Cultural differences in style and usage of emoticons in computer-mediated communication

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Abstract

Emoticons represent one of the non-verbal channels in computer-mediated communication. They are representative of facial expressions due to their similarity. This thesis examines and discusses evidence favouring universal equality and cultural differences in expressing emotions through emoticons in computer-mediated communication.

Current research indicates that cultural differences in emoticon styles and usage exist. This is due to varying focus and importance of different face regions to display emotions. Eastern, collectivistic cultures focus on the eye-region while Western, individualistic cultures focus on the mouth region. This focus pattern is found in real life facial expressions as well as in typewritten symbolic emoticons. So far the most supported explanation for this phenomenon is differing cultural norms regarding the expression of emotional states. Another explanation proposed focuses on high versus low context dependency. While individualistic cultures display a low context dependency, collectivistic cultures are more context dependent. High context dependency is correlated with a higher usage rate of positive emotion displaying emoticons.

Seeing how the Internet and social media have a global reach and impact, it is crucial to understand the cultural differences in verbal and non-verbal channels in the computer-mediated setting to enhance technology development and cross-cultural exchange of information.

Keywords: emoticons, culture, CMC, emotion, usage, style

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Introduction

Computer-mediated communication (CMC) differs significantly from other forms of communication such as non-electronic written communication or face-to-face (F2F) communication and is a new form of communication. Metacommunicative features like nonverbal and paraverbal cues that communicate emotions are absent and make the difference between the forms of communication crucial (Riva, 2002). Emoticons have become a part of almost all forms of CMC and represent an adequate replacement for facial expressions and their role in nonverbal communication (Jibril & Abdullah, 2013). It was found by Reeves and Nass (1996) that individuals interact with computers, television and new media in a fundamentally social and natural way that is equal to interactions in real life. This way of interaction is not conscious or intuitive, it is automatic. It is important to consider this equation, that media equals real life, to reconsider issues like cross-cultural nonverbal display of emotions in CMC (Gerritsen, Gagnon, Stefanucci & Drews, 2012; Reeves & Nass, 1996). Seeing how CMC is the most global form of communication, it is important to seek out cultural aspects that can lead to misunderstandings. Only if the cultural aspects of non-verbal CMC are understood the possibility arises to eliminate such confounding aspects to make global communication and cross-cultural exchange more efficient.

Cultural similarities and differences in emotional facial expressions and their understanding in F2F communication have already been studied extensively. There are two dominant positions: the universality theory and the theory of cultural differences to express emotions with the face. To bring further support for either of these theories and in an attempt to apply them to a computer-mediated setting, this thesis investigates emoticon-based evidence for the theories mentioned above.

Unfortunately, the cultural universalities and differences in nonverbal emotional display in CMC have not been researched as thoroughly as in F2F communication regarding its mechanisms and its display. Nevertheless the studies conducted in this field seem to

support the theory of cultural differences when looking at the emoticon styles and some aspects of their usage. The implications from this thesis will contribute to a better understanding of the parts of CMC that still need improvement to provide and ensure a good functioning global communication.

      This thesis is structured as follows: First, there will be a general theoretical introduction into the relevant terms and concepts of CMC and cultural differences. Based on that, the claim of the thesis is built and will be presented. Following, this thesis introduces the two social theories that explain processing of emotional facial expressions, namely the universality theory and the theory about cultural differences. They will serve as main division of the specific emoticon-related findings that will be presented afterwards. Finally, in the discussion predictions from the social theories are compared to the specific emoticon-based findings. The specific findings will then be reviewed. Implications and opportunities for future research complete the thesis.

Theories of emotions in computer-mediated communication
and the importance of cultural differences

Expression of Emotion in computer-mediated communication with emoticons

Riva (2002) determines some characteristics of text-based CMC which are important for nonverbal emotion display in CMC: The persisting nature of statements makes personal simultaneous presence not necessary; a low level of formality, high rates of information exchange, allowance of identity deception and anonymity are further determinants of CMC.

The environment for CMC is less cooperative than the F2F environment, because of limitations imposed by the medium itself. Missing is the immediate feedback through physical presence and visibility that allows the processing of the social and emotional meaning of the message (Riva, 2002). The absence of nonverbal cues makes CMC potentially ambiguous and can lead to miscommunication (Riordan & Kreuz, 2010).

It is important to see emotion expression as an expression of the inner state and as something relational and social (Schnoebelen, 2012). Derks, Fischer and Bos (2007) define emotion communication as recognition, expression and sharing of emotions between individuals. Considering the contextual difference of CMC compared to F2F communication, different mental and physical presences become evident (Derks, Fischer & Bos, 2007).

Users have the ability to adapt to the lack of cue systems available in CMC, which includes verbal, nonverbal and paraverbal cues (Riordan & Kreuz, 2010). It has been argued that expressing one's emotions is easier in F2F communication than in CMC (Rice & Love, 1987). Current evidence from a review by Derks, Fischer and Bos (2007) claims though that CMC is not a less personally involving or less emotional communication channel than F2F. They found conversely that CMC and F2F communication are surprisingly similar and that differences in the two channels point to a more frequent and explicit emotion communication online.

Riordan and Kreuz (2010) found that nonverbal cues in CMC are used to disambiguate messages (36%), regulate interaction (24%), express affect (15%) and strengthen the content of a message (10%). It was shown that cues give the receiver an idea of the sender's intentions and the more cues are available, the stronger the emotion of their sender is judged by the receiver (Riordan & Kreuz, 2010). Research suggests that CMC has its own version of non-verbal displays, for instance emoticons, created with typographical symbols and resembling facial expressions (Walther & D'Addario, 2001).

Emoticons can be seen as socio-emotional suppliers to the CMC. Being approached as contributors to conversation and context suppliers, they substitute missing gestures and facial attributes in CMC (Jibril & Abdullah, 2013). In 1982, the original :-) and :-(symbols were created by Scott Fahlmann with the basic idea that they would be used to express emotion and guide affective interpretations. Emoticons have achieved a broad distribution and usage in CMC since then (Schnoebelen, 2012). Nowadays, software producers often mechanically convert text-based emoticons into graphical emoticons (Amaghlobeli, 2012).

