



# Benefits and best practices of online facial expression analysis

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A white paper by Noldus Information Technology

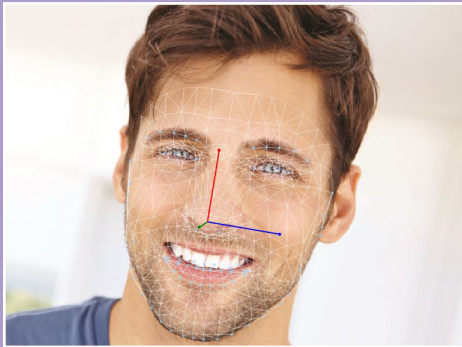
# WHAT IS FACEREADER ONLINE?

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FaceReader Online is a platform for facial expression analysis via the web. You can send your participants a link that will open a video in their browser. While they watch it on their own computer, anywhere and anytime, the webcam records their facial expressions. The service can easily be incorporated in a web-based survey. While the data is being collected, you can log into the platform and watch the results come in. The analysis is based on FaceReader software, which is used worldwide at more than 600 institutes (contact us for a free methodology white paper [1]). The results that FaceReader Online currently gives are six basic emotions and neutral, plus valence and arousal. This can be a valuable addition to your marketing research. This white paper is an extension to the already available leaflet on FaceReader Online [2] and goes into depth regarding the best practices and benefits.



# THE BENEFITS OF FACEREADER ONLINE IN A NUTSHELL



Based on widely used validated FaceReader technology.



Get quick results from a diverse population from all over the world.



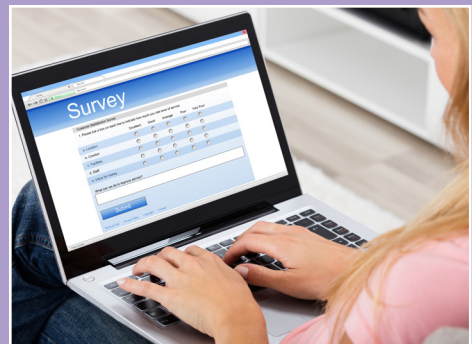
Run a study in a natural environment.



Get insights into implicit emotional processes.



Do cost-effective pretesting of your video materials.



Integrate it with your survey tool software.

# WHY USE FACIAL EXPRESSIONS?

## IMPLICIT MEASURES GIVE VALUABLE INSIGHTS

The world is full of messages that we cannot process consciously. However, often in survey research we ask people to comment on something afterwards, while this is not the usual way people process the information. In some cases, implicit processes can predict behavior better. For example, especially when people are uncertain about their decision or when they do impulse shopping, they are more influenced by implicit memory processes [3, 4]. It is therefore useful to also measure automatic responses of people while they experience something, in addition to asking them retrospectively.

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## EMOTIONAL IMPACT IS IMPORTANT

So many processes occur not entirely within conscious awareness. Especially information with emotional value has an impact on memory and decision-making. A structural modelling study argues that it is best to do this by measuring the affective non-verbal response instead of the cognitive response [5]. Furthermore, there is a relation between happy facial expressions and purchase intent and in-market performance [6, 7]. Thus, measuring if people are responding with laughter or frowns is a valuable addition to just asking whether they liked the commercial.

# WHY USE ONLINE MEASURES?

FaceReader Online allows testing to occur at home or another setting outside the laboratory (restaurant, school, office, etc.).

FaceReader Online allows testing to occur at home or another setting outside the laboratory (restaurant, school, office, etc.). These more natural environments can elicit a more 'real' emotional response. It also makes it possible to reach and compare a very broad audience, for example in different cities or countries.

When you do not have to invite participants to your lab/office, it becomes easier to get large numbers of participants. It saves costs, since you can let people do a short study and do not have to pay for travel expenses.

## LIMITATIONS OF ONLINE RESEARCH

There are also some limitations when doing online research. The quality of the recordings could be lower, due to bad lighting or low quality cameras. You do not control the setting, so camera position could also be suboptimal. It is likely that you will have to exclude more participants than in a lab study, but with the lower costs, you can easily compensate by inviting more participants. In addition, if you are interested in small and specific facial movements, you are better off inviting participants to your lab. Still, FaceReader Online can be ideal for testing your material before you run a lab study.



