

*37th Annual Meeting of
The Jean Piaget Society
Amsterdam, The Netherlands
31 May – 2 June, 2007*

*Developmental Social
Cognitive Neuroscience*



*Aedes Orphanorum, et Pons fluvii Amstel
Amstellodami*

*3^e VUE D'OPTIQUE
Représentant*

*La Maison des Orphelins et le Pont de l'Amstel
à Amsterdam*

A Paris chez D'Annonciat rue St Martin

Program Organizers: Philip David Zelazo, Michael J Chandler, Eveline A Crone

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The 37th Annual Meeting of the Jean Piaget Society

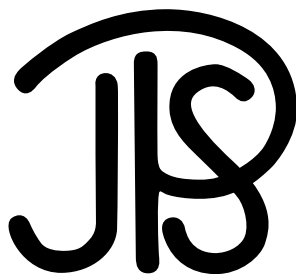
Developmental Social Cognitive Neuroscience

Amsterdam, 31 May — 2 June 2007

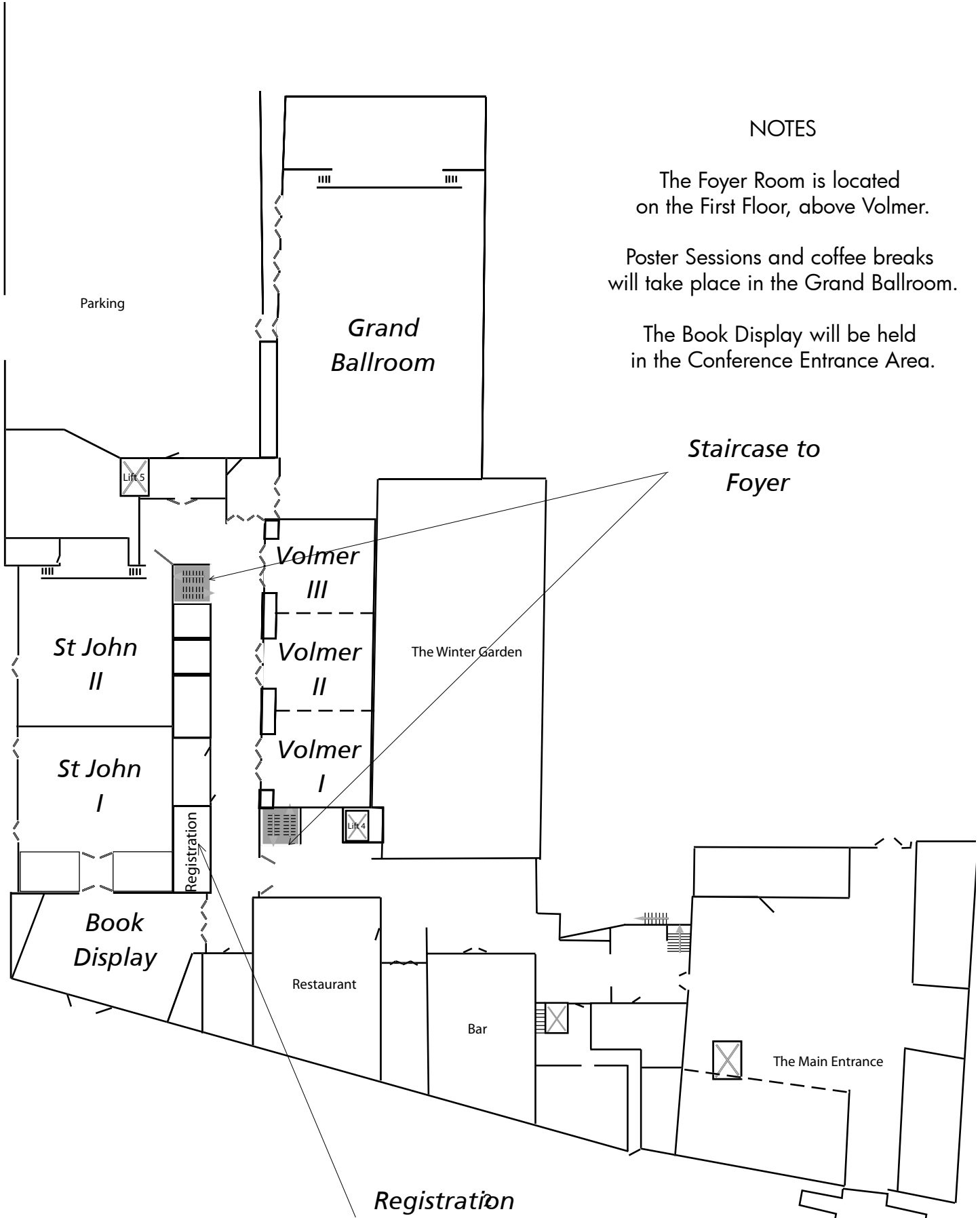
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Hotel Floor Plan



NOTES

The Foyer Room is located on the First Floor, above Volmer.

Poster Sessions and coffee breaks will take place in the Grand Ballroom.

The Book Display will be held in the Conference Entrance Area.

Conference Overview

| THURSDAY | Ballroom | Foyer | Volmer I | Volmer II | Volmer III | St John I | St John II |
|-----------------|---|--------------|-----------------|------------------|-------------------|------------------|-------------------|
| 9:00-9:15 | OR | | | | | | |
| 9:15-10:30 | PL01 | | | | | | |
| 10:30-10:45 | Break | | | | | | |
| 10:45-12:00 | | SY01 | PS01 | PS02 | PS03 | SY02 | IS01 |
| 12:00-1:00 | Lunch | | | | | | |
| 1:00-2:15 | | SY03 | SY04 | PS04 | SY05 | PS05 | IS02 |
| 2:15-2:30 | Break | | | | | | |
| 2:30-3:45 | PLO2 | | | | | | |
| 3:45-4:00 | Break | | | | | | |
| 4:00-5:00 | | SY06 | SY07 | PS06 | SY08 | SY09 | SY10 |
| 5:00-5:15 | Break | | | | | | |
| 5:15-6:30 | | SY11 | PS07 | SY12 | PS08 | SY13 | IS03 |
| 6:30-7:30 | REC1 — President's Reception (Grand Ballroom) | | | | | | |