Emoticons substitute the missing human emotional touch in electronic communication (Jibril & Abdullah, 2013). Research that has been conducted so far highlights the ability of emoticons to respond to medium-specific demands like immediacy by conveying tone and mood of the conversation quickly (Double, 2007). Emoticons therefore clarify text-based communication and also act as clear communicator of a current mood or mental state, providing additional cues about the author (Jibril & Abdullah, 2013). Emoticons are used as symbols for people's feelings and can emphasize and clarify them just like non-verbal behaviours in F2F communication. They are also used to soften a negative tone and regulate interaction, just as smiles and frowns do in real life (Derks, Fischer & Bos, 2007).

The basic smiley :) , frowney :(and winkey ;) emoticons are broadly accepted with their respective meaning of humour, sadness and sarcasm. It is with the more elaborate and detailed emoticons where a greater variation of interpretations becomes available (Riva,

2002). Each user has a set of emoticons he or she most commonly draws on – these are not randomly distributed. Usage pattern also has to do with stylistic and aesthetic preferences of what kinds of eyes and mouths one wants to use, which way the emoticon should face, and whether or not it should have a nose (Schnoebelen, 2012).

Lo (2008) found that using emoticons affects the reception of emotions, attitude and attention differently than not using them. Emoticons should be considered deliberate and voluntary even though they become habitual and their use may occur more unconscious over time. Their use is not necessarily an indicator that the individual user experiences an emotion, since it only conveys the conscious intentions and motives of using the emoticon (Derks, Fischer & Bos, 2007).

As Double (2007) already concluded, emoticons respond to the demands of CMC appropriately and are essential in the evolving language of the Internet. This statement gets supported by three main assumptions: the Internet as a new medium demands a new language, interpretation of text and tone are ambiguous because of the impersonal nature of CMC and humans use verbal as much as nonverbal elements to communicate and convey emotion.

The importance of cultural differences

People perceive the world in cultural models and behave accordingly in cultural ways in a social context. Therefore, cultural and social context are necessities for communication because actions and communication are the subject's adaption to context (Mantovani, 1996).

In culture research it is very common to compare people from one country with people from another country (Cohen, 2009). The biggest and most used division is the one between individualistic and collectivistic cultures. Most East Asian countries have the distinct conception of a fundamental relation between individuals; this self-perception form is called *collectivism* (Markus & Kitayama, 1991). The emphasis lies on tending to others, fitting in and establishing harmonious interdependence. America and European countries do not assume such an overt connectedness among individuals. Western individuals seek to preserve

their independence from others by looking for themselves and by expressing their unique inner and outer attributes. This form of self-perception is called *individualism* (Markus & Kitayama, 1991). This differentiation is important, because self-perception has a big impact on how emotions are perceived and expressed. One example constitutes the emotion anger, which derives and promotes an independent view of the self, since anger causes a distance towards others (opposed to happiness which is associated with closeness to others) and is therefore less prevalent among people with interdependent selves (Markus & Kitayama, 1991). The main division of cultures in this thesis are Western and Eastern countries and thereby referring to individualistic and collectivistic self-perceptions.

Cohen (2009) found that there are numerous ways of thinking about cultural specifics and universals. According to him, a set of basic human characteristics is identical in human species. Depending on the interaction pattern with one's environment and the context they will develop differently and display cultural practices and characteristics (Cohen, 2009). An alternative concept of cultural differences and similarities would be, that culture affects people and the way they organize their worldview in such a profound way that it seems difficult or even impossible to understand a culture, its traditions and its meaning from outside that culture (Shweder, 1991). Combining these two views, it can be said that the same ideas and meanings are contained in every culture to some extent, but only a certain number of them will be elaborated while the rest will be deemphasized and therefore some parts of this progress are more accessible than others (Cohen, 2009). Exploring differences and universals in communication patterns contributes to a better understanding of humans in a culture specific setting but also of humans in interaction with computers and global communication networks, like the Internet.

Combining the importance of cultural differences and the importance of nonverbal CMC for emotion expression leads to the current investigation topic of this thesis.

Claim

Cultural differences in emoticon use exist, especially when comparing Western American and European and East Asian cultures with each other. They are marked not only by different use but also by different styles. Asian cultures have emoticons with greater emphasis on the eye region of the face, rather than Western cultures which include the eyes and the mouth equally. These findings have implications for social theories about the universality or cultural differences of facial expressions. Showing differences in the facial expression of emoticons in Western American and European as opposed to East Asian cultures might add to the evidence against the theory of universal facial expressions.

Because there are no specific theories so far concerning cultural differences in emoticon use, theories for emotional facial expressions in F2F communication will be applied to, compared to and discussed with evidence from emoticons and their implications for CMC.

To start, two important social theories about universal facial expressions are reviewed and explained. Later on, specific findings regarding different emoticon styles and usage between Western and East Asian cultures will be cited and finally there will be a detailed discussion of the research that has been done so far on this topic, including critical views and implications and opportunities for future research.

Theories of cultural differences and universals in emotional facial expression

The question, whether facial expressions of emotions have a universal language or if there are unique patterns of emotion display in different cultures has become a running debate among social psychologists (Marsh, Elfenbein & Ambady, 2003).

Theory 1: Universality of emotional facial expressions

Universality Theory postulates that emotions are universally recognized from facial expressions. Extensive research has been carried out in various modern cultures and in cultures relatively isolated from other cultures' influence to support that claim. Aristotle already proclaimed the universality theory by saying that there are characteristic facial expressions that accompany anger, fear, erotic excitement and other emotions (Russell, 1994). Darwin was also a supporter of the universality of emotional facial expressions. He argued that originally some basic facial expressions served an adaptive, biological function like regulating sensory exposure and communicating with one another (Darwin, 1998). "The face reveals emotion in a way that is universally understood: happiness, surprise, fear, anger, contempt, disgust and sadness are recognized from facial expressions by all human beings, regardless of their cultural background" (Russell, 1994, p.102).

