/swd2012/demo/scott.html#>)

Fig.2 is the interface of our new reply mechanism, this is a demo one, there are three comments, each comment has some sub-comments, it means that user can choose any comment to reply, and others can clearly see the message flow of each comments series by clicking the reply button under that,



Fig. 2. Interface of new reply mechanism

After clicking the reply button, the sub-comment will be showed (Fig. 3.), and the other comments that aren't belong to this discusses will become dark.



Fig. 3. Interface of new reply mechanism

This interface not only solves the over- complicate reply mechanism problem in the Reddit, also add the new function that allows users to reply to specific comments. So far, this reply mechanism is focus on the interaction between the comments, and then the interface will be improved in the future to allow the users to understand the message flow of the discussion more clearly.

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