| FRIDAY | Ballroom | Foyer | Volmer I | Volmer II | Volmer III | St John I | St John II |
|---------------|---|--------------|-----------------|------------------|-------------------|------------------|-------------------|
| 9:00-10:00 | | SY14 | SY15 | SY16 | SY17 | PS09 | SY18 |
| 10:00-10:30 | Break | | | | | | |
| 10:30-11:45 | PLO3 | | | | | | |
| 11:45-1:00 | Lunch (Annual Member's Meeting—Grand Ballroom— 12:00-12:30) | | | | | | |
| 1:00-2:15 | | SY19 | PS10 | PS11 | PS12 | PS13 | IS04 |
| 2:15-2:30 | Break | | | | | | |
| 2:30-3:45 | PLO4 | | | | | | |
| 3:45-4:00 | Break | | | | | | |
| 4:00-5:00 | | SY20 | SY21 | SY22 | PS14 | SY23 | SY24 |
| 5:00-5:15 | Break | | | | | | |
| 5:15-6:30 | | PS15 | PS16 | DS01 | PS17 | SY25 | IS05 |

| SATURDAY | Ballroom | Foyer | Volmer I | Volmer II | Volmer III | St John I | St John II |
|-----------------|---|--------------|-----------------|------------------|-------------------|------------------|-------------------|
| 9:00-10:00 | | DS02 | SY26 | PS18 | SY27 | SY28 | SY29 |
| 10:00-10:30 | Break | | | | | | |
| 10:30-11:45 | PLO5 | | | | | | |
| 11:45-1:00 | Lunch | | | | | | |
| 1:00-2:15 | PT01 | PS19 | SY30 | | | | IS06 |
| 2:15-2:30 | Break | | | | | | |
| 2:30-3:45 | | SY31 | PS20 | SY32 | SY33 | SY34 | SY35 |
| 3:45-4:00 | Break | | | | | | |
| 4:00-5:00 | | SY36 | SY37 | PS21 | SY38 | PS22 | SY39 |
| 5:00-5:15 | Break | | | | | | |
| 5:15-6:30 | PT02 | SY40 | SY41 | | | | IS07 |
| 6:30-7:30 | REC2 — Closing Reception (Grand Ballroom) | | | | | | |

Program Overview—Thursday

| Time | Location | ID | Event |
|-------------|------------|------|---|
| 8:30-5:00 | | | Registration (Conference Desk) / Book Display |
| 9:00-9:15 | Ballroom | OR | Opening Remarks: JPS President and Program Organizers |
| 9:15-10:30 | Ballroom | PL01 | Plenary Session 1: Vittorio Gallese — From mirror neurons to intersubjectivity: A neuroscientific perspective on social cognition |
| 10:45-12:00 | Foyer | SY01 | Symposium Session 1: A 'Day in the Life': Studying strong children in diverse global communities: An ecological approach |
| | Volmer I | PS01 | Paper Session 1: Cognitive development |
| | Volmer II | PS02 | Paper Session 2: Development of mind, self, and personality |
| | Volmer III | PS03 | Paper Session 3: Moral development I |
| | St John I | SY02 | Symposium Session 2: On Time in Self, Culture and Development |
| | St John II | IS01 | Invited Session 1: Agency and Intentional Action |
| 1:00-2:15 | Foyer | SY03 | Symposium Session 3: Norms and neurons: Rethinking the role of social interaction in the development of executive function |
| | Volmer I | SY04 | Symposium Session 4: Semiotic systems and development |
| | Volmer II | PS04 | Paper Session 4: Social and symbolic development |
| | Volmer III | SY05 | Symposium Session 5: Social inclusion and exclusion in children: An inter-group perspective |
| | St John I | PS05 | Paper Session 5: Language |
| | St John II | IS02 | Invited Session 2: Social cognitive development in adolescence: implications of work in neuroscience |
| 2:30-3:45 | Ballroom | PL02 | Plenary Session 2: Ronald E Dahl — Adolescent brain development: A developmental period of vulnerability and opportunity |
| 4:00-5:00 | Foyer | SY06 | Symposium Session 6: How opportunities for action emerge: The development of affordances in a complex social environment |
| | Volmer I | SY07 | Symposium Session 7: On Piaget on reason |
| | Volmer II | PS06 | Paper Session 6: Theory of Mind I |
| | Volmer III | SY08 | Symposium Session 8: Morality and the mind embodied |
| | St John I | SY09 | Symposium Session 9: The development of fair and moral behavior: Psychological and economic perspectives |
| | St John II | SY10 | Symposium Session 10: Transitions in socio-emotional development: Mechanisms and methods |
| 5:15-6:30 | Foyer | SY11 | Symposium Session 11: How do neurodevelopmental disorders inform developmental social cognitive neuroscience? |
| | Volmer I | PS07 | Paper Session 7: Spatial, causal and mathematical reasoning |
| | Volmer II | SY12 | Symposium Session 12: Continuity in theory of mind from infancy to preschool years |
| | Volmer III | PS08 | Paper Session 8: Moral Development II |
| | St John I | SY13 | Symposium Session 13: Exploring Indigenous conceptions of self, mind, and wellness |
| | St John II | IS03 | Invited Session 3: Theory of mind and the brain |
| 6:30-7:30 | Ballroom | REC1 | President's Reception (Sponsored by LEA/Taylor and Francis, Publishers) |