Ekman and Friesen (1987) preserve the statement that emotional facial expressions are universal, but that there are cultural differences in display rules, coping strategies and emotional memory. They claim that if a facial expression is taken out of social context, meaning simultaneous speech, vocal cues and body movements are eliminated, and judged by an uninvolved observer would remove most sources of cultural differences. Applying this statement to emoticons in CMC context leads to new insights, since most of the cultural difference sources claimed by Ekman and Friesen are removed in this context. Simultaneous speech, vocal cues and body movements are not occurring naturally in this setting. Therefore emoticons should supply additional support for the theory of universal facial expressions of emotions if people understand emoticons cross-culturally.

Universality is supported by evidence from Ekman and Friesen (1971). Subjects from different cultures did far better than chance in identifying which emotional contexts the expressions on photographs from different ethnical groups were intended to portray. They also show that people of different cultural backgrounds display similar expressions in response to similar stimuli (Marsh, Elfenbein & Ambady, 2003). Friesen (1972) found that Japanese subjects mask their negative emotions more with smiles than American subjects do with an observer in the room, but facial responses are the same while watching a stress-inducing film (body mutilation) generating feelings of disgust and fear when being alone in the room (Ekman, 1972). In another study Ekman and Friesen (1987) tested if there is agreement across cultures about the emotional facial expression shown when there is only one emotion to choose from, and when there are several emotions to choose from. The results show agreement across 10 countries (Estonia, Germany, Greece, Hong Kong, Italy, Japan, Scotland, Sumatra, Turkey and United States) on the most intense emotion when participants can choose more than one emotion in 177 of 180 times.

In a review written by Russell in 1994, he summarized eight studies conducted between 1969 and 1987 that argue in favour of the universality theory. In each of these studies recognition scores of facial expressions were measured and represent the percentage of test subjects agreeing with each type of facial expression. Western cultures included in the studies are: America, Brazil, Great Britain, Germany, Sweden, France, Switzerland, Greece, Chile, Argentina, Estonia, Italy and Scotland. Non-Western cultures included are: Japan, Kirghizia, Malaysia, Ethiopia, China, Sumatra and Turkey. The mean recognition scores among Western cultures correlated higher than among Non-Western cultures but recognition scores never dropped below a 61.8 % average. The highest percentage was perceived for happiness with 95.1 % average among Western cultures and 87.1 % average for Non-Western cultures. The lowest percentage was supplied by the facial expression for fear (77.3 %) in Western cultures and anger (61.8 %) in Non-Western cultures. All studies proceeded similarly by using within-

subject design, preselected stimuli of posed expressions, forced-choice from a prespecified list of emotions and no contextual information. Subjects were students and Non-Western subjects had extensive contact with Western cultures (Russell, 1994).

This high level of cross-cultural agreement in facial expressions of multiple emotions supports the evidence mentioned above (Jibril & Abdullah, 2013) that emoticons, representing emotional facial expressions in CMC, can clarify ambiguous text-based CMC. In other words, clarifying ambiguous messages cross-culturally through emoticons would show support for the universality of facial expressions. Similar or even equal usage of emoticons in a given emotional context would also support the universality theory.

Some scientists supporting the universality theory argue that a cultural specification in one expression does not exclude the possibility of the universality of another. Culture determines whether expressions are permitted, inhibited or exaggerated and can additionally determine which emotion occurs in a given situation (Klineberg, 1940).

Theory 2: Cultural differences in using eyes and mouth to express emotions

The following theory is based on the assumption of cultural differences and how emotions are expressed in different cultures. Its main focus lies on cultural differences in displaying emotional facial expressions. Individualism emphasizes direct and explicit emotion expression while collectivistic countries see more importance in controlled and subdued emotional expression to maintain harmonious relationships (Yuki, Maddux & Masuda, 2006). In line with this argumentation, Jack, Blais, Scheepers and Caldara (2009) found that Eastern groups had consistently lower recognition levels for negative facial expressions than Western groups did. Yuki, Maddux and Masuda (2006) claimed that the eye region is more difficult to control than the area around the mouth when people express emotions. Hence they predicted that Eastern cultures, where emotional subduction is the norm, focus more on the eyes than the mouth when interpreting emotions of others. Opposed to this, Western cultures, where open emotional expression is the norm, would tend to interpret emotions based on the mouth

since it is the most expressive part of the face. The following findings question the universality of emotional facial expressions and highlight their complexity including their consequences for cross-cultural communication and globalisation. This theory would predict different emoticon usage in Western and Eastern civilisations.

By conducting behavioural and computational analyses considering eye movements, Jack et al. (2009) showed that East Asian observers (China and Japan) use a culture-specific *decoding strategy* in facial expression recognition, which is found to be inadequate to reliably distinguish facial expressions of fear and disgust. Western Caucasian subjects from Europe distribute their attention equally across the face, resulting in a high accuracy rate, while East Asian subjects fixate the eye region significantly more than the mouth (left eye = p < 0.01, right eye = p < 0.001) leading to ambiguous information sampling. For their experiment Jack et al. (2009) used information of recorded eye-movements while performing a seven-alternative (sadness, happiness, anger, fear, disgust, surprise and neutral) forced-choice facial expression categorization with same-race and other-race Facial-Action-Coding-System (FACS) coded faces. Further inspection of East Asian categorization errors revealed that fear was consistently confused with surprise and disgust was consistently confused with anger.
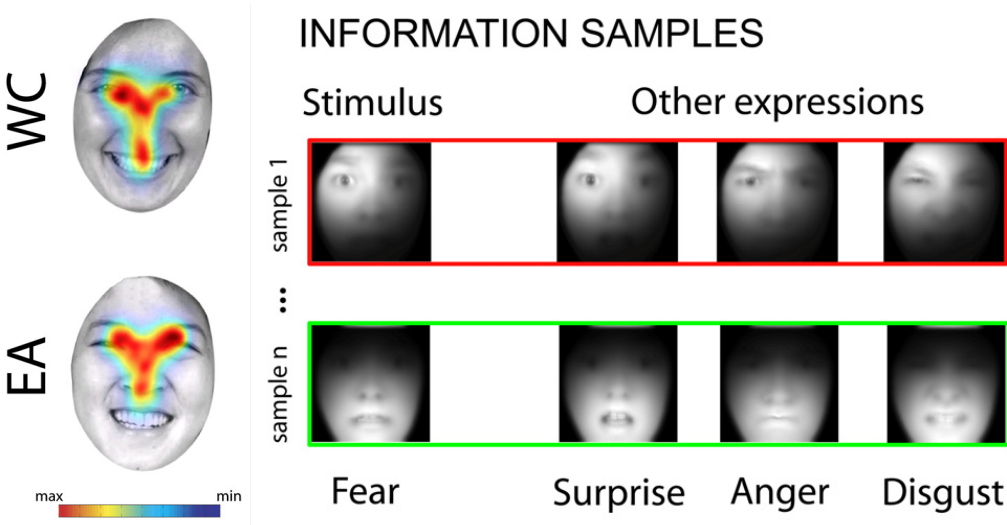

Figure 1. Left: eye-tracker pattern summarized across all subjects (Jack et al., 2009, p. 1544).

