

# Perceiving Emotions As Portrayed By Actors: How expressive is a Swedish movie compared to an equivalent U.S. film?

Jelke Brandehof, Huub Ramakers, Daphne Straus, Elita Vellekoop, & Sarah White

## Abstract

This study asks when comparing a Swedish movie to an equivalent U.S. movie, which would show the most expressiveness by the various characters. The hypothesis, which was formulated, was that the Swedish version of the movie would be rated higher on expressiveness in contrary to the U.S. version. To investigate which movie was perceived to be the most expressive forty Dutch participants participated and were requested to rate the expressiveness of the facial expressions of the selected fragments. The hypothesis was supported. The score on expressiveness for the Swedish scenes were significant higher than for the American scenes.

**Keywords:** Non-verbal communication; cultural differences; Sweden, U.S., facial expressions, emotions.

## Introduction

Whether or not facial expressions of emotion constitute to a universal “language” has led to a great debate among various psychologists (e.g., Ekman, 1972, 1997; Elfenbein & Ambady, 2002a, 2002b; Matsumoto, 2002; Mesquita, Frijda, & Scherer, 1997; Russell, 1994). It has been studied that cultural differences are intensified while expressing emotions, in contrary to expressing only in facial features or other static components of appearance (Marsh, Elfenbein, & Ambady, 2003). How is this related to movies? It is well known that Hollywood movies have an excessive way of portraying their characters in the various movies they produce. What is not known is whether this is a way of acting or is this a reproduction of their society and how would this compare to Swedish movies? The common prejudice would be that Swedes are more introvert and Americans more extravert in showing both positive as well as negative emotions.

As a result, the logical hypothesis would be that U.S. movies would be rated as more expressive than Swedish movies. However, the literature suggests something else. According to Fernández, Carrera, Sánchez, Paez and Candia (2000), there is a difference within the expression of nonverbal communication cues between so-called feminine cultures and masculine cultures. Feminine

cultures are allegedly more expressive than a masculine cultures. Sweden is considered to have feminine culture and the U.S. a masculine culture (Hofstede, n.d.) and may there be expected to be more expressive. So, following the literature, the following hypothesis was established: the Swedish version will be perceived as more expressive than the U.S. version. This was studied by letting participants watch scenes from two comparable movies, one from each country.

## Stimuli Collection

### Selection Criteria and Procedure

In order to compare how expressive the facial expressions of emotions in the Swedish culture and the American culture are, two comparable movies were chosen. Video fragments of two versions of the same movie were collected. The first movie is the Swedish movie *‘Männ Som Hatar Kvinnor’*. The second movie is the American remake of this movie, called *‘The Girl with the Dragon Tattoo’*. Both movies were based on Stieg Larsson’s book *‘Män Som Hatar Kvinnor’* (title of the American translation of the book is *‘The Girl with the Dragon Tattoo’*). Selection criteria for the video clips were that the scenes had to be (almost) identical in both movies and the facial expression of an actor had to be visible.

First, similar scenes from both movies were collected. Subsequently, video clips were selected on the second criteria; the visibility of facial expressions. Furthermore, the audio was muted in order to prevent the influence of hearing utterances that could distract from the main task. Overall, twenty video fragments from each movie (40 in total) were collected for the experiment (see Figure 1).

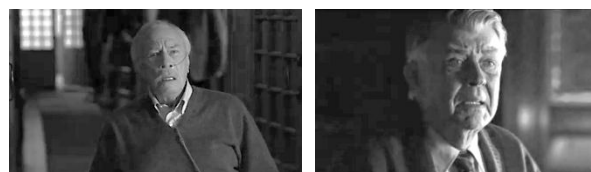


Figure 1: example of identical scenes.  
(left: U.S. version, right: Swedish version)

## **Video Editing**

Twenty fragments of each movie were cropped by using the video-editing program Windows Movie Maker. Each fragment was cropped separately which resulted in a total of forty fragments that lasted between two and twenty-three seconds. Effort was made in order to collect identical scenes of roughly the same duration, but this was not always possible.

## **Perception Test**

### **Participants**

The perception test was conducted with forty Dutch participants, twenty males and twenty females. The participants were recruited by asking family and friends of the researchers to participate. The average age was 31.28 years old. The oldest participant was 63 years old and the youngest participant was 18 years old.

### **Materials and Procedure**

The video fragments were presented to the participants in a Microsoft PowerPoint document. Two versions of the PowerPoint existed: version A and version B. The versions contained the same video fragments, but the order was reversed. The reason behind this was to prevent that participants get used to a certain order and would continue to systematically grade the first or second scene higher. The similar video fragments were presented in pairs (American video clip and Swedish video clip). The first ten pairs of version A were presented in the order American video – Swedish video. The last ten pairs were presented in the order Swedish video – American video. The first ten pairs of version B were presented in the order Swedish video – American video. The last ten pairs were presented in the order American video – Swedish video. Half of the participants watched version A, and the other half watched version B.

