

## Positive or negative: emoji usage in online social media

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**Abstract.** Along with the development of the social media, the communication between people changes a lot. One the most used application in social media is emoji. Emoji can be used to vividly express many linguistic and non-linguistic information, like happy, upset, embarrassing, etc. Sometimes emoji can also express complex meanings which may be contrary to their original meanings. This study focuses on how emoji reflect people's internal emotional expressions, by rating the score of their recently used emoji. The results show that emoji are more likely to express people's positive emotions than their negative ones. The main subjects of the survey are on-the-job staff and students at school.

### 1. Introduction

Since the advent of the internet era, exchanging information on the internet has undergone remarkable growth, whose positive impact cannot be neglected in our daily life. Over these years, emoji start to be used to express our emotions (happy, anxious, upset, angry, etc.) and it has already been an indispensable part of our normal lives. We clearly understand the significance of emoji as it enriches our communication and saves our time sometimes. Some scholars attempt to figure out how people use emoji to understand each other in dialogues. Chi Hong Leung and Winslet Ting Yan Chan [1] analyzed people could understand the emoji properly in the context from marketing tweets. Shatha Ali Hakami [2] did a review to discover how emoji work and how it affects people's life, nevertheless, they did not find out their internal connection.

There are many emotions can express our inside feelings. For example, the laugh with tear emoji shown in the Figure 1, shows "I am happy", "I need to erase some awkward situations", "I like you" and everything of the sort. Due to the abundant exploitations of one single emoji, the research of emoji usage should be conducted for better understanding of both internal people's thoughts and external communications. In addition, this paper has a burning desire to figure out how people use emoji to express their emotions (positive or negative), how much percentage of people are able to express their true emotions through emoji, and why people increasingly want to be positive and outgoing when they communicate online.



Figure 1. Emoji: the face with tears of joy

Further acquaintance of emoji makes people realize the internal connection between human emotion pattern and emoji. This paper is going to talk about the human communication through the study of expression. The whole article will be divided into three parts. This first part is to use methods to study and analyze the changes of expressions, and collate relevant data of emoji. The second part is discussing the data. And the last part is a conclusion. By summing up the data obtained through tests, this paper draws some conclusions about research on human emotional expressions.

## 2. Background

### 2.1 What is emoji

The first question to address is what is emoji. We all know emoji are the type of picture and some little GIFs. Emoji are differing from other pictures, because emoji may look like some small pictures, but they are actually the part of the language now and then playing the part of writing language, and at other times as a substitute for punctuation [3].

### 2.2 The history of emoji

In 1982, a post, the first known smiley face emoticon, made by Professor Scott E Fahlman was posted to Carnegie Mellon University's computer science general board [4]. In 1995, DoCoMo put the Heart Shape to Pocket Bell. In 1999, Shigetaka Kurita from DoCoMo created the first set of emoji. In 2000, Normal emoji was coming in the Myspace, AOL, Instant messenger and stuff on. In 2008, Iphone could use emoji from SoftBank. In 2009, Google took the emoji in Gmail. In July 2011, Apple company put the emoji in IOS 5.0 created by Willem van.

### 2.3 The importance of non-linguistic communication

Albert Heraben [5], proved that when people try to express their emotions and attitudes, language accounts for only 7% communicative behavior, and the rest of communicative behavior is paralanguage, including tone, pause, expression, posture, hairstyle and stuff on. Xu Tingting[6] pointed out the vice language as a special way of communication, and with the development of verbal communication, the main function of verbal communication was to make the message more clear and understandable than to provide communication speed. Paralinguistic communicative function is divided into three categories. The first is to determine the meaning of speech information. One of the major functions of paralinguistic means is to help determine the communicator's intention and clarify the meaning of information in language. The second is to increase the meaning of verbal information. Paralanguage as an auxiliary means of communication, the most common function is to supplement the language information. Paralanguage can not only strengthen the semantics of speech, but also endow it with various modalities. The last category is the substitution of speech to convey information. When people are unable or unwilling to use normal language to express their thoughts due to the limitation of their expressive ability, communication occasion or purpose, they often use paralanguage instead of language.