Right: stimulus used during the study (Jack et al., 2009, p. 1545).

In summary, this study suggests that FACS-coded facial expressions do not represent diagnostic features of East Asian facial expressions accurately since only the eye-region serves as primary diagnostic cue for facial expression categorization. This is also reflected in Asian emoticons, called emojis or kaomojis, which have no mouth at all.

Two years ago, further evidence was generated by Jack, Garrod, Yu, Caldara and Schyns (2012). Using a computer graphics platform they reconstructed the mental models of six basic emotional facial expressions of 30 subjects from Europe and from China. They were able to show that while European subjects represented six distinct sets of facial movements for the basic emotions, Chinese sets were overlapping considerably in facial movements, especially for surprise, fear, disgust and anger. This finding was supported by measuring the facial movements for different intensities of emotions felt. Chinese subjects represent emotion intensity primarily with early movements of the eyes in happiness, fear, disgust and anger. Whereas European subjects represent emotional intensity with other parts of the face, especially the mouth.

Yuki, Maddux and Masuda (2006) provided further evidence by conducting two studies. One is about the interpretation of happiness and sadness of emoticons on an intensity scale that varied in type of cues present in the eyes and mouth. Method and results of this study will be cited later on in the emoticon-based evidence chapter. In the second study, photographed happy and sad facial expressions of real people were randomized by computer software, displaying different combinations of sad, happy and neutral eyes and mouths. American and Japanese student subjects were asked to rate how happy or sad the faces presented looked. Response options ranged from really sad (1) to really happy (9). Results are shown in the figure below.
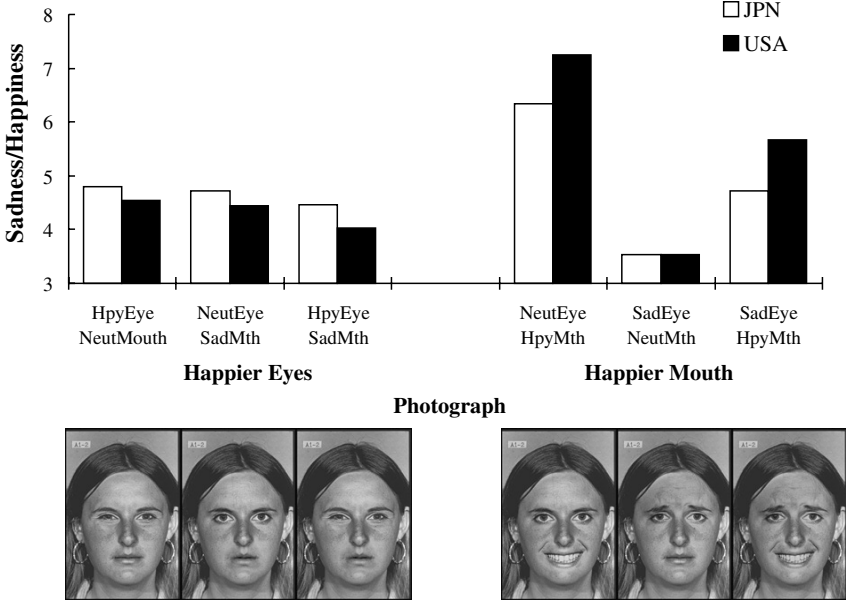
Figure 2. Stimuli and results from the study of Yuki, Maddux and Masuda (2006, p. 307).

Japanese subjects rated faces with the happier locus in the eyes as happier than

Americans did while Americans rated faces with the happier locus in the mouth as being

happier than Japanese subjects did. It is important to mention that ratings for happy eyes

conditions were in general not particularly high (M = 4.65, SD =.53). This low rating indicates

that mouth and eyes are not perceived and rated completely independent from each other by

both cultures. Additionally, the faces on the pictures do not occur naturally, making them look

slightly distorted. Nevertheless, the study supports the theory that facial cues are weighted

differently depending on the culture (Yuki, Maddux & Masuda, 2006). These results can be

interpreted in favour of Marsh, Elfenbein and Ambady's (2003) argumentation of cultural

accents bringing an in-group advantage of emotional expression decoding and helping to

identify one's own group members quickly. This effect gets smaller for cultural groups that

are physically closer to each other or have greater cross-cultural exposure. They argue in line

with Klineberg that emotional facial expression may function as a universal language with

regional accents.

In summary, the universality theory bases its main assumptions on the studies that

found high cross-cultural agreement for emotional facial expressions. The theory of cultural

differences bases its main argumentation on the finding that for some emotional facial expressions like anger, disgust, fear and surprise there is a high variance of interpretation and that this variance comes from a different focus on the eyes region instead of the mouth region to interpret those facial expressions. Seeing there is evidence favouring both the universality and the cultural difference theory, turning to emoticon-based findings should allow further evidence to emerge. Given the opportunity to perceive similarities and differences in CMC by an artificial form of facial expressions, namely emoticons, should bring up more arguments. New methods and approaches will give a different insight into the topic at hand.

Research comparing Western and Eastern emoticons in style and usage

In this section specific emoticon-based findings regarding style and usage are cited favouring either the universality theory or the theory of cultural differences. It will bring further arguments and methodological insights to the discussion that follows afterwards.