The participants were asked to participate in an experiment about facial expressions. Participants sat in front of a computer with either version A or version B of the PowerPoint opened. The participants received a piece of paper with instructions and an answer sheet. They were asked to watch the scenes in pairs, and subsequently rate how expressive the facial expressions shown in each video fragment were. The same scale was used as in Matsumoto and Ekman's (1989) second judgment task for facial expressions. The expressiveness of the facial expression had to be rated on a 9-point Likert scale (0 = no expression, 4 = moderately expressive, 8 = extremely expressive). Emotions were not labeled. After the test, participants handed in their

answer sheets and were thanked by the researcher for their participation.

## **Results**

After collecting the data from all 40 participants, the responses were merged into an excel file containing three tables: Version A, Version B & the Overall table. This file produced 1600 separate results (40 scenes \* 40 participants) which were coded in order to collect the relevant data for this research. Moreover, several types of distinguishing factors were created in order to group possibly important variables. Consequently, results were produced and the findings are represented and explained. First, an overview of generic results, followed by an in-depth analysis of differences between the countries, the versions and a test to investigate whether or not the gender of participants had an influence on the way the emotions were perceived.

### **Generic results**

The perception test and the following data analysis produced a number of overall results, containing information on the participants, their perception and the way of scoring the scenes. Considering the 0-8 scale as used by Matsumoto & Ekman (1989), the average score of 4 was surpassed by the overall mean score of 4.93, meaning the participants tended to find the scenes at least moderately expressive. The overall modus score of 5 was selected 337 times, or 21.1% of the time. The lowest score of 0 was selected only ten times (or 0.6% of the time) and the high score of 8 was selected 97 times (or 6.1% of the time). Also, the overall lowest scoring scene (US) received a 3.08 mean while the overall highest scoring scene (SWE) received a 7.20 mean score.

### **Swedish movie vs. US movie**

After comparing results between the Swedish version and the US version, it became apparent that the Swedish version was perceived as being more expressive. Out of the 20 pairs of scenes, the overall mean score was higher for the Swedish version in 16 out of 20 scenes (80% of the time) while the US version scored higher only in 4 out of 20 scenes (20%). There were no equal mean scores per scene. The mean score per country was calculated, as can be found in Table 1:

Table 1: Mean score (per country)

Movie	Mean Score	Std. Deviation
SWE	5.33	1.05
US	4.53	0.80

As can be seen in Table 1, the Swedish scenes scored higher overall, besting the US version by 0.8 points on average. In order to produce an answer to the previously mentioned hypothesis, these results were statistically analyzed against a  $p < .05$  level and were found to be significantly different at  $p = .010$ . The standard deviation was

### Version A vs. Version B

Besides investigating the difference in scores between the countries, the dataset was also separated into two versions. Version A contained 11 males, 9 females with an average age of 35.4 years old while Version B contained 9 males and 11 females with an average age of 27.2 years old. Overall, 30 out of 40 scenes are graded higher in Version A (75%) of the time. Also, the highest scoring scene was found in Version A (7.4), while the lowest scoring scene was found in Version B (2.6) The mean scores per version can be found in Table 2:

Table 2: Mean score (per version)

Version	Mean Score	Std. Deviation
A	5.17	1.01
B	4.69	1.09

As can be seen in Table 2, Version A tested higher overall, outscoring Version B by 0.48 points on average. In order to find out if the difference between the versions was significant ( $p < .05$ ), an independent t-test was implemented and resulted in a significant score of  $p = .048$ .

### Male vs. Female

Finally, the participants were also divided on the basis of gender in order to figure out if there were important differences between men and women in the perception of measuring how expressive the two versions were. The highest overall score by a male (6.58) was over one point higher than the highest overall score by a female (5.60) while the lowest score by a female (3.65) was 0.43 points

lower than the lowest male score (4.08). The overall mean per gender can be found in Table 3:

Table 3: Mean score (per gender)

Gender	Mean Score	Std. Deviation
Male	5.01	0.57
Female	4.85	0.56

As can be seen in Table 3, male participants graded higher overall, scoring 0.16 points more on average than female participants. These results were also compared and tested for a significant difference ( $p < .05$ ) but the results showed that gender was not a significant factor ( $p = .278$ ). However, data minima and maxima showed that the extremes belonged to one of the genders, a male being the high scorer and a female the low scorer.

### Discussion

After conducting the perception test, it was possible to answer the research question and to support or reject our hypothesis. Findings of the conducted research support the following hypothesis: the Swedish version will be perceived as more expressive than the U.S. version. The participants perceived the Swedish version as more expressive than the U.S. version.

