

Annual Meeting of the Jean Piaget Society

May 31 - June 2, 2018, Amsterdam, The Netherlands

Symposium Submission Form

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<http://uvic.fluidsurveys.com/s/jps2018symposium/02f251e6f717b5409e6c50aba77e90cdf2ca238/>

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Submission Deadline: 15 December 2017

Submissions need not address the conference theme.

We welcome submissions on any topic in the study of knowledge and development. See: www.piaget.org

ABOUT SYMPOSIUM SESSIONS

Symposium proposals (75-90 minutes) should describe 3-4 presentations organized around a single topic. Symposium sessions will have a named organizer who may serve as moderator, and may include a named discussant who will comment on the presented papers. A symposium proposal should include a 400 word abstract (for publication in the conference program), and a 1500 word summary (for the program review committee) that describes each of the presentations and the session as a whole.

GENERAL SUBMISSION NOTES

Proposals will be accepted in English only. Acknowledgement of the receipt of your submission will be sent by e-mail to the corresponding author. The Program Committee will notify those submitting proposals of its decision in February, 2018. Details regarding the scheduling of accepted submissions will be sent in March, 2018.

RULES AND RESTRICTIONS

All presenters must register for the meeting.

Individuals may not be the *presenting* author (i.e., first author) on more than two presentations.

Presentations must not have been presented at any other meeting having the same general audience as the Jean Piaget Society.

In submitting this proposal the presenting authors agree as follows:

"If this proposal is accepted, I agree to present the paper personally or to make arrangements for another person to present it at the 48th Annual Meeting of Jean Piaget Society in Amsterdam, The Netherlands, May 31 - June 2, 2018."

If you have trouble with this form, contact Chris Lalonde (webmaster@piaget.org)

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(notices regarding this submission will be sent to the corresponding author)

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Keywords

(please choose ONE keyword from each of the following lists)

Keyword 1

Infancy

Keyword 2

Cognitive development

Keyword 3

Self/identity

Symposium Title Abstract

Symposium Session Title

Self-development in infancy: How does contingent sensorimotor experience shape body knowledge, agency and action mirroring?

Abstract

maximum 400 words covering the session as a whole for inclusion in the conference program

How the self develops in relation to one's own body, the world and to others during the first years of life poses one of the most challenging questions for our field. This development is a complex and nonlinear process, involving the combination of several building blocks ranging from multisensory integration to imitation. So far, the constituent capacities have mainly been investigated separately, making it difficult to answer how the different aspects of self-development relate to each other, and how the self arises from their interplay.

In this symposium, we argue that investigating the individual building blocks of self-development from the perspective of sensorimotor experience could unify the hitherto largely independent streams of discussion. We bring together researchers who investigate the mechanisms of various aspects of self-development. Their research focuses on the interactive dynamics between the infant and their physical or social environment. All four speakers have pushed sensorimotor experience research to the next level by employing novel paradigms or using state-of-the-art techniques. Each presenting author will challenge her research topic – agency, body knowledge and action mirroring – with the questions: how does contingent sensorimotor experience shape that particular aspect of self-development, what are the explanatory limitations of the sensorimotor experience perspective and how can different aspects of self-development be unified?

First, Lisa Jacquey will discuss her results on contingency detection and body knowledge acquisition in infants between 4 and 8 months of age. The topic of body knowledge is considered further by Dr Maria Laura Filippetti. She will present her research on own face recognition, focusing on multisensory integration in newborns and on mirror self-recognition in 18-month-old infants. Lorijn Zaadnoordijk will present a critical stance towards mere contingency detection through her work on the emerging sense of agency, in which she measured the ability of 3- to 4.5-month-old infants to predict the consequences of their own actions. Finally, Dr Carina de Klerk will present her investigation on mimicry, as measured by EMG recordings, and its link with social contingencies in 4-month-old infants.

These presentations of state-of-the-art research demonstrate the ongoing primacy of contingent sensorimotor experience for various aspects of self-development, but also add a critical view regarding its explanatory value to these developmental processes. The arising overall picture provides additional insight in and new perspectives for each individual domain – outlining future directions for research into self-development in light of sensorimotor experience and beyond.

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Emerging Scholar Awards

Pete Pufall Emerging Scholar Travel Awards

Pete Pufall Student Travel Awards We are pleased to offer two travel awards of US\$400 each plus free conference registration to two Emerging Scholars.