Schnoebelen (2012) differentiates two types of emoticons: those with which English speakers are more familiar with, the emoticons turning one's head to the side to read, for instance :-). These are referred to as *horizontal emoticons*. There is also East Asian style emoticons where the faces are straight and focus lies on the eye-region, for instance (^_^). Those are *vertical emoticons*, also called emojis or kaomojis. Schnoebelen (2012) postulates that the horizontal emoticons are the most frequently used emoticons worldwide. Park, Barash, Fink and Cha (2013) also found that the ten most popular emoticons are mostly horizontal ones, with one exception: ^^.
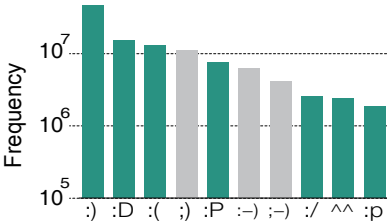

Figure 3. The ten most frequently used emoticons worldwide (Park et al., 2013, p. 4).

Further evidence for the universality theory is reported by Park et al. (2013) when looking at word- and mouth lengthening techniques. The lengthening of the mouth appears in horizontal as well as vertical emoticons and is used to express word lengthening and therefore more intense and strong affect expressions, for instance :)) and ^___^. This shows that emoticons are used in similar patterns even though their style differs. A finding of Park et al. (2013) supporting different emoticon usage in different cultures shows the sweat mark, a popular feature used especially in Japan and Korea to express shyness, embarrassment, confusion or shock. The sweat mark expression originated in Japanese Anime. It is only used in vertical emoticons. Seeing this example it becomes evident that with varying emoticon styles different symbols evolve that do not exist in other cultures' emoticons.

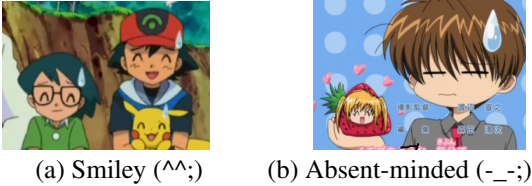(a) Smiley (^^;)   (b) Absent-minded (-_-;)

Figure 4. Japanese anime showing the sweat mark (Park et al., 2013, p. 4).

On the one hand the style distinction supports the theory of cultural differences. On the other hand, these findings provide evidence for a universal understanding of emoticons by stating similar usage patterns even though they do not look the same.

Park et al. (2013) also found that the type of emoticon used varies by culture and language. Geography matters less than the language spoken in the country. English-speaking countries mostly use the horizontal style emoticons. Japan shows a distinct language pattern from Korea. While Koreans most actively use the vertical style for 74% of the time, Japanese use horizontal and vertical styles to a similar degree. Park et al. (2013) state that cross-cultural emoticon adoption is extremely rare.
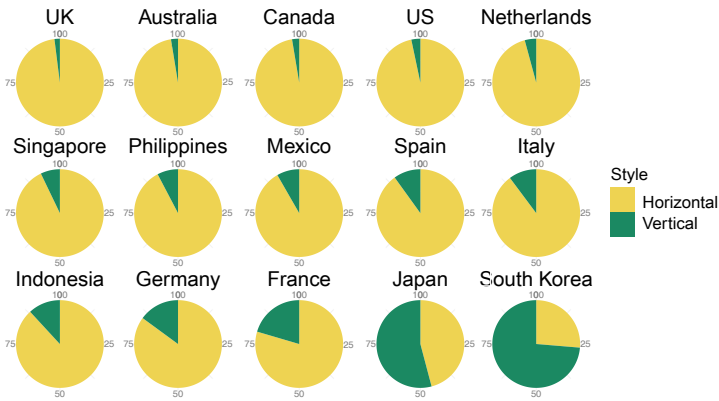

Figure 5. Percentage of horizontal and vertical emoticons used divided by countries (Park et al., 2013, p. 5).

Yuki, Maddux and Masuda (2006) conducted a study to test cultural differences in using eyes and mouth as cues to recognize emotions. They tested 118 American and 95 Japanese subjects, which filled out a questionnaire and rated a number of emoticons on their emotional expression on how happy or sad the emoticon looked. As with the other study conducted by Yuki, Maddux and Masuda (2006), responses could be given on a scale from 1 (extremely sad) to 9 (extremely happy). Results and stimuli emoticons are shown in Figure 6.
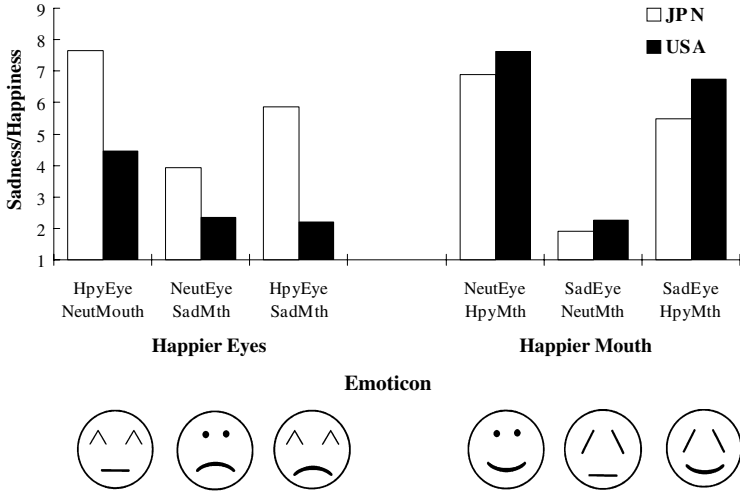
Figure 6. Stimuli and results of the study from Yuki, Maddux and Masuda (2006, p. 305).

Identical to results shown in the study with real faces, Japanese subjects rate

emoticons as happier if the happy locus is symbolized with the eyes (Cohen's d = 3.22)

whereas American subjects rated the emoticons as happier when the happy locus is shown by

the mouth (Cohen's d = 0.89). One can criticize those findings because Western and Eastern

cultures use different emoticons styles. They are not as used to an emoticon of the other

culture and will therefore only rely on the emoticon information that is equal to the emoticon

information from one's own culture, for instance the mouth for Western cultures, which is

mostly represented with a opening or closing bracket. Nevertheless, these findings indicate

similar focus on eye region or mouth region in emoticons as in F2F communication.

Kayan, Fussell and Setlock (2006) researched the question if East Asian or Western

Caucasian cultures use more emoticons in general. Therefore, they differentiated East Asian

and Western cultures in yet another way: they divided them by a *low* versus *high context*

dependency dimension, which presents one of the main arguments for cultural differences. It

mirrors the required amount of contextual information needed for communication. Western

cultures communicate mainly through verbal information with low context dependency.