Program Overview—Friday

| Time | Location | ID | Event | |
|-------------|------------|--|--|--|
| 8:30-5:00 | | | Registration (Conference Desk) / Book Display | |
| 9:00-10:00 | Foyer | SY14 | Symposium Session 14: Modeling development of higher cognitive tasks | |
| | Volmer I | SY15 | Symposium Session 15: Symbolic and conceptual development in children's early understanding of number | |
| | Volmer II | SY16 | Symposium Session 16: ADHD and motivational modulation of cognitive control: Brain, behavior and treatment perspectives | |
| | Volmer III | SY17 | Symposium Session 17: Non-reductive approaches to the emergence of perspective-taking and selfhood | |
| | St John I | PS09 | Paper Session 9: Emotional development I | |
| | St John II | SY18 | Symposium Session 18: The development of children's reasoning about ownership | |
| 10:30-11:45 | Ballroom | PL03 | Plenary Session 3: Simon Baron-Cohen — The foetal androgen theory of neural sex differences and autism | |
| 12:00-12:30 | Ballroom | | Annual Member's Meeting (all are encouraged to attend) | |
| 1:00-2:15 | Foyer | SY19 | Symposium Session 19: Methods in cross-cultural research: Emics, etics, pleasures, and pitfalls | |
| | Volmer I | PS10 | Paper Session 10: Piaget's Theory I | |
| | Volmer II | PS11 | Paper Session 11: Atypical Development I | |
| | Volmer III | PS12 | Paper Session 12: Adolescence | |
| | St John I | PS13 | Paper Session 13: Social Interaction | |
| | St John II | IS04 | Invited Session 4: Social cognitive biases in development: A neuroscientific perspective | |
| 2:30-3:45 | Ballroom | PL04 | Plenary Session 4: Chris Moore — The construction of commonsense psychology | |
| 4:00-5:00 | Foyer | SY20 | Symposium Session 20: Perception and action in social and non-social domains in children and adults: Re-thinking theory of mind, stimulus-response compatibility, and intentionality | |
| | Volmer I | SY21 | Symposium Session 21: Neural foundations of social communication: Research findings from the FPR-UCLA Center for Culture, Brain, & Development | |
| | Volmer II | SY22 | Symposium Session 22: Science learning, epistemology and development | |
| | Volmer III | PS14 | Paper Session 14: Education | |
| | St John I | SY23 | Symposium Session 23: Intersubjectivity and autism: Illuminating the one with the other | |
| | St John II | SY24 | Symposium Session 24: Social cognition and temperament in the first years of life: Insights from typical and atypical development | |
| | 5:15-6:30 | Foyer | PS15 | Paper Session 15: Emotional Development II |
| | Volmer I | PS16 | Paper Session 16: Theory of Mind II | |
| Volmer II | DS01 | Discussion Session 1: How versatile is video data?: Connecting methodology to theory in an international study of two-year-old girls | | |
| Volmer III | PS17 | Paper Session 17: Piaget's Theory II: Conceptual Issues | | |
| St John I | SY25 | Symposium Session 25: Social interaction and the contexts of socio-moral development | | |
| St John II | IS05 | Invited Session 5: Neuroscience of emotions and emotion regulation: Implications for social cognitive development | | |

Program Overview—Saturday

| Time | Location | ID | Event |
|-------------|------------|------|--|
| 9:00-12:00 | | | Registration (Conference Desk) / Book Display |
| 9:00-10:00 | Foyer | DS02 | Discussion Session 2: Irv Sigel Memorial |
| | Volmer I | SY26 | Symposium Session 26: Celebrating engagement: Its place in human relations and psychological method |
| | Volmer II | PS18 | Paper Session 18: Atypical Development II |
| | Volmer III | SY27 | Symposium Session 27: Assessment studies of early childhood education |
| | St John I | SY28 | Symposium Session 28: Adult developmental concepts and hierarchical processes |
| | St John II | SY29 | Symposium Session 29: The development of action understanding and action control in infancy |
| 10:30-11:45 | Ballroom | PL05 | Plenary Session 5: Evan Thompson — Empathy: A neurophenomenological and neuroconstructivist view |
| 1:00-2:15 | Ballroom | PT01 | Poster Session I |
| | Foyer | PS19 | Paper Session 19: Developmental Neuroscience I |
| | Volmer I | SY30 | Symposium Session 30: The development of spatial literacy and schooling |
| | St John II | IS06 | Invited Session 6: Moral development: The implications of work in neuroscience |
| 2:30-3:45 | Foyer | SY31 | Symposium Session 31: Sharing children's point of view, understanding friendship and scaffolding self-knowledge during the preschool years |
| | Volmer II | SY32 | Symposium Session 32: Qualitative change in cognitive development: Theory, models and applications (Part I) |
| | Volmer I | PS20 | Paper Session 20: Developmental Neuroscience II |
| | Volmer III | SY33 | Symposium Session 33: Theory of mind in vivo: Children's teaching |
| | St John I | SY34 | Symposium Session 34: Affective and cognitive contributors to children's aggression and disruptive behavior disorders |
| | St John II | SY35 | Symposium Session 35: Artistic representation and aesthetics: Children's knowledge and theories of the visual arts |
| 4:00-5:00 | Foyer | SY36 | Symposium Session 36: Socio-emotional understanding in childhood: Individual differences and atypical development |
| | Volmer I | SY37 | Symposium Session 37: Scaffolding, construction, and change: Issues of conceptualization and analysis |
| | Volmer II | PS21 | Paper Session 21: "At risk" youth |
| | Volmer III | SY38 | Symposium Session 38: Qualitative change in cognitive development: Theory, models and applications (Part II) |
| | St John II | SY39 | Symposium Session 39: Developing wisdom |
| | St John I | PS22 | Paper Session 22: Social cognitive development |
| 5:15-6:30 | Ballroom | PT02 | Poster Session II |
| | Foyer | SY40 | Symposium Session 40: Methodological aspects in the study of cognitive development |
| | Volmer I | SY41 | Symposium Session 41: A developmental approach to elucidating the construct of future thinking |
| | St John II | IS07 | Invited Session 7: The development of social rule use: Implications of work in neuroscience |
| 6:30-7:30 | Ballroom | REC2 | Closing Reception |

Thursday—A.M.

9:00-9:15 OR Opening Remarks: JPS President and Program Organizers.....Grand Ballroom

Opening Remarks

Nancy Budwig (JPS President)

Philip David Zelazo, Michael J Chandler, & Eveline A Crone (Program Organizers)

9:15-10:30 PLO1 Plenary Session 1Grand Ballroom

From mirror neurons to intersubjectivity: A neuroscientific perspective on social cognition

Vittorio Gallese (Universita di Parma)

Our seemingly effortless capacity of conceiving of the acting bodies inhabiting our social world as goal-oriented persons like us depends on the constitution of a shared “we-centric space. I have proposed that this shared manifold space can be characterized at the functional level as embodied simulation, a basic functional mechanism by means of which our brain/body system models its interactions with the world. The mirror neuron system and other mirroring mechanisms in our brain represent sub-personal instantiations of embodied simulation. With this mechanism we do not just “see” an action, an emotion, or a sensation. Side by side with the sensory description of the observed social stimuli, internal representations of the body states associated with these actions, emotions, and sensations are evoked in the observer, ‘as if’ he/she would be doing a similar action or experiencing a similar emotion or sensation. Social cognition is not only explicitly reasoning about the contents of someone else’s mind. Our brains, and those of other primates, appear to have developed a basic functional mechanism, embodied simulation, which gives us an experiential insight of other minds and enabling our capacity to empathize with others. This proposal opens new perspectives on our understanding of autism and psychotherapeutic relations, and on the study of other aspects of intersubjectivity like aesthetic experience.