The Domestic Award is for students/post docs studying at a university in the USA

The International Award is for students/post docs studying at a university outside the USA. These awards are made possible by a generous gift from the Pufall Family. To be eligible, the first author (presenting author) must be a graduate student or post-doctoral fellow. If the first author (presenting author) of this submission is a graduate student/post-doctoral fellow and would like to be considered for a Pufall Student Travel Award, please enter their name and e-mail address below.

Name

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Developmental Contemplative Science Travel Award

In a continuation of initiatives stemming from the JPS pre-conference in 2012 on Developmental Contemplative Science, we are pleased to offer two outstanding emerging scholars a travel award of \$400 each plus a waiver of conference registration. Submissions must come from a current graduate student or post-doctoral student, domestic and/or international, and must be broadly relevant to the study of contemplative practices (e.g., mindfulness, meditation, compassion) in human development.

If you wish to be considered for a Developmental Contemplative Science Travel Award, please include your name and e-mail in the space below.

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Paper 1

Paper 1 Title

Using sensorimotor contingencies as a tool to investigate body knowledge in early infancy

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Paper 2

Paper 2 Title

Just before I recognize myself: the role of multisensory and featural cues leading up to self-recognition

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The role of contingent sensorimotor experience in the development of action mirroring in infancy

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Symposium Session Summary for Review Committee

Maximum 1500 words, please do not include author names in the summary. Full bibliographic references are not required. Tables and figures are not supported in the submission process. If you feel that tables or figures are essential to the evaluation of your proposal, please contact webmaster@piaget.org.

Summary for Review

- General introduction -

How the self develops in relation to one's own body, the world and to others during the first years of life poses one of the most challenging questions for our field. This development is a complex and nonlinear process, involving the combination of several building blocks ranging from multisensory integration to imitation. So far, the constituent capacities have mainly been investigated separately, making it difficult to answer how the different aspects of self-development relate to each other, and how the self arises from their interplay.

In this symposium, we argue that investigating the individual building blocks of self-development from the perspective of sensorimotor experience could unify the hitherto largely independent streams of discussion. We bring together researchers who investigate the mechanisms of various aspects of self-development. Their research focuses on the interactive dynamics between the infant and their physical or social environment. All four speakers have pushed sensorimotor experience research to the next level by employing novel paradigms (e.g., an infant-appropriate rubber-hand-illusion type of paradigm) or using state-of-the-art techniques such as EEG and EMG. Each presenting author will challenge her research topic – body knowledge, agency and action mirroring – with the questions: 1) how does contingent sensorimotor experience shape the particular aspect of self development, 2) what are the limitations of the sensorimotor experience perspective, and 3) how can different aspects of self-development be unified?

- Paper 1 -

In the first talk, Lisa Jacquey will present her work on the interaction between sensorimotor contingency detection and body know-how in infants between 4 and 8 months of age. In her study, she aimed to test how infants progress in their ability to detect contingencies and to what extent infants at these ages are able to narrow down a contingency to the specific limb involved. To answer these questions, she designed a computerized version of the mobile paradigm in which the infant has to detect the contingency between the activity of one of its arm and a visual and auditory stimulus displayed on a screen. To measure the ability of infants to detect contingencies she compared the experimental group to a control group that was exposed to the same stimulation, but where the stimulation was not contingent on the infant's body activity. In the experimental group she compared the activity of both arms to measure the ability of infants to narrow down the contingency to the specific limb.

Surprisingly, she found that during development infants actually decrease in their ability to detect the used contingency. She thinks the reason may be that older infants are stricter in their sensitivity to contingencies because they have developed stronger priors on the possible contingencies they could encounter: a contingency between arm movements and movements on a screen is not something they are looking for at 8 months, whereas at 4 and 6 months, they are ready to be sensitive to any contingency. In line with this idea, she predicts that if she includes only those infants in the analyses who at 8 months of age happen to have actually detected the contingency, then she should find that they are able to narrow it down to the specific limb.

- Paper 2 -

In the second talk, Maria Laura Filippetti will shed further light on the role of sensorimotor contingencies for the developing body awareness. Leading up to explicit mirror self-recognition, infants rely on two crucial sources of information: the continuous integration of sensorimotor and multisensory signals, and the unique facial features associated with the self. Research on the developmental mechanisms involved in self-awareness seems to suggest that the maturation of multisensory contingency precedes recognition of visual appearance (Lewis and Brooks-Gunn, 1979). Nevertheless, the relation between these two mechanisms in the developmental phase preceding self-recognition remains poorly understood.

