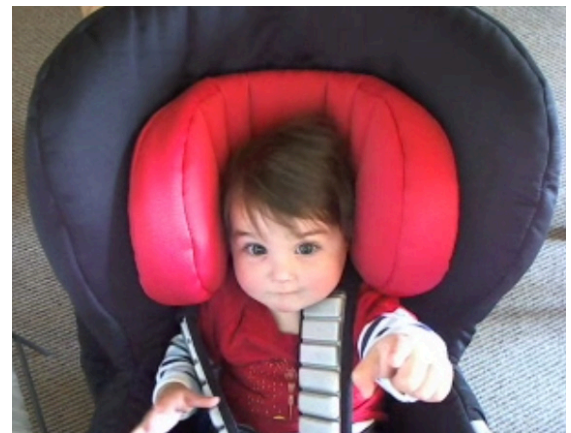
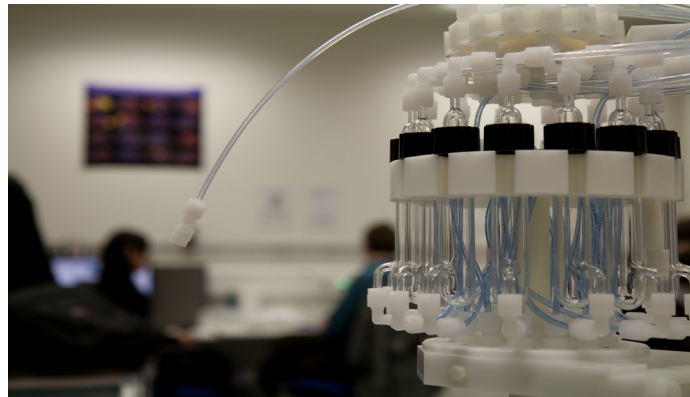


Affect & Emotion

Newsletter of the NCCR Affective Sciences

EMOTION,
ODOR AND
INTEREST



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EDITORIAL



MUSÉUM
D'HISTOIRE NATURELLE
NEUCHÂTEL

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Emotion in science and for society

The major aim of our National Center of Competence in Research (NCCR) in Affective Sciences is to conduct state-of-the-art research on emotion and related affective phenomena. The science that we produce is important for theories in many disciplines such as psychology, philosophy or neuroscience.

However, emotion is – of course – not only an important object of study for science. It is also a major phenomenon of interest for society. In the NCCR, we do our best to connect the scientific study of emotion to the importance of emotion for society. Let me give two examples of how we conceive such links.

First, we aim at developing research partnerships with private companies who are interested in better understanding emotion. In this respect, we enjoy a very fruitful and fascinating collaboration with Firmenich - an international producer of perfumes. As described in this Newsletter, this project has managed to bring results both for fundamental theory and real-life applications.

Second, we aim at providing the general public with talks and exhibitions concerning emotions. We are thrilled to announce that in the context of a close and exciting collaboration with the Muséum d'Histoire Naturelle de Neuchâtel, a new exhibition dedicated to emotion will soon take place. The exhibition EMOTION will open its doors on November 30, 2014, and we very much look forward to sharing our emotions with you at the Muséum! ■

David Sander

RESEARCH FOCUS



Exploring the emotions of smell

Interview with Dr Sylvain Delplanque

Whether it's the aroma of fresh bread, the stench of rotting meat, or a favourite perfume, the smells we experience play an important role in our emotions. Since 2005, the EmOdor project at NCCR Affective Sciences has investigated this fascinating area with the aim of gaining a better understanding of the mechanisms that link smell to emotion. Through a long-standing collaboration with Firmenich - an international producer of perfumes - the project has managed to strike a valuable balance between fundamental theory and real-life applications.

One of the major outcomes of the project has been the Emotion and Odor Scales (EOS). These are the first empirically tested scales to categorize and measure the feelings elicited by smell. Previous research had simply scored reactions with ratings of pleasantness, but the EOS scales have identified nine categories to describe the feelings elicited by smell. Due to the cultural and linguistic variation in our emotional response, the scales have been constructed and tested in six countries.