Eastern cultures rely massively on situational information to promote understanding, therefore

communicating with high context dependency. They expected to find high-context cultures

using emoticons more frequently to supply the low-context media with additional context

cues, whereas in low-context cultures this is not as necessary. 28 American, 21 Indian and 29

East Asian (Singapore, China, Hong Kong) subjects completed a survey where they rated the

relevance of components like emoticons on a range from 1 (not at all important) to 5 (very

important). Regarding the findings for emoticons, there are significant cultural differences

($F[2, 75] = 3.24$, p.< .05) showing that Americans rate emoticons significantly lower in

importance than Indians do, and slightly lower (p = .09) in relevance than East Asians

(Kayan, Fussell & Setlock, 2006). These findings have an indication on the social aspect of

emoticons. They offer a social frame and are more important for high- than for low-context

cultures. Unfortunately precise occurrence rates of emoticons in online conversation have not

been investigated.

In another study, Cha (2007) presents findings comparing 26 North American subjects

and 26 South Korean subjects and their understanding of emoticons. His findings support

intercultural differences in use and recognition of emoticons. Samples of emoticons used in

the study are shown together with the one of the tasks below (table 1).

Results show that 77% of the American subjects and 76.9% of the Korean subjects

report that using emoticons helps them reduce misunderstandings in CMC, indicating

intercultural agreement on the usefulness of emoticons and their social meaning.

Table 1

Emoticons had to be connected and categorized to one of the

emotional words below the table (Cha, 2007, p.31)

Sample of textual emoticons							
1 :-)	2 :->	3 ^^	4 *^^*	5 :-( )	6 :-O	7 ⊙.⊙	8 @.@
9 :-(	10 :-<	11 ~_~	12 '_`	13 :-$	14 |:-|	15 ^^;;	16 -_-;;
17 :-|	18 <:-(	19 >_<	20 'n`	21 :'(	22 :,-(	23 ㅠ.ㅠ	24 ㅜ.ㅜ
25 :-@	26 >:-<	27 `o'	28 `.'	29 8o|	30 }: [	31 *~*	32 `~`
33 |-)	34 |-O	35 Z_Z	36 =.=	37 ;-)	38 ,-)	39 ^.~	40 ^_-
Emoticon meanings							

1 Smile   2 Surprised   3 Sad   4 Shy/Embarrassed   5 Disappointed   6 Crying   7 Angry
8 Baring teeth   9 Sleepy   10 Wink

The general rate of false interpretations of emoticons is high for both cultures respectively although below chance level. South Koreans have a lower false interpretation rate (28%) than North Americans (33%) do. American subjects have greater difficulties to identify vertical, cross-cultural and horizontal, intra-cultural emoticons than Korean subjects do. To exclude language differences confounding these results, subjects also had to link typewritten emoticons to MSN graphical emoticons (e.g. happy emoticon:). Misunderstanding rates went down using this method but were still present, especially for cross-cultural emoticons. Interestingly, while North Americans use typewritten emoticons slightly more than graphical emoticons (57.70 % to 42.30%), South Koreans prefer typewritten emoticons more clearly (61.50 % to 38.50%).

The results indicate that the understanding of emoticons not only differs cross-culturally but also within the same culture. The understanding of emoticons and their meaning has implications for usage behaviour and leads to yet another sign that there are differences across cultures. When subjects were asked which emoticons they preferred, they answered that they prefer the smiling (both 73%) and winking (North Americans: 15%, South Koreans: 19%) emoticons. Results also showed that Korean subjects do not like using emoticons expressing negative meanings. Significant agreement from both subject groups was also reported about the positive essence within social relationships produced by emoticons. Subjects obtain satisfaction in using emoticons to form relationships and believe that they help forming stronger relationships and contribute to clearer communication (Cha, 2007).

In summary, these emoticon-specific findings bring many new insights to emotional nonverbal CMC and its implications for the universality theory as well as for the theory of cultural differences. The findings will now be compared to the social theories and discussed in the following chapter to draw further conclusions from them.

Discussion

Comparing theories and emoticon-based findings

There are two theories debated in this thesis regarding the recognition of facial expressions of emotions. One is the universality theory stating that seven basic emotional facial expressions (happiness, anger, disgust, fear, surprise, sadness and contempt) are recognized by all cultures (Ekman & Friesen, 1987; Russell, 1994). Contradicting this theory is the second one discussed, stating that cultural differences in recognition exist along the differentiation on Western individualistic and Eastern interdependent cultures because they rely on different facial areas as cues for emotional expression (Jack et al., 2009; Yuki, Maddux & Masuda, 2006). Eastern, specifically East Asian, cultures rely on the area around the eyes to recognize emotions and Western, specifically American and European, cultures rely on the area around the mouth to recognize emotions. This difference exists due to the norm of not expressing emotions overtly in East Asian cultures while in American and European cultures the open expression of one's feelings is the norm (Yuki, Maddux & Masuda, 2006). Having seen some evidence for each theory specific findings of emoticon style and usage will now be compared to bring further inputs to the discussion.

Turning to the evidence generated through the studies conducted on stylistic cues of emoticons, cultural differences become evident. Horizontal emoticons express the whole face and set a special focus on the mouth, for it varies the most. Vertical emoticons however draw special attention to the eye region which is depicted in very different ways and they mostly have no mouth at all or just a straight line to express it, lacking any emotional indication (Cha, 2007). Horizontal emoticons developed in Western cultures lay focus on the mouth region while vertical emoticons developed in Eastern cultures lay focus on the eye region. This can be explained through culturally different display norms of emotions and their detection mechanisms developing from real life F2F interaction patterns. While Western cultures use mostly horizontal emoticons, Eastern cultures use more vertical emoticons or both types of

emoticons to a similar extent. Interestingly, the language used for communication determines what type of emoticon is used more than geography does (Park et al., 2013).