### 2.4 The impact of emoji

Qin Zhang [7] indicated emoji help people break the boredom of online chat. Emoji smooth over a faulty phenomenon, paralanguage deficiency by simulating the expression form of human expressions and actions. Emotional expression power makes people's inner mentality externalized and the subjective emotion concretized. At the same time, this power can also play a role in adjusting the atmosphere of the chat and relax the rhythm of language. Ilaria Moschini (2017)[8] studied the "Face with Tears of Joy" emoji trying to show this emoji already become the marker, now gone mainstream thanks to the spreading of digital discourse.

### 2.5 How do people understand emoji and non-linguistic communication.

Chi Hong Leung and Winslet Ting Yan Chan [1] were talking about the syntactic, semantic and pragmatic functions of the emoji by making use of marketing tweets posted by various companies in the period between September 2015 and August 2016. They analyzed whether people from different age could understand the meaning of the emoji or not.

Unicode Consortium received a set of standardized names of emoji submitted by Apple and Google, and then this consortium amends some emoji's meanings and release the Unicode version 6.0 [9]. A lot of users do not know the exactly official meaning of emoji, so people made Emojipedia, a search engine, to help people find the real meaning of emoji.

### 3.Methodology

#### 3.1Hypothesis

The participants involved in this study are assumed that each individual's emotion is independent and stable. Each has a mutual and completed emotion cognition system, and each will evaluate her/his emotions intuitively. Psychological issues and antisocial personality are not discussed.

#### 3.2Participants

100 participants will be invited in this study. Most of them are the students in the university and the rest part of them are old teacher aged from 35-60. All the participants are active users of Wechat.

#### 3.3Process

Firstly, all the participants in this study are asked to provide their demographic information(gender, age, and occupation). Then, they are asked to show the screenshots of their recently used emoji in Wechat, as shown in the Figure 2. Next, they will score each emoji intuitively according to the Table 1. Score 1 means the emoji expresses negative mood, like upset disappointed, etc. Score 10 means the emoji expresses positive mood, like happy, delighted, etc.

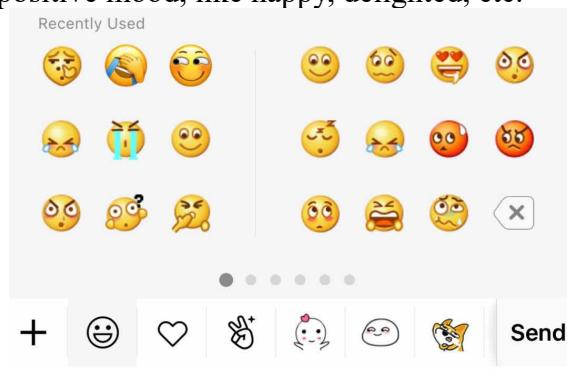


Figure 2. A screenshot of recently used emoji in Wechat

Table1. Emotional scale

Emoji	Score(1 is Negative, 10 is Positive)
Emoji Name	1to10

### 4.Results

In this study, 120 surveys are collected, of which 100 are valid and 20 are invalid. 20 of them are discarded, because the participants do not provide correct emoji screenshot. The age scale of the participants range from 16 to 65.

Table 2 shows the recently used emoji with expression value, including the top 10 and the bottom 10 recently used emoji, emoji names, frequency, maximum value, minimum value, average value, and variance. The Table 3 displays the demographic characteristics. And according to Erickson's division of the human age cycle, the participants' age is divided into 12-20, 21-25, and 26-65. Also, Table 3 includes gender, occupation, frequency and average value of the emoji.

It is clear that the top 10 emoji in the Table 2 in turn are *Smile*, *Grin*, *Facepalm*, *Thumbsup*, *Chuckle*, *Ok*, *Laugh*, *Joyful*, *Rose*, and *LOL*. While the bottom 10 emoji in turn are *Angry*, *BrokenHeart*, *Pig*, *Scold*, *Packet*, *Bomb*, *Poop*, *Toasted*, *Smart* and *Yawn*. In the Table 2 it is obvious that the *Smile* emoji is the top in usage. Its variance indicates that the score of the emoji fluctuates greatly. The average value of Top 10's emoji are all positive. Although the minimum value is distributed in the negative score, the maximum value is all 10. Most of the bottom 10 emoji just occur once in this study, whose values are surprisingly positive As illustrated in the Table 3, the age consists of the three stages, 12-20 (24, 0.24), 21-25 (7, 0.07) and 26-65 (69, 0.69). By gender, the

number ratio of males to females is 23 to 77. The occupation frequency of student is 31 (0.31), professor is 62 (0.62) and the others is 7 (0.07). Table 3 points that regardless of gender, age and occupation, the average value of people using emoji is positive.