"It was really a huge amount of work," said Senior Researcher Sylvain Delplanque. "It involved collaborating with numerous universities, translating the affective terms into four languages, transporting the materials and odours to different countries and analysing all the data... but it was definitely worth it. For us it has helped to answer fundamental scientific questions and statistically demonstrate that smells elicit these different feelings, whilst for Firmenich it provides a valuable tool to measure the feelings experienced by their consumers in different cultures."

The research found that some feelings elicited by smell are universal, such as unpleasant feelings, happiness, sensuality and peacefulness, whilst others were more culture specific. For example, in Singapore feelings of spirituality were often linked to smell because the scent of incense is associated with temples and religion. Based on their findings the research team has proposed a universal scale (UniGEOS) for future study that comprises categories of feelings that are culturally shared along with several culture-specific aspects.

Alongside the magnum opus of the EOS scales, the EmOdor project has several other intriguing studies underway. Using the facilities at the Brain and Behaviour Laboratory, the researchers have conducted a series of studies on physiological reactions to smells by measuring heart rate, sweating and respiration rate, as well as using Electroencephalography

(EEG) and functional magnetic resonance imaging (fMRI) to assess brain activity. From a scientific point of view, the research group is hoping to identify the sequence of processing steps that occur when smell provokes emotion. Whilst, from a practical point of view, Firmenich is aiming to find more objective ways to measure our responses to smells.

So far the research has indicated that these physiological measures can only discriminate between smells that are very different in nature, for example between a skunk and a rose, but cannot differentiate more subtle variations between say two brands of perfume. Therefore, response differences between smells are now being explored through alternative methods such as thermographical cameras to measure temperatures in the face.

Direct and open communication between Firmenich and the NCCR Affective Sciences is at the heart of their successful relationship, alongside a mutual passion for improving knowledge. Over the last 12 years, the collaboration has led to the development of new facilities and technology, such as a metal-free olfactometer that can deliver over 28 different smells within an fMRI scanner and the first virtual reality olfaction center.

"We are the first center in the world to study such a variety of controlled smells inside a virtual reality room," says Delplanque. "This was thanks to our collaboration with Firmenich, who provide the expertise in dispensing and controlling odours. Smells are very complex stimuli and we cannot make them simply appear and disappear like pictures or images. So together we are developing new techniques and facilities to conduct our research."

Due to the multi-faceted nature of smell the EmOdor project is also investigating more psychological questions. Researchers are exploring both our behavioural reactions and our brain activity when our attention is captivated by a smell. They are also investigating reward mechanisms to try and distinguish between 'liking', which is based on pure pleasure, and 'wanting', which has a more motivational basis, such as hunger. "We are fortunate that the fundamental questions we explore also have very practical implications to our partners in Firmenich," says Delplanque. "I think it is this win-win situation that makes the collaboration so successful, alongside the pooling together of our expertise and resources." ■

INTERVIEW



What's so interesting about interest?

Prof. Fabrice Clément

It could be an insightful exercise to count how many times we say 'that's interesting' in one day. The phrase is commonly used to describe how we feel about certain discoveries, facts, objects, cultural events and even people. But how do we express interest other than verbally and, perhaps more 'interestingly', how does society influence our development of this emotion?

These are some of the questions the research project 'Interest in the Making' at the NCCR Affective Sciences is trying to answer. Project leader Fabrice Clément sits at the nexus of philosophy, social science and cognitive psychology and is drawing on all these disciplines to inform the research. The project is already providing fascinating insights into this area, and potentially revealing new approaches to the study of emotions.

One of the project's major challenges is establishing how we express interest and if it differs from our expression of other emotions. Initially, Clément adopted an approach based on the classical research methods of Ekman, using still photographs of people demonstrating interest. However the researchers soon discovered that people found it difficult to both display interest in a static facial expression and to recognise it from a still photograph. Fortunately, to capture the still photographs the researchers had taken short videos and by using these six-second clips of footage they found it was much easier for participants to identify interest and differentiate it from other emotions.

"I think there has to be more visual context to understand what is going when someone is showing interest," says Clément. "It's quite a complex and systematic expression that seems to be a combination of facial movements, eye gaze and a forward motion of the head whilst also leaning to one side. It could be that research into other emotions might also benefit from using video and more dynamic materials."