10:45-12:00 SY01 Symposium Session 1Foyer

A ‘Day in the Life’: Studying strong children in diverse global communities—An ecological approach

Organizers: C A Cameron (University of British Columbia) & Julia Gillen (Open University)

This symposium will report on findings from an ongoing international, interdisciplinary project investigating aspects of culture in the lives of ‘strong’ two-year-old girls in diverse communities across the globe and on four continents: Asia, South and North America, and Europe. Regarding culture as a dynamic dimension of the child’s socialization, the approach taken was to film a ‘day in the life’ of a two-and-a-half year old girl in each location. Selected sequences were made into a compilation tape, to be interpreted locally with the child’s family. These latter reflections were also taped and, with other inter-researcher techniques are used to elucidate and explore events and values further (Gillen et al., in print).

Our first paper, ‘Children at play in safe domestic spaces’ seeks to investigate the way these girls explore and invest meaning in the contained spaces of their everyday lives. It is concerned with the processes by which two children construct, through their play, secure associations and intimate geographies within familiar domestic spaces. In ‘Children’s drawing activities in different cultures’ our interest is in the development of an understanding of representation across domains and in identifying experiences that influence children’s acquisition of various symbol systems. Third, ‘Two-year-olds’ use of playful language and humour in three family contexts’ identifies acts manipulating both linguistic components and perceptions of incongruity, strengthening our understanding of the social-affective-cognitive domain within which humorous interactions develop. Our fourth presentation explore the ways in which the parents introduced small musical events into the Days. Drawing on Bruner’s (1996) notion of pre-linguistic narrative, it is

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proposed that parents introduced these events for specific purposes: to engage their children, to entrain them across small periods of time and thus to assist in the regulation of mood and emotional dynamic (Young & Gillen, 2006). Complementing the notion of 'safe spaces', these musical events might be thought of as 'safe times' when the familiarity and structure of the musical activity serve as a container for communication and emotional connectedness. Fifthly, building upon Cameron et al. (2006), in 'Intergenerational transmission of harmony: Gentle strokes, and pats for the strong child' we show how this cultural study affords rich data affirming that gentle touches commonly exchanged in early childhood play a role in emotion regulation and maintenance of interactional synchrony between children and their intimate familial relations. A related discussion session (DS01) will encourage participatory engagement with our methodology.

Children at play in safe domestic spaces

Roger Hancock (Open University)

Julia Gillen (Open University)

Children's drawing activities in different cultures

Giuliana Pinto (University of Florence)

Beatrice Accorti Gamannossi (University of Florence)

Two-year-olds' use of playful language and humour in three family contexts

Leslie Cameron (Carthage College, University of Wisconsin)

Beatrice Accorti Gamannossi (University of Florence)

Julia Gillen (Open University)

C A Cameron (University of British Columbia)

Small musical events in a day in the life

Susan Young (University of Exeter)

Intergenerational transmission of harmony: Gentle strokes, and pats for the strong child

Sombat Tapanya (Chiang Mai University)

Ayshe Talay-Ongan (Macquarie University)

C A Cameron (University of British Columbia)

10:45-12:00 PS01 Paper Session 1 Volmer I

Cognitive Development

Chair: Vera M R de Vasconcellos (Universidade do Estado do Rio de Janeiro)

The development of evaluative processing

Amanda Kesek (University of Toronto)

William A Cunningham (Ohio State University)

Philip David Zelazo (University of Toronto)

Evaluation is crucial to navigate the world. Currently, little is known about how evaluation develops. In this study, 8-, 10- and 12-year-old children, and adults, were presented with novel stimuli resembling vitamins. Each vitamin was associated with two equiprobable outcomes, one positive and one negative, and participants were instructed to accept or reject each vitamin to maximize a health score. Vitamin color, which varied systematically, could be used to determine whether the value of the positive outcome was large enough to outweigh the risk of the negative outcome. After 128 trials, participants performed the task a second time, with the reward contingencies reversed. Half the participants were told the

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new rules, whereas the other half were simply told to ‘learn these vitamins’. All participants learned the reward contingencies in the initial task; however, when not explicitly told the new rules, only adults switched successfully. Results suggest that children can learn complex associations and use them to guide evaluation and decision-making, but it is only with development that children can flexibly update learned associations based on trial-by-trial feedback. Younger children benefit from the provision of explicit rules, suggesting that what develops may be the tendency to formulate rules based on feedback.

Sustainable development in the child’s mind: The bridge between nature and economy

Manuel Rodriguez (Universidad Autónoma de Madrid)

Raquel Kohen (Universidad Nacional de Educación a Distancia)

Juan Delval (Universidad Nacional de Educación a Distancia)

Nowadays hundreds of messages about Sustainable Development (SD) are being launched daily to us from TV, schools and advisors. But, how do children understand such information? How do children of different ages understand the complex relationship between shortage, economy and SD? We try to find out what children believe about the main concept of SD its economic character. Forty participants between 9 and 16 year old were interviewed about waste management, energy-electricity, water shortage, and pollution. All the interviews were qualitatively analysed in order to establish “General Levels of Understanding”. This analysis allowed us to reconstruct three progressive levels of understanding. In the First level, children represent a plenty world where the shortage is only an exception. In this level nature can not be damaged by human action. In the Second level, children believe there is partial shortage, only in some resources or regions. Human action has great ecological impacts. Finally, in the Third level children think that we live in a world of shortage which is managed by economy. It is in this level where they give economic explanations for the SD. Knowing how children understand SD can allow us to help them to reach a more responsible participation.