# HOW SHOULD I DESIGN MY STUDY?

A good FaceReader online study in a nutshell:

- Find a suitable research question
- Compare your results to a control video or group
- Find a good panel
- Give people clear instructions

Whether you are a market research company, a marketing agency, or a university researcher, you can find relevant questions to study with FaceReader Online. It is especially suitable for testing a commercial or other type of video. Some relevant questions are: What are reasons for high performing or low performing ads? What message works best for your brand? Are you reaching the right target audience? Which part of the video has the strongest emotional impact?

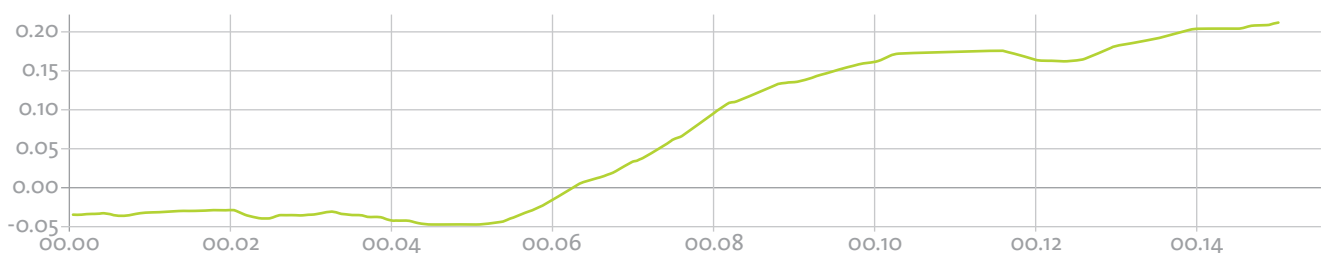
With FaceReader Online you can visualize the entire emotional journey that people experience while they watch the video. When you look at the valence (which combines happiness and negative emotions), you see the impact of the video with only one line. This is useful when applying the famous peak-end rule from psychologist Daniel Kahneman, which states that people usually remember the peak and end of an experience the best. In this example below, you see how this theory is successfully implemented, since people will end the commercial with a positive expression and memory.

## TRY TO FIND THE RIGHT COMPARISONS

Since there is a wide range of videos and commercials, make sure you create a good comparison. FaceReader Online has an easy to use comparison insight feature that highlights relevant differences between for example, a video or audience. For example, you can compare new and old videos to see the improvement over time. This way you can compare the effects of your message within the most suitable population.

Remember that, like many other implicit measures, facial expressions can be subtle. People respond differently to certain parts of a video, and

TEMPORAL VALENCE



Do you want to analyze expressions during, for example, a website visit or a survey? This is under development; feel free to contact us to discuss your requirements.

some people are very inexpressive in general, which means that average emotional scores can be low. However, when you make the right comparison relevant, differences are easily highlighted.