In her talk Maria Laura Filippetti will first focus on how multisensory integration, and particularly the integration of visual and tactile signals, might represent critical bottom-up information necessary for infants to shape their perception of their own body as belonging to themselves. Specifically, she will present some evidence of behavioural and neural precursors of body awareness in newborns and young infants, pointing to the crucial role of multisensory integration. Second, she will discuss recent findings on the role of facial appearance in mirror self-recognition. In her present study, 18-month-old infants saw side-by-side pictures of themselves and a peer, which were systematically and simultaneously touched on the face with a hand. She measured the preferential looking behaviour of infants, while their own face was touched either in synchrony or out of synchrony. Subsequently, the infants underwent the mirror-test task. She demonstrated that infants who were coded as non-recognisers at the mirror-test spent significantly more time looking at the picture of their own face compared to the other face, irrespective of whether the multisensory input was synchronous or asynchronous.

Her results suggest that right before the onset of mirror self-recognition, featural information about the self might be more relevant in the process of recognising one's face, compared to multisensory cues.

- Paper 3 -

In the third talk, Lorijn Zaadnoordijk will present work on the emerging sense of agency, which is considered to be a crucial milestone of early sociocognitive development. She has a critical view towards mere contingency detection as measure of agency and therefore tested whether infants can build the necessary model of causal action-effect relations as shown by their ability to predict the consequences of their actions. She focused on indicators of a violation of their expectation when the action-effect ceased to exist. Specifically, she hypothesized that if infants built a causal model, she would observe a mismatch negativity event-related potential locked to the moment that the infant would expect the omitted effect as well as an extinction burst, i.e., an additional increase in movement frequency after the action-effect contingency was discontinued.

Three- to 4.5-month-old infants were tested in a computerized version of the mobile paradigm, in which infants have to detect the relation between their movement and a subsequent audiovisual stimulus. She recorded neural (EEG) and movement measures. Her results suggest that only a subset of infants display a violation of expectation in the neural data, as measured by a mismatch negativity response. These infants also demonstrated a violation of expectation in the behavioral data, indicated by an extinction burst. The infants who displayed a violation of expectation in the neural data were also those who had built a more limb specific causal model: they showed a more pronounced extinction burst for the arm that triggered the effect. These neurobehavioral analyses demonstrate that 3- to 4.5-month-old infants are starting to accurately detect the causal action-effect relation and provide the first electrophysiological evidence for the emergence of a sense of agency.

- Paper 4 -

Finally, in the fourth talk, Carina de Klerk will expand the perspective of self-development through contingency detection to the social domain by focusing on mimicry, i.e., the tendency to spontaneously and unconsciously copy others' actions. The dominant view on the neural basis of mimicry appeals to a coupling between perception and action formed through associative learning during contingent sensorimotor experience. In this talk Dr de Klerk will first present work that provides support for this idea by showing that perceptual-motor couplings can be formed through observing one's own actions (de Klerk et al., 2015) and imitative social partners. Moreover, recent studies with adults have demonstrated that mimicry is flexibly modulated by social signals, such as eye contact, which led her to also investigate whether mimicry is modulated by social signals from early in life.

In her current study, she presented twenty-eight 4-month-old infants with videos of models performing facial actions (e.g. mouth opening, eyebrow raising) accompanied by direct or averted gaze, while she measured activation over the corresponding muscle regions using electromyography (EMG) to obtain an index of mimicry. She found that 4-month-olds only showed evidence of mimicry when they observed facial actions accompanied by direct gaze. In addition, twenty-seven of these infants also participated in a face-to-face interaction session with their mother from which the amount of maternal imitation was coded. The results showed that the mothers' tendency to provide contingent sensorimotor experience by copying their infants' facial actions during the face-to-face interaction session was related to the infants' facial mimicry behaviour during the EMG experiment. Together her finding suggest that mimicry is supported by perceptual-motor couplings that are formed through contingent sensorimotor experience, and that one of the hallmarks of mimicry – that it is modulated by social signals – is apparent from at least 4-months of age.

- General conclusion -

These presentations of state-of-the-art research demonstrate the ongoing primacy of contingent sensorimotor experience for various aspects of self-development, but also add a critical view regarding its explanatory value to these developmental processes. The arising overall picture provides additional insight in and new perspectives for each individual domain – outlining future directions for research into self-development in light of sensorimotor experience and beyond.