Having demonstrated that interest can be recognized from a dynamic film, the research team has collected an impressive amount of video data of peoples' faces when expressing interest. While being filmed, the participants reported their level of interest and there is now work underway by Anil Yuce at the Ecole Polytechnique Fédérale de Lausanne to develop a system that can automatically recognize a pattern of interest in a person's facial expression. To this end he has created an algorithm to represent the geometrical pattern of facial expressions with color dots. By correlating the patterns

with the reported level of interest, Clément hopes they can distinguish a standardized expression of interest. This has important implications for research, but also for a potential application in marketing in order to automatically identify interest towards different products

"This line of research is looking very promising," says Clément. "But it may take some time before it yields a standard expression that we can use. As such we've started some research in parallel, investigating the development of interest in babies and building on a theoretical paper."

Published with Daniel Dukes in *Frontiers in Behavioural Neuroscience*, the paper outlines the role of social influences in the early developmental stages of interest. It proposes that infants shift from using a mechanism of joint attention to social referencing and later social appraisal. "We are trying to identify the different stages using eye gazing technology to see how babies react to an adult expressing interest towards an object," explains Clément. "So far our results have indicated that at around 12 months of age there is a shift from a mechanism of joint attention, when babies simply gaze at the object towards which the adult is showing interest, to a more 'affective' form of attention when they look back and forth between the object of interest and the adult. Our next step is to assess whether, if an adult shows interest in an object, it will trigger curiosity in the babies. The goal is to show that the interest shown by another person is contagious and that babies can assess this level of interest to inform their behaviour, which we call social appraisal."

Alongside providing the concept of interest with a theoretical and empirical anchor, the project is also considering various applications of their work. One of the potential areas is the use of video clips to assess levels of interest; for example clinicians could analyse short videos of babies to inform the early diagnosis of developmental conditions such as autism where children have difficulties perceiving the emotions of others. Clément also hopes that a firmer understanding of interest will provide insight on how and why this emotion waxes and wanes in later life, particularly with those suffering depression. "It's a very new area of research," says Clément. "And requires input from many disciplines to answer some fundamental theoretical and methodological questions, but we are already thinking of how our findings could help to answer some important practical questions surrounding interest in everyday life." ■

NEWS

Grants received

Guillaume Chanel, Patrizia Lombardo, Thierry Pun (project Movie Highlights Detection) obtained an SNSF grant to work on emotional and aesthetic highlights detection on movies. May 2014 to April 2016.

Nicola Jacobshagen (project Work & Emotions: Experiencing and Regulating Emotions, Issues of Self-involvement, and Relationships to Well-being and Performance) was appointed for a W3-professorship substitution (6 months) at the University of Konstanz, Germany. April, 2014.

Swann Pichon obtained in August 2013 an SNFS Ambizione grant to work on the understanding of the mechanisms by which violent but also prosocial videogames may impact emotion processing and prosocial behavior (August 2013-July 2016).

David Sander (project Affective Relevance: Nature, Determinants and Effects) received the grant "Affective Sciences and Energy Efficiency", in the context of the Swiss Competence Center for Research in Energy, Society and Transition (CREST).



Franziska Tschan, Norbert K. Semmer and S. Marsch (Project Work & Emotions: Experiencing and Regulating Emotions, Issues of Self-involvement, and Relationships to Well-being and Performance) received an SNSF grant. It focuses on interventions that improve focusing attention on relevant aspects of both "task work" and "team-work", and therefore is expected to help dealing with stress. ■

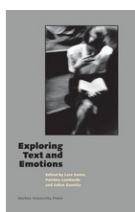
Major achievements

Julien Deonna and Fabrice Teroni (Project Emotion, Attention & Value) have been invited to give a Royal Institute of Philosophy Lecture in Durham on May 21, 2014.



Norbert K. Semmer (Project leader of the project Work & Emotions: Experiencing and Regulating Emotions, Issues of Self-involvement, and Relationships to Well-being and Performance) retired at the end of January. He has also been appointed as a "Scholar in Residence" by the faculty of the Behavioral and Organizational Sciences Division of Claremont Graduate University. The appointment will take effect in the fall of 2014. ■

New book



Edited by Patrizia Lombardo, Lars Sætre and Julien Zanetta.