Although these arguments clearly support the theory of cultural differences, there are also findings in stylistic cues that support the universality theory. The fact that worldwide the most frequently used emoticons are mostly all horizontal ones supports the universality theory (Schnoebelen, 2012; Park et al., 2013). So even though this variance exists and is probably based on different display rules, the dominant usage of one type of style indicates universal agreement for this emoticon style. Further supporting is the finding that no matter what emoticon style is used; the user applies them in similar patterns, for example intensifying the affect by lengthening the mouth (Park et al., 2013). This finding supports Cohen's (2009) claim that the same ideas and meanings are contained in every culture, even if expressed differently.

Further differences appear when looking at evidence obtained by the studies conducted on usage cues of emoticons. While East Asian cultures use emoticons very frequently in a positive way to give a more gentle tone to messages or to create a cheerful context of communication, American and European cultures use emoticons to express negative and positive emotion and to tease and flirt (Schnoebelen, 2012). This was explained by dividing those two cultures by another feature: low and high context dependent cultures. Individualistic, Western cultures do not rely on the context but on their personal interests to express the emotions they are feeling. Interdependent Eastern cultures put context and surrounding atmosphere ahead of their personal feelings and thus strive for a harmonic atmosphere even if not expressing their actual emotions openly (Kayan, Fussell & Setlock, 2006). The social aspect of emoticon usage therefore changes depending on the cultural background. While in low-context, individualistic cultures the social aspect of emoticon usage is defined by expressing one's own emotions openly, in high-context, collectivistic cultures the social aspect is defined by maintaining a harmonic atmosphere. Further support is given

by Cha's study (2007), where the recognition of emotions that should be expressed with an emoticon was faulty intra- and cross-culturally. His American and Korean subjects disagreed on many emoticon meanings indicating that usage could also differ significantly based on a different understanding.

Turning to usage cues supporting the universality theory, the most convincing finding is again that worldwide the most frequently used emoticons are horizontal ones (Park et al., 2013; Schnoebelen, 2012). Additionally, there is cross-cultural agreement on the usefulness of emoticons, for example in disambiguation of messages (Cha, 2007). This indicates that the motives behind the usage can be seen as universal even if the usage varies. This is a very important factor if emoticon style and usage should become identical on a global level to simplify global CMC.

Bringing emoticon-based findings together with the two social theories, it becomes evident that the theory of cultural differences in recognizing emotional facial expressions is better supported than the universality theory (Cha, 2007; Park et al. 2013; Schnoebelen, 2012; Yuki, Maddux & Masuda, 2006). There are three possible explanations for this conclusion.

First, theorists supporting the theory of cultural differences have been able to predict the displayed behaviour with higher accuracy than Universalists have so far. Studies conducted in the research field of CMC mostly predict differences. These predictions are supported by several explanation possibilities, such as display rules and high versus low context dependency (Cha, 2007; Park et al. 2013; Schnoebelen, 2012; Yuki, Maddux & Masuda, 2006). This explanation could be based on biased information though since to date no studies have been conducted using the explicitly universality theory or universality-supporting methods in emoticon research.

Secondly, it is possible that even though there are some parallels between real and graphic emotional facial expressions, they do not measure the same thing, implying that the Internet provides a new subculture with its own language, which has no implications for

cultures and languages defined in the real world (Crystal, 2001). This explanation is rather

unlikely though, since it has been shown that the parallels between real life and media life are

very high and the brain is not able to separate those two forms of reality from each other

(Gerritsen et al., 2012; Reeves & Nass, 1996). Additionally, many communication aspects

have been imported from the real world to the computer setting and to the author's knowledge

there is no evidence so far claiming this process to be unidirectional. It is likely that findings

from CMC have implications for F2F communication and vice versa. Seeing how cultural

aspects from real life, like individualism, collectivism and display rules, are applicable to the

computer environment, there are no specific indications so far to separate a cyber subculture

from existing cultures.

Thirdly, even though the universality theory could be the best-suited theory regarding

F2F communication, cultural dialects could have greater implications for emoticon styles and

usage than on emotional facial expressions in real life (Yuki, Maddux & Masuda, 2006).

Confounding this explanation are the indications in support of more universality in CMC,

such as the fact that English is the original and most widespread language in the Internet

(Segev & Blondheim, 2013). So even though more universality is expected in CMC there is

no evidence so far stating that this is the case.

In summary, there is currently more emoticon-based evidence favouring cross-cultural

differences as opposed to cross-cultural agreement in emotional facial expressions. This is

important to consider regarding the globalisation tendencies in CMC.

Critical views on topic

There are many critical points one has to consider when bringing so much evidence

together. In the following paragraph there will be critical points regarding terms and concepts,

theory specific evidence, emoticon-based evidence, comparison of CMC and F2F emotional

expressions and selectivity of studies conducted so far.

The most critical point concerning the term cultural differences is the *divison* of cultures by *West* and *East*. The comparison of individualism and collectivism has been used to explain many observed cultural differences, even though it was found that the differences between the two categories are neither as large nor as systematic as was perceived for a long time. The tendency to equate culture with country is widespread and limiting (Russell, 1994). To review different studies and reviews it is nevertheless important to stick to this division, since it has been used in all of the studies and reviews mentioned above.

The concept of *emotion communication* is also critical. One can divide emotion communication into the process of *recognition* and the process of *expression* of emotions, which has been done in studies conducted to support the social theories (Russell, 1994). The studies cited for emoticon-based evidence did not conduct such a differentiation. This is good for means of comparison but appears to limit the specificity of the findings.

Another term with critical implications is *universality*. There are different propositions of *varying specificity* of the term universal (Klineberg, 1940). It is therefore important to define to what degree universality is expected before conducting a study.

Turning to theory specific evidence there are critical points regarding the methods. While Russell's review (1994) allows a good overview over the studies that argue in favour of the universality theory, it also becomes clear that studies conducted in this field up to 1994 had severe methodological limitations regarding different features. Studies (Russell, 1994) used similar methods and subject samples with the same set of problems. One is preselected stimuli of posed expressions. While preselected stimuli reduce many confounding variables it also increases the recognition scores artificially. Another one is that most subjects were students and Eastern culture students had extensive contact with Western cultures. This leads to lower representation of the whole population, since the general public might have less contact to Western cultures than students do. These problems have an influence on the

internal, convergent and ecological validity and are therefore important to address in future research (Russell, 1994), also when researching with emoticons.