**COMPARISON INSIGHT - HAPPY**



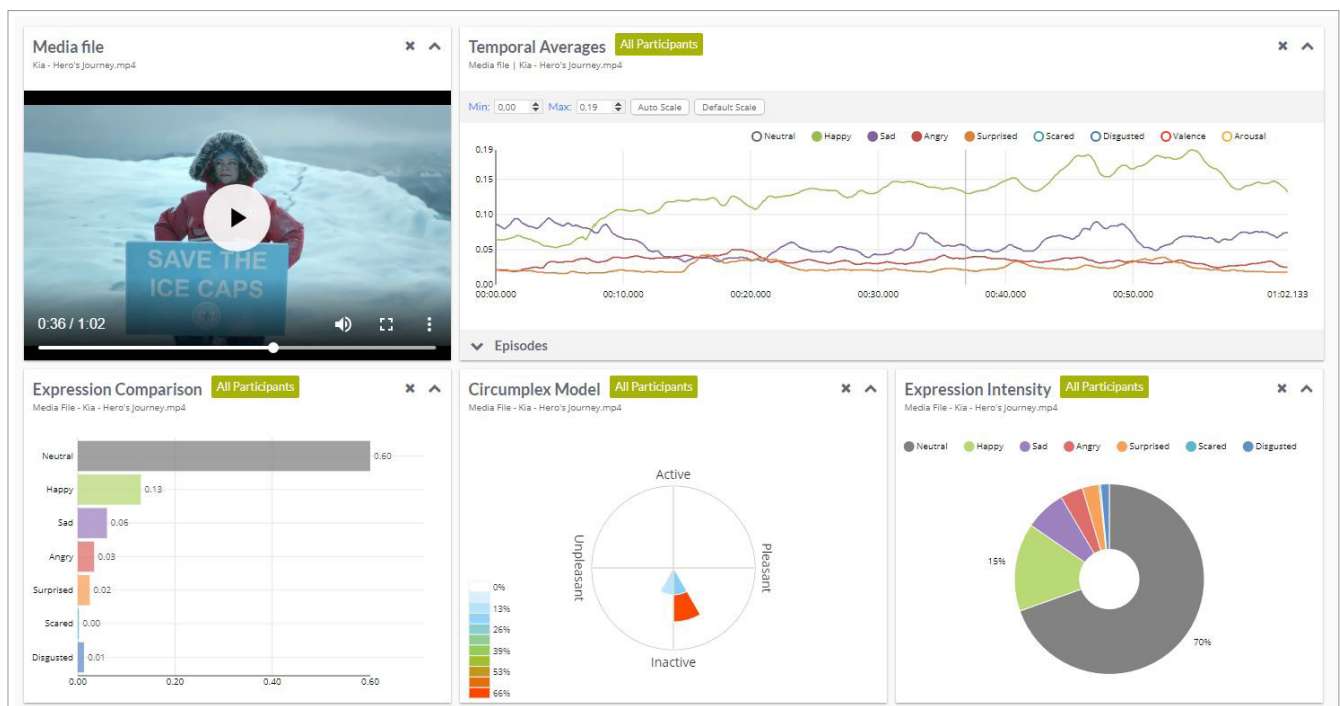
*The male participants respond more happy to the Alfa Romeo Commercial, compared to the female participants.*

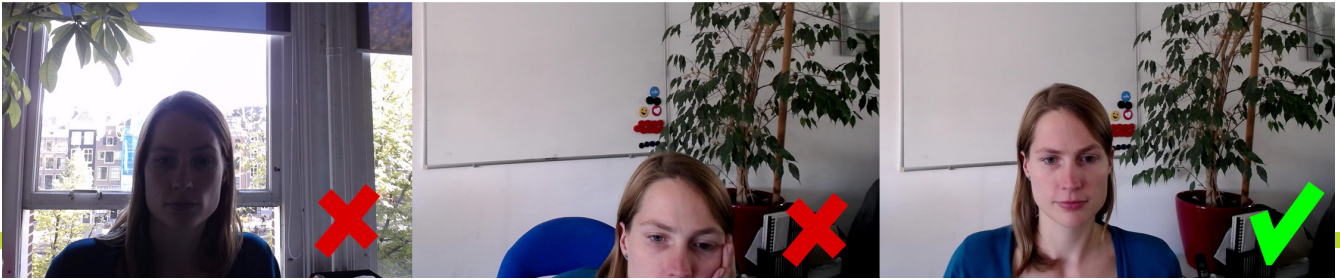
**TRY TO INSTRUCT THE PARTICIPANTS WELL**

Participating in a FaceReader Online study is very easy: participants do not have to install anything, but just have to give access to their camera. The video recordings are transferred via a secure connection to the FaceReader Online server. The recorder runs on HTML5, so it works with all modern web browsers. It also works on new Android devices; however, this is not optimal (e.g. due to the smaller screen and direction of camera).

To make sure you get a good recording, instruct your participants in advance. For example, strong back lighting should be avoided, or lighting from one side. Participant should also try not to move away from the camera, or be eating during the recording. FaceReader Online gives the recording a quality score based on the proportion of frames that could be analyzed.

*The output shows how the participants perceive a car commercial.*





*Examples of two bad recordings (left and middle photo) and one good recording (photo on the right).*

### **PRIVACY BY DESIGN**

Make sure you inform people well in advance of the study they will participate in. We include a standard informed consent before the camera is started. Our service is completely compliant with the European General Data Protection Regulation (GDPR). Nevertheless, not all participants may want to participate in a study where they are recorded. We also have a privacy by default design, where recordings are immediately deleted after analysis. In that case, no humans will ever see the recordings.

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Sound interesting? Go to [www.facereader-online.com](http://www.facereader-online.com) for more information and sample studies. You can also get a free trial account to see if it fits your project, just send an email to [info@humaninsightservices.com](mailto:info@humaninsightservices.com).



# REFERENCES

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