Susceptibility to the sunk cost effect: Are children more rational than adults?

Franca Agnoli (University of Padova)

Tommaso Tessari (University of Trento)

Chiara Sallemi (University of Padova)

The sunk cost effect is a maladaptive behavior manifested by a tendency to continue an endeavor after a prior investment of money, effort, or time. A proposed explanation is that the bias results from internalization of the abstract rule “do not waste.” If this explanation is correct, then the bias should increase during childhood as this rule is internalized, and economic experts should show a stronger bias than economic novices. Consistent with this theory, we found no evidence of a sunk cost effect when 5- and 8-year-old children were asked whether they would drink or discard a cola when full at the end of a large meal; most children would discard the cola. But most 11-year-old children reported that they would finish the cola, and they explained their choice in economic terms. They did not want to discard a cola that they had already purchased. Among adults we found that economic experts were more likely than novices to exhibit a sunk cost effect when deciding whether to invest in projects. These results support the theory that the sunk cost effect results from internalization of an abstract rule that is learned during childhood and may be strengthened in adulthood.

Early cognitive development of deaf children

Mario Mandujano (Instituto Nacional de Pediatría-UAM Xochimilco)

Patricia Muñoz-Ledo (Instituto Nacional de Pediatría-UAM Xochimilco)

Carmen Sánchez (Instituto Nacional de Pediatría-UAM Xochimilco)

Empirical findings are presented on the cognitive development of 12 deaf children evaluated in an age range between the 21 and 35 months, registering cognitive, emotional and social stimulation available at home. The sensory-motor development was evaluated with the Ordinal Scales of psychological development and the stimulation at home with Home Observation for Measurement of the Environment. The results were analyzed in the context of the relationships between thought and language according to Piaget who postulated that thought precedes verbal language. Before the operations formulated by language, the deaf child constructs some kind of coordination of the logic of action. The notions of permanency of the object, pursuit of a goal, gesture imitation, operational causation and the relationship of the objects in space were registered in all children. None of the notions required verbal expressions for their solution. The data support the theory that language is not required for the cognitive development at least at this stage. However, the results of the poor social stimulation could further increase the difficulties in the process of construction of the semiotic function and may be even more important than the difficulties attributed to the restrictions in the development of the speech in children.

Vocal development: How does a child develop speaking and singing?

Stefanie Stadler Elmer (University of Zurich)

Vocalisations are the expressive origins of language and music. During the first year, infants start to develop speech-like and song-like vocalisations, and around the beginning and during the second year, they gradually develop speech and singing. In order to reconstruct the development of unintentional to intentional vocal signals and from innate levels of signalling to learned or cultivated levels, we carried out two longitudinal case studies. With one infant, three situations were regularly video-recorded: 'monologues', dialogues, and musical interactions. Selected recordings are presented to illustrate 'milestones' of how singing and speaking emerge. At first, infant vocalisation are innate signals. For some time, pre-verbal or pre-musical features are ambiguous or identical. Differentiations can be interpreted as 'musical', when vocalisations appear to be play- and joyfully, accompanied with regular body movements, and with the child's state of well-being. Primitive attributes of singing are: regular pulses, prolonged vowels with modulated pitches, and repetitions and variations. These features, together with microanalyses of the infant's emotional state, body movements, and social engagement allow identifying the more musical from the more speaking-like vocalisations. So far, we conclude that the infant adapts primarily to musical (or prosodic) features, whereas the articulation of words is more difficult.

10:45-12:00 PS02 Paper Session 2 Volmer II

Development of mind, self, and personality

Chair: Arlene Young (Simon Fraser University)

The relation between faux pas understanding and executive function in 7- to 9-year-olds

Wang Yifang (Capital Normal University)

Su Yanjie (Peking University)

Developmental scientists found the role of executive function (EF) in the early development of theory of mind (ToM). Baron-Cohen et al. found that 9- and 11-year-olds could well recognize "faux pas", which is whether individuals can recognize when someone unintentionally says something that would hurt or insult the other. The aim of the present research was to explore the relation between faux pas understanding and EF. In the experiment 1, 90 7-to-9 years olds completed 3 faux pas stories (ToM) and 3 kinds of EFs. Inhibit-shift ability, plan ability, and working memory span were measured separately by the Wisconsin Card Sorting test, Hanoi Tower test, and Backward Digit Span task. Significant correlations existed between faux pas understanding and inhibit-shift ability, and between faux pas understanding and

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working memory span. In the experiment 2, 53 participants in the experiment 1 were tested again after half a year. The result showed that faux pas understanding could predict working memory span. In sum, the results supported and extended previous findings. The relation between ToM and EF existed not only in 4-to-6-year-olds, but also in 7- to 9- year-olds. Longitudinal data tended to favor a ToM to EF causal account.

Affect, motivation and self development

Ana Luiza Branco & Angela Uchoa Branco (Universidade de Brasilia)

The study of social interaction and communication processes represents a productive venue to investigate the dynamic and dialogical nature of co-constructive processes involved in self-development. The ever-developing self simultaneously changes and grants the continuity of the person as a distinctive individual. We discuss the constructive relations between concepts such as self, self-system, identity, and social role. The notion of multiple self-positions within a self-system explains why different self-positions develop as a result of the co-operation of sociogenetic and individual factors along ontogeny. We claim that life experiences that yield strong emotions may entail powerful, affect-laden motivations that generate new self-positions. The theoretical elaborations will be illustrated with the analysis of a HIV-positive 37-years-old man's narrative about himself and his family dynamics. In his narrative, we find interesting indexes of self-change due to particular events related to his illness and relationship with his 14-years-old son, who was into drugs. We argue that strong emotions may give rise to potent motivations that ultimately produce significant transformations in the person's self-system. The identification and analysis of the processes involved in self-system development may, therefore, represent a fruitful pathway to investigate perspectives for change from childhood to maturity.