Regarding the studies supporting the theory of cultural differences in emotional facial expressions, there does not seem to be a structured approach to support it. Studies use a great variety of methods which gives the theory support from many different perspectives but also limits it by the low number of replication studies and studies that look at specific issues such as indications drawn from high versus low context dependency with more depth.

Looking at emoticon-based findings with cultural comparisons, there are some limitations to be mentioned. While emoticon usage grows and represent a crucial part of non-verbal CMC, very little is known about them, especially in the context of cultural differences and universals in usage. This is unacceptable since culture should be one of the most extensively researched aspects in CMC, seeing it offers global communication networks such as the Internet. The development of social media technologies will become limited by the reduced capacity of adaption to the technical development when there is no focus on a common understanding and progress of CMC and its symbols used today. Cha (2007) offered a possible solution to this issue by suggesting that existing ambiguous emoticons should be redesigned or readdressed to their appropriate meanings.

Methodologically the main critical points are subjects and context. Most studies cited above used young subjects that were already used to CMC, which limits their findings to a subpopulation and reduces external validity. Also, they used emoticons isolated from any context that would supply the subjects with additional hints on their meaning. While this can be seen as an advantage to reliably check if they are understood properly, it is important to note that emoticons, as well as emotional facial expressions in general, will never be this isolated in real life. Giving future subjects a context could lead to higher recognition not only because of additional cues but also because it is more natural for emoticons and emotional facial expressions to occur in a certain context.

The last critical point concerning emoticon-based evidence is that all of the authors used a wide range of emoticons they based their research on and some applied different labels defined as correct to the same emoticon, showing that even among the authors there does not seem to be agreement on emoticon *labels*.

Another critical focus should be laid on the comparison of emoticons and facial expressions of emotions. Emoticons are *deliberate* and voluntary, while some facial expressions are unintentional and involuntary (Derks, Fischer & Bos, 2008), so the setting of CMC presents the perfect opportunity to hide spontaneous expressions and therefore leaves more room for *deception*. Also, emotion interpretation is more complex using real faces rather than illustrated ones (Yuki, Maddux & Masuda, 2006). The possibility that emoticon usage behaviours are based on group norms that have arisen independently from deeper cultural differences is already claimed above (Kayan, Fussell & Setlock, 2006).

Finally, the selectivity of studies conducted so far will be looked at critically. As Double (2007) claimed, in most of the research conducted so far participants evaluated emoticons and their interpretation from a *recipient's perspective* but seldom from a *sender's perspective*. This statement might not be entirely true, since there have not been any methodological indications that the perspective has been controlled for. Nevertheless it raises the question: Could dividing those two perspectives bring further insights? This method may broaden the understanding of emoticon usage.

Another selective limitation is conceptualizing emoticons with only emotional interpretation possibilities. Some emoticons could also be categorized as representative of another concept which is not necessarily connected to an emotion, for example emoticons with flirtatious meaning (Schnoebelen, 2012). One should emphasize *alternative conceptualizations* by asking different cultures how they conceptualize emotions and how they conceptualize facial expressions in general (Cohen, 2009).

The elimination of critical points can be reached through future research.

Implications for future research and conclusion

The Internet is a global and future oriented communication medium that should be understood from a cultural perspective to enhance cross-cultural exchange in verbal and non-verbal CMC. Reported cultural studies in Russell's review highlight the importance of a multi-method approach. Another method could be to prime the subjects with relevant aspects of their culture, since exposure to other cultures happens more frequently nowadays (Russell, 1994). An additional possibility to enhance cultural studies would be to take a different approach in separating different cultures from one another, for instance by *new media exposure* instead of collectivism and individualism. Comparing a culture with high new media exposure and its emoticon usage behaviours to a culture with low media exposure could give new insights to emoticon usage in CMC.

Increased specifity of findings could be reached by dividing emotion communication into the process of recognition and the process of expression of emotions. A further interesting part to investigate would be the mixture of real world context and emoticons. Instead of trying to give every emoticon a specific emotional category, one could simulate every-day situations that trigger a certain notion and then see what kind of emoticon people would choose to comment or react with. Maybe more cross-cultural agreement would emerge from this approach since the ideas behind their usage are similar (Park et al. 2013). Another suggestion for future research would be to focus on one specific emoticon and its different meanings and to try to conduct a generalizable picture from this more profound analysis. Testing for intentional deception through emoticons could broaden the understanding of their usage and would offer a distinct separation from sometimes involuntary and unintentional facial expressions in real life.

As mentioned above, it seems quite selective how researchers have approached this topic so far. Analysing emoticons from a sender's perspective and a receiver's perspective separately (Double, 2007) could add to the understanding of emoticon usage.

Continuing the research on cultural differences in emoticon style and usage is crucial to support already existing concepts with replication studies and specification of those with studies allowing more depth. There are still several options to explore emoticons in different ways and with varying methods. Redesigning existing ambiguous emoticons and readdressing them to their appropriate meanings with cross-cultural agreement as a further step could enhance CMC (Cha, 2007).

The comparison of different cultures gets more and more important through the process of globalisation in CMC. One has to remember that people become exposed to their own and other cultures by assimilation, acculturation and socialization in more and faster ways than before (Cohen, 2009). This leads to a better and broader understanding of different cultures but also to a mixture of different cultural behaviours and communication patterns and thus it gets harder to research specific differences between these different cultures.

Specific findings supporting cultural differences make it clear that even though some cross-cultural agreement exists on the usefulness of emoticons, they are still created and treated very differently. Understanding how different cultures use non-verbal communication in CMC will open up new possibilities to communicate more effectively and efficiently in a global network like the Internet.

Differences in emoticon style and usage exist due to different focusing on the eye-region by Eastern cultures and on the mouth-region by Western cultures because of cultural norms of expression of emotional states. This pattern emerges in real life emotional facial expressions as well as in emoticons. Individual or interdependent self-perception has an influence on how often and for which emotion emoticons are used.

Seeing how CMC has a global reach and impact, it is crucial to understand cultural differences in its non-verbal channels in order to enhance technology development and cross-cultural information exchange. This broadens the possibility of people to involve in social sharing with people all over the world and over larger periods of time.

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