This result is in line with the literature. Sweden is a culture that is very feminine and the United States is a country that is considered to have a masculine culture. According to Fernández et al. (2000), these cultural differences are visible in the nonverbal expressiveness of that culture. Feminine cultures express more emotion compared to masculine cultures. These results suggest that even when a movie is replicated from one country, the cultural nonverbal aspects of that country will not be taken on board. Furthermore, research of Kraemer and Swerts (2011), suggested that acted emotions are “proto-typical” and (usually) stronger than spontaneous ones. Could this mean that the characters of the U.S. version did not act as much or as well? This could explain that they are less expressive than the actors in the Swedish version. More research is needed to be able to answer this issue.

### Conclusion

In this research, the aim was to answer the following research question: When comparing a Swedish movie to an equivalent American movie, which would show the most expressive emotions. From the findings of this research, it

can be concluded that the Swedish scenes are perceived as more expressive than the American scenes. Both movies represent the same story, however the executions of both movies are, nonverbally speaking, different.

### **Limitations and recommendations future research**

Although this research supports our hypothesis, it has several limitations, which may serve as recommendations for future research.

First, the significant difference between the score on expressive emotions may also lie in the fact that people may know the movies or had seen both movies before. This may have influenced their opinion of expressiveness of a particular scene. In future research, participants have to be asked if they know one of the, or both movies (or the book) and what their opinion is about that movie. One could suggest using this as a grouping variable and testing it against those who do not know the movies in order to test if previous knowledge is an important factor.

Second, in this research the sample size is relatively small. Therefore, the results cannot be generalized. For future research a larger sample will be needed in order to provide enough data on the topic. As a result, the findings can be projected onto the Swedes and Americans as groups.

Third, another aspect to take into account when conducting this research in the future is the nationality of the participants. Only people with a Dutch nationality participated in the perception test. For future research it could be interesting to have participants from different nationalities, or only the nationalities that the movies are from. In this case that would be American and Swedish participants. Moreover, it would be interesting to find out if there is actually a significant difference between masculine and feminine countries.

Fourth, a limiting factor could be that the participants were grading a movie, instead of real-life situations. It is known that acting is a tool that often coincides with exaggerated emotions in order to portray a story more compellingly. Also, this story contained a very negative atmosphere with occurrences such as rape and murder. For future research, it might be interesting to compare a comedy movie, to investigate if positive emotions are equally perceived per country.

Finally, the gender of participants was equally distributed. However, the sample contained people from different age categories. For future research, conducting among a larger sample group, it should be interesting to see if there are differences in the perception of emotion expression between people from several age categories.

### **References**

- Ekman, P. (1972). Universals and cultural differences in facial expressions of emotion. In J. Cole (Ed.), *Nebraska symposium on motivation, 1971* (pp. 207–282). Lincoln: University of Nebraska Press.
- Ekman, P. (1997). What we have learned by measuring facial behavior. In P. Ekman & E.L. Rosenberg (Eds.), *What the face reveals: Basic and applied studies of spontaneous expression using the Facial Action Coding System (FACS)* (pp. 469–485). New York: Oxford University Press.
- Elfenbein, H.A., & Ambady, N. (2002a). Is there an ingroup advantage in emotion recognition? *Psychological Bulletin, 128*, 243–249.
- Elfenbein, H.A., & Ambady, N. (2002b). On the universality and cultural specificity of emotion recognition: A meta-analysis. *Psychological Bulletin, 128*, 203–235.
- Fernández, I., Carrera, P., Sánchez, F., Paez, D., & Candia, L. (2000). Differences between cultures in emotional verbal and non-verbal reactions. *Psicothema, 12*, 83-92.
- Hofstede, G. (n.d.). Country comparison. Retrieved from <http://geert-hofstede.com/sweden.html>
- Krahmer, E., & Swerts, M. (2011). Emotions in communication. In: J. Westerink, M. Krans and M. Ouwerkerk (Eds), *Sensing emotions: The impact of context on behavioral and physiological experience measurements*. Philips Research Book Series, Vol. 12, Springer Verlag, Berlin Heidelberg
- Marsh A. A., Elfenbein H. A., Ambady, N. (2003). Nonverbal “accents”: Cultural differences in facial expressions of emotion. *Psychological Science, 14*, 373–376.
- Matsumoto, D., & Ekman, P. (1989). American-Japanese cultural differences in intensity ratings of facial expressions of emotion. *Motivation and Emotion, 13*, 143-157.
- Matsumoto, D. (2002). Methodological requirements to test a possible ingroup advantage in judging emotions across cultures: Comments on Elfenbein and Ambady and evidence. *Psychological Bulletin, 128*, 236–242.
- Mesquita, B., Frijda, N.H., & Scherer, K.R. (1997). Culture and emotion. In J.W. Berry, P.R. Dasen, T.S. Saraswathi, Y.H. Poortinga, & J. Pandey (Eds.), *Handbook of cross-cultural psychology: Vol. 2. Basic processes and human development* (2nd ed., pp. 255–297). Boston: Allyn & Bacon.
- Russell, J.A. (1994). Is there universal recognition of emotion from facial expression? A review of the cross-cultural studies. *Psychological Bulletin, 115*, 102–141.