The utility of an approach-avoidance model of temperament using Gray's BIS and BAS model

Sherri L Frohlick (Simon Fraser University)

This paper will argue that many models of temperament can be collapsed into two broad behavioral-affective domains—approach and avoidance—as delineated by Gray's behavioral inhibition and behavioral activation systems (Gray, 1982, 2000). There have been many attempts to adequately describe temperament in children but they have received criticism because of failure to adequately capture the central or underlying mechanisms. The utility of this approach-avoidance model for the measurement and conceptualization of temperament will be demonstrated by exploring (1) the multi-level nature of Gray's theory and the need in developmental science for conceptual models of temperament that include multiple levels of analysis, (2) evidence suggesting that it represents a higher-order structure that accounts for considerable shared variance among different temperamental constructs, and (3) its ability to explain other domains of children's functioning such as social cognition, psychopathology and health.

Equality and regret: Theory of mind and emotions in children's understanding of economic concepts

Alan G Sanfey (University of Arizona)

Antonella Marchetti (Università Cattolica del Sacro Cuore)

Ilaria Castelli (Università Cattolica del Sacro Cuore)

Theory of Mind (ToM), the ability to meta-represent self and others' mental states and to refer to them to understand and foresee behaviour, is a cornerstone process in social cognition. After being extensively studied in developmental psychology ToM is now being studied in a life-span perspective and with the use of brain-imaging methods to discover its neurological substrates. Decision-making (DM), the ability to evaluate various options or courses of actions and to choose the one leading to the optimal outcome, has been deeply studied in adults showing that real-life human behaviour deviates from the expectancies

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of abstract classical economical theories. Neuroeconomics, i.e. the use of neuroimaging methods in DM research, has also provided evidence to the role of emotions in DM processes. Both ToM and DM play a crucial role in the adaptation to the social life, but there is still a lack of works in developmental psychology that study them jointly: the goal of this research project is a joint investigation on DM, ToM and emotional competence in 7 to 10 year olds through a wide battery of tasks, to discover the possible connections between the development of these important abilities across different age groups.

Theory of mind development between 6 and 7 years of age: A matter of representational change

Julie Mélançon & Hélène Ziarko (Universite Laval)

It is well-established that children can attribute first-order false beliefs at around 4 years of age (Wellman, et al., 2001), and second-order false-belief (Perner & Wimmer, 1985) in middle-childhood. What characterises the gap between these two metarepresentational abilities? The degree of explicitation (Karmiloff-Smith, 1992) required to manipulate high-order representations may be a key factor in interpreting TOM development. Furthermore, some research relates metarepresentational abilities to other “meta”-order capacities, such as metalinguistic abilities (Doherty & Perner, 1998) and literacy acquisition (Pelletier & Astington, 1998). Consequently, is there a difference in TOM development for children who are considered “at risk” in literacy development (i.e., presenting a linguistic and metalinguistic deficit)? We conducted a longitudinal study that examines the relationship between TOM development, metalinguistic skills and literacy acquisition, in 203 French-speaking children from kindergarten to 1st grade. A discussion of the results will be proposed to answer the following questions: (1) What kind of metarepresentational change correspond to the progression observed between 6 and 7 years old, notably for second-order false belief attribution competencies? (2) Which aspects of the metarepresentational abilities implied in TOM development are related to the difficulties experienced by “at risk” children in learning to read in 1st grade?

10:45-12:00 PS03 Paper Session 3 Volmer III

Moral development I

Chair: William Damon (Stanford University)

A psychological and philosophical critique of intuitionist-evolutionary theories of morality

Herbert D Saltzstein (Graduate School of the City University of New York)

Tziporah Kasachkoff (Graduate School of the City University of New York)

We [a psychologist and a philosopher] offer a critique of intuitionist-evolutionary theories of morality, such as Jon Haidt’s. We argue that such theories are deficient in that they (a) assume a rigid determinism, which rests on their largely non-developmental framework and on a misunderstanding of genetic influence on development; (b) fail to recognize the difference between moral and non-moral beliefs, between moral conflicts and moral dilemmas, and between deployment and development of moral capacities; and most importantly, (c) fail to account for changes in the individual (e.g., during the life span), as well as historical and cultural differences in morality.

The origins of human altruism—integrating developmental and comparative perspectives

Felix Warneken (Max Planck Institute for Evolutionary Anthropology)

Michael Tomasello (Max Planck Institute for Evolutionary Anthropology)

One recent debate in behavioral sciences concerns the origins of human altruism. Several researchers claim that altruistic behaviors (such as helping another person without benefit to oneself) are unique to

humans, emanating from a human-specific psychology and cultural practices. However, here we report a new study which contradicts this claim. In a set of experiments, $n = 36$ chimpanzees provided help towards a human to the same degree as human infants ($n = 36$), irrespective of being rewarded (experiment 1) or whether the helping was costly (experiment 2). In a third study, chimpanzees also helped a conspecific gain access to food in a novel situation. We integrate these results with recent studies on altruism in infants and chimpanzees to challenge the claim that altruism is unique to humans and is primarily imposed by the social environment. Alternatively, given that (a) our evolutionary ancestor possessed some primordial form of altruism and (b) human infants display such behaviors before socialization has a major impact on them, we will argue that humans have a biologically based predisposition to act altruistically. Future research should identify which social mechanisms amplify such tendencies in human ontogeny and determine whether similar mechanisms can be found in chimpanzees.

Moral reasoning: A matter of empathy or of cognition?

A L Collot d'Escury (University of Amsterdam)

Valerie Fictorie (OPL)

Moral judgement is based on intentions as well as consequences of behavior. Theory of Mind is a prerequisite to infer intentions. The ability to handle two dimensions is present in various conservation tasks. Children with a BIQ ($60 < IQ < 85$) are repeatedly reported to lag behind in Theory of Mind as well as conservation. Theory of Mind, conservation and moral reasoning were assessed in children with a BIQ ($n=29$) and children of normal intelligence, ($n=30$, IQ range 90-114), ages between 6 and 12. Conservation was assessed by means of conservation of number, volume and the balance scale. Social cognition included first, second, and third order, true and false belief tasks. Moral reasoning was assessed by asking children to compare stories that include a lie. Both the intentions and the consequences of the lies differ. Children from the normal intelligence scored higher on Theory of Mind and conservation, not on moral reasoning. A significant relation between the scores on moral items that demanded integration of "intention" and "consequence" and the ability to use two dimensions on both the balance scale and conservation of volume was evident, with the BIQ failing the latter. The integration of dimensions seems to be an obstacle for children with BIQ.