Exploring Text and Emotions, Aarhus: Aarhus University Press, 2014

<http://www.uib.no/fg/teksthandlingrom/63086/new-tas-volume-exploring-text-and-emotions> ■

Completed PhDs

Chaohui Guo successfully defended her PhD thesis on the "Neuroeconomics of Charitable Giving and Learning" on 6 February 2014 under the direction of Ernst Fehr.

Federico Lauria successfully defended his PhD thesis on "The Logic of the Liver. A Deontic View of the Intentionality of Desire" on 14 February 2014 under the direction of Julien Deonna and Gianfranco Soldati.

Julia Seelandt successfully defended her PhD thesis on "Making Surgery Better" on 28 February 2014, under the direction of Franziska Tschan

Julien Zanetta successfully defended his PhD thesis on "Baudelaire, la Mémoire et les Arts" on 20 June 2014 under the direction of Patrizia Lombardo. ■

NEWS

Upcoming events

Pas de panique (March 8- July 6, 2014)
Together with colleagues in psychiatry at the Geneva University Hospital, Patrik Vuilleumier (project Brain Networks of Emotions and their Influence on Cognitive processes) organized a public exhibition on fear in health and disease, entitled "Don't panic". This exhibit will then move to Zurich.



Colloque international francophone sur la formation supérieure à l'heure du numérique (October 17-18, 2014). This event explores how ICT (information and communication technology) has promoted new ways of learning and teaching from a cognitive, social and affective point of view. One of the topics includes emotion in distance or blended education. <http://tecfa.unige.ch/tecfa/colloque2014/>



International Summer School in Affective Sciences (ISSAS 2014) (6-14 July, 2014). The sixth ISSAS will take place at the Château de Bossey, bringing together leading scholars working at the intersection of action and emotion research (www.affective-sciences.org/issas).

All too human - 20th and 21st century artists and suffering (May 7, 2014 to January 4, 2015). For this exhibition by the International Red Cross and Red Crescent Museum in collaboration with the MAMCO (Musée d'Art Moderne et Contemporain de Genève), the NCCR Affective Sciences has organized seven conferences on suffering and emotion to take place in October 2014. <http://www.redcrossmuseum.ch/en/exhibitions/temporary/on-view>



Montreux Jazz Festival (July 11, 2014). The NCCR Affective Sciences will organize two workshops on Music and Emotion, one of them in collaboration with the Haute Ecole de Musique de Genève (HEM). <http://www.montreuxjazzfestival.com/fr/programme14/gratuit>



Autumn School on the Assessment of Emotional Competence (October 23-29, 2014). Klaus Scherer organized this school in Ghent in collaboration with the European Association of Psychological Assessment <http://www.eapa-homepage.org/upcoming/>

Epistemic Emotion Workshop (August 24-25, 2014). A two-day interdisciplinary workshop on epistemic emotions organized jointly by Thumos and Phrontis <http://www.unige.ch/lettres/philo/thumos/Thumos/Phrontis.html>

Seneca's tragic passions: Philosophical and literary perspectives (October 10-11, 2014). An international colloquium organized by Damien Nelis (project The translation of the Emotions: From Greece to Rome) at the Fondation Hardt, Vandoeuvres <http://www.fondationhardt.ch/fr/>

EMOTIONS (November 30, 2014-June 2015). The NCCR Affective Sciences has developed in close collaboration with the Museum of Natural History of Neuchâtel an important exhibition on emotions that will be inaugurated on November 30, 2014. www.museum-neuchatel.ch ■

Social Media

Cristina Soriano wrote a blog entry on the meaning of emotion words across languages and cultures. <http://blog.oup.com/2014/02/emotion-words-across-language-culture/>

D. Bombari and M. Schmid filmed short videoclips (IMPACTalks) in which a member of the lab presents in simple words one of their studies. The videos are available online www.unine.ch/ipto_talks and through Youtube, Facebook, and the website of the University of Neuchatel.

Follow us on Twitter : @NCCRAffectiveScience ■

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Affect & Emotion

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