Table 2. Recently used emoji with expression value

Rank	Emoji name	Frequency	Maximum value	Minimum value	Average value	Variance value
Top 10	<i>Smile</i>	63	10	1	7.03	10.9
	<i>Grin</i>	57	10	2	7.19	4.4
	<i>Facepalm</i>	50	10	1	7.24	7.5
	<i>Thumbsup</i>	47	10	1	7.78	6.2
	<i>Chuckle</i>	40	10	2	6.74	6.0
	<i>OK</i>	32	10	3	8.21	2.7
	<i>Laugh</i>	31	10	4	7.81	7.2
	<i>Joyful</i>	25	10	1	8.08	5.7
	<i>Rose</i>	23	10	1	6.91	6.9
	<i>LOL</i>	23	10	3	8.78	0.7
Bottom 10	<i>Angry</i>	1	8	8	8.00	0.0
	<i>BrokenHeart</i>	1	7	7	7.00	0.0
	<i>Pig</i>	1	8	8	8.00	0.0
	<i>Scold</i>	1	1	1	1.00	0.0
	<i>Packet</i>	1	10	10	10.00	0.0
	<i>Bomb</i>	1	8	8	8.00	0.0
	<i>Poop</i>	1	4	4	4.00	0.0
	<i>Toasted</i>	2	8	7	7.50	0.5
	<i>Smart</i>	2	9	4	6.50	13.0
	<i>Yawn</i>	2	3	2	2.50	0.5

Table 3. Demographics

Variable	Category	Frequency	Average emoji value
Age	12-20	24 (0.24)	6.28
	21-25	7 (0.07)	5.76
	26-65	69 (0.69)	5.90
Gender	Male	23 (0.23)	6.08
	Female	77 (0.77)	6.76
Occupation	Student	31 (0.31)	6.61
	Professor	62 (0.62)	5.79
	Others	7 (0.07)	6.89

## 5. Discussion

In the Table 2, it shows that people are more willing to express their positive emotions with emoji in chat. *Smile* has a large variance, which shows that when people use this emoji, they may have opposite meanings or want to express other emotions. *LOL* and *OK* have lower variances, and their average values are relatively high in the top ranking group, indicating that they have high values and people usually want to use them expression positive emotions. In the Top 10 group, the variance is mostly same. Generally, the frequencies of bottom 10 group are low, resulting polarized value and, large variance.

In the Table 3, it is clear that people of all ages generally use positive emoji, with an average score of 6 points hovering up and down. Female generally use emoji to show positive emotions more than males. People of different occupations express slightly different emotions through the average value comparison, but generally expressing positive emotions. The trend is that students express subtler positive emotions in the use of emoji than professors, but lower than another school staff.

From the point of view of the reasons for the inefficiency of data collection, we can find that people use emoji to express their extra-linguistic in chats, which are usually positive. Moreover,

some of the most recently used emoji can be used to express various emotions when they are usually used with their original meanings. For example, *Smile* is used with kindness while sometimes it represents opposite meaning like “dislike”. Generally, emoji is a useful tool to show people’s emotions and people have more aspirations to express kindness.

## 6. Conclusion

Many emotions can express our inside feelings. Different emoji express different emotional effects and that different people using same emoji has different effects. In order to study this question about emotions and emoji, we figure out people’s inner emotions and subtle different feelings by analyzing people’s values on their recently used emoji. However, this experiment still has a lot of limitations. There is a possibility that people cannot score intuitively and objectively on their own. Also, the sample space of out data is too small to prove the use of the entire human or ethnic group. Of course, the most significant shortcoming of this study is that the design method is not perfect enough to make an overview of emotional diversity in multiple dimensions.

According to the prediction hypothesis, the experimental results are quite different. We thought people would prefer to express negative emotions through emoji, but in the experimental data, the results show that people are more willing to use positive emoji and their scores are comparatively higher than we imagined. One potential solution to improve this issue is to expand the sample space and deepen the questionnaire content.

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