The architecture of moral decision making

Lance Hartmut Linke (University of Hawaii at Manoa)

The objective of this paper is to further elucidate the social calculus and the emotional and cognitive conclusions that influence moral sentiments and moral decision-making. The flexibility and heterogeneity of human moral decision-making reflects our varied and situation-specific social environments and interactions. Although numerous factors revolve around moral reasoning and decision-making, the development of morality is definitely related to the social domains of reasoning that children experience. The mechanisms that function in respect to moral decision-making are primarily social in nature. Therefore, we might expect to find specific feelings and thoughts associated with group dynamics and social relationships to have primacy in moral judgment formation. In an attempt to further clarify some of the emotional and cognitive reactions subjects have to moral situations that involve themselves and third parties, a survey was created and administered to subjects that ranged from age nine to adulthood. The questionnaire provides information about the various social, emotional, developmental and experiential factors that influence moral and punitive sentiments. By understanding what factors influence our moral sentiments, we will have a greater ability to identify the possible origins of our moral development and have greater power to constructively influence subsequent generations through education.

Thursday—A.M.

10:45-12:00 SY02 Symposium Session 2 St John I

On time in self, culture and development

Organizer: Cynthia Lightfoot (Penn State University, Delaware County)

Organizer: Maria Lyra (Federal University of Pernambuco)

Discussant: Rene vanderVeer (Leiden University)

In the course of the past century, the themes of culture, self and time—their definitions, relationships, and conditions of emergence—became highly visible and hotly contested. Our intention for this symposium is to draw out and hold up for examination some of the major controversies which attend efforts to delimit and relate these themes, and which we believe set a particular theoretical stage for understanding human development. We use time as an organizational core because some notion of time is central to understanding change—of selves and of cultures—and this makes it an essential issue for those of us who are concerned to understand the courses and contexts of individual and collective life.

In the first presentation, Vera da Silva Sinha and her colleagues explore notions of time among the Amondawa, an indigenous Brazilian population. The Amondawa do not employ cardinal chronologies such as ages of individuals, or ordinal chronologies such as yearly or monthly calendars, other than the four phases of the moon, since the Amondawa numerical system has only two numerals with a maximum combinatorial value of four. Indeed, an abstract term for TIME does not exist in Amondawa. The passage of time is expressed by the use of the verbs of motion meaning COME and GO. Moreover, the study to be reported indicates that it is the events or temporal periods which metaphorically or analogically “come” and “go”, and not the speaker or other experiencing subject. Discussion will focus on detailing this unique relationship between conceptions of time and of persons as expressed in Amondawa culture and language. In the second presentation, Maria Lyra takes a dialogical perspective to explore the emergence of self within the ritualized, local culture of mother-infant communication patterns. Beginning with an analysis of how mother-infant communications become “abbreviated” over time into ritualized formats that exhibit both an historical character as well as a future orientation, Lyra goes on to present a theory of self emergence in which such ritualized formats create contexts for self-differentiation. In the third presentation, Lee Rudolph takes issue with the homogeneity of extant models of time typically employed to understand developmental processes. After surveying extant models, he proposes a mathematical model of time sensitive to local social, cultural, and psychological exigencies. The three papers will be discussed by Rene vanderVeer.

Time in the Amondawa culture and language

Vera da Silva Sinha (University of Portsmouth)

Jörg Zinken (University of Portsmouth)

Wany Sampaio (Federal University of Rondônia)

Chris Sinha (University of Portsmouth)

Time, culture and novelty: The ontogenesis of self-differentiation

Maria CDP Lyra (Federal University of Pernambuco)

The fullness of time

Lee Rudolph (Clark University)

10:45-12:00 IS01 Invited Session 1 St John II

Agency and Intentional Action

Chair: Amanda Woodward (University of Maryland)

Thursday—A.M.

Intentions are as real to us as the physical bodies they inhabit. We see others' actions as guided by goals and intentions rather than as purely physical movements. Recent work has begun to elucidate the developmental origins of this foundational aspect of social perception. The invited speakers in this symposium represent current state of the art approaches to these issues. They consider the nature of the representations involved in reasoning about others' intentions, their neural correlates and their ontogenetic origins. These talks will highlight cutting edge research using both behavioral and neuro-cognitive techniques with infants and young children. The talks will also bring into focus a number of issues under current debate in the literature. First, they will consider the potential neural correlates of intention attribution with an eye to what these correlates can tell us about development. As one example, it has been hypothesized that mirror systems provide important structure for action analysis in adults and during development. Debates concern the extent to which this action analysis contributes to the attribution of intentions to others. A second issue under debate concerns the abstractedness of goal representations at different points during development. Mature observers can discern goals at several levels of analysis. The same movement could be considered as "wielding a whisk," "making an omelet," or "preparing for dinner guests." Are infants or young children limited to relatively concrete goal representations? Or can they attribute even abstract goals to others? A third, cross-cutting issue concerns when and how observers understand the mental nature of intentions, and, ultimately, how intention-reading relates to other components of "theory of mind," both in the mature system and during development.

Lower and higher functional mechanisms of action understanding in early childhood

Harold Bekkering (University of Nijmegen)

Sabine Hunnius (University of Nijmegen)

Infants' anticipation of others' actions: The role of active and observational experience

Jessica Sommerville (University of Washington)

Is familiarity with the agent or the action necessary for goal attribution by young infants?

Gergely Csibra (University of London)

It's the thought that counts: Developmental neuroscience of theory of mind

Rebecca Saxe (MIT)

Thursday—P.M.

12:00-1:30 Lunch

1:00-2:15 SY03 Symposium Session 3Foyer

Norms and neurons: Rethinking the role of social interaction in the development of executive function

Organizer: Maximilian B Bibok (Simon Fraser University)

Organizer: Stuart Hammond (Simon Fraser University)

The aim of this symposium is to contribute toward an understanding of developmental social cognitive neuroscience, by examining the empirical and theoretical relations between social interaction and the development of executive function (EF). As a construct, EF is defined as a set of psychobiological resources (e.g., attention switching) by which individuals regulate their behaviour to achieve desired goals. Paradoxically, although EF has been mainly conceptualized in biological terms, its assessment and manifestation typically takes place within the context of social rule-following. For a construct thought to be biological in nature, it is curious that little attention has been paid to the social factors inherent in the methodology of its assessment. Although biological-maturational accounts of development do acknowledge the role of social interaction in development, it is typically conceptualized as a moderating variable on an independent developmental process. In contrast, social-constructivist accounts have argued that rather than moderating development, social interaction mediates the development of social and cognitive abilities.

To explore the relations between social interaction and EF development, this symposium will address the following topics: (a) empirical review of studies suggestive of a relation between language and speech development and preschoolers' performance on EF tasks, as approached from the context of Vygotsky's sociocultural theory; (b) the theoretical potential of variation and selection models of development to account for the normative regularities of EF without recourse to standard conceptual accounts of explicit rule following/interpretation; (c) empirical review of studies highlighting the influence that interpersonal normativity between children and experimenters has on children's EF performance; and (d) theoretical consideration of the social bases of agency, and how inclusion of agency and social interaction in accounts of EF can overcome "homunculus" critiques that have been levelled against EF.

The Vygotsky-Luria connection: Language, speech, and the development of EF

Ulrich Müller (University of Victoria)

Normative regularities without rules

Mark H Bickhard (Lehigh University)

Social and cognitive processes in the testing of executive functions

Charlie Lewis (Lancaster University)

Ivonne Solis Trapala (Lancaster University)

Karen Shimmon (Lancaster University)

EF and agency

Stuart Hammond (Simon Fraser University)

Maximilian B Bibok (Simon Fraser University)

1:00-2:15 SY04 Symposium Session 4Volmer I

Semiotic systems and development

Organizer; Cintia Rodríguez (Universidad Autónoma de Madrid)

Thursday—P.M.

Discussant: Rebeca Puche (Universidad del Valle)

Several semiotic systems, as tools of communication and thought, are at work in different moments in development. In this symposium our main focus concerns early production of symbols before language; and more developed forms of symbols such as drawing, writing and symbolic representations of numbers. Each of these systems develops allowing different ways of thought. The first presentation discusses how the development of symbol structure over stages is related to the development of (semiotically mediated) thinking. Definition of symbols and understanding of symbol structure development over five hierarchical stages (Toomela, 2003) describes general characteristics of all kinds of symbols. The second presentation discusses how triadic interactions in early infancy allows the analysis of the educational and “didactic” role of the adult in children’s acquisition of new semiotic systems, as is the case of first symbolic uses of objects (Rodríguez, 2006). The third presentation discusses the relationship between three aspects of notations rarely studied in an integrated manner: the choice of the system (drawing, writing and numerals), the aspects of the referent being represented (quantitative and qualitative information) and the accuracy of notations. The fourth presentation discusses how the dictation of numerals requires the translation of the numerical expressions from the spoken verbal format into the Arabic format [six hundred and thirty -> 630]. This translation process of the codes from one format into another is called numerical transcoding. The first code to be learned is naturally the spoken verbal format and the later are the written representation or Arabic numerals. New categories are proposed based on the type of relations children use to unite Arabic numerals under dictation. These presentations unite developmental research and semiotic systems analysis. This allows to understand the complexities of such systems when considered as processes and as developmentally linked.

Symbol development related to semiotically mediated thinking

Aaro Toomela (University of Tartu)

Symbolic uses of objects before language

Cintia Rodríguez (Universidad Autónoma de Madrid)

Pedro Palacios (Universidad Autónoma de Aguascalientes)

Graphic symbols to represent qualitative and quantitative information by children 4 to 7 years old

Eduard Martí (Universitat de Barcelona)

Mercè Garcia-Mila (Universitat de Barcelona)

Is children’s numerical writing a developmental problem?

Mariela Orozco-Hormaza (Universidad del Valle)

1:00-2:15 PS04 Paper Session 4 Volmer II

Social and symbolic development

Chair: Marianne Wiser (Clark University)

How preschoolers decide which informant to trust

Kathleen Corriveau (Harvard University)

Paul L Harris (Harvard University)

Chuck Nelson (Harvard University)

Recent research shows that preschoolers trust a consistently accurate informant over one who has been consistently inaccurate (Clément, Koenig, & Harris, 2004; Jaswal & Neely, 2006; Koenig, Clément, & Harris, 2004): They put more questions to the accurate informant and accept the information s/he

Thursday—P.M.

offers. We report five new studies examining the cues children use when deciding whom to trust and the stability of that trust once established. First, 3- and 4-year-olds trust familiar as compared to unfamiliar informants. Second, 4-year-olds come to trust unfamiliar informants provided they are mostly accurate whereas 3-year-olds are less 'forgiving' of error. Third, 3- and 4-year-olds continue to trust a previously accurate informant one week later. Finally, 4-year-olds, unlike 3-year-olds, use subsequent accuracy to moderate their initial trust. When a familiar informant remains accurate, 4-year-olds' trust is strengthened. However, when a familiar informant proves inaccurate, 4-year-olds abandon their initial preference. Thus, both age groups rapidly form an impression of an informant's trustworthiness and subsequently use that impression to guide how they ask for and accept information from that person—both immediately and after a delay. Four-year-olds also moderate that impression in the face of further information about the informant's accuracy.

How conversations with parents may encourage children to develop a science-based interpretive epistemology

Araceli Valle (Mount Holyoke College)

Catia Cividini (Mount Holyoke College)

Advanced levels of epistemological belief incorporate two important ideas consistent with a scientific worldview: that knowledge is based on inherently uncertain interpretation; and that knowledge claims are best evaluated on the basis of non-subjective criteria. Our research explored how parents may contribute to their children's epistemological development by suggesting that multiple interpretations of evidence are possible and by emphasizing the importance of science and reason as the basis for resolving knowledge claims encountered in informal discussion contexts. Forty-nine college educated parents and their fourth and fifth grade children discussed conflicting ideas (based on King & Kitchener, 1994) in their homes. We coded parents' reactions to their child's responses to "how do you know" and "why do people disagree" questions. Most parents (78%) reacted in a way that encouraged an interpretive epistemology at least once. Parents encouraged an epistemology consistent with a scientific worldview by asking "how do you know" questions and by directing their child to science-based evidence. The degree to which parents encouraged this worldview was related to the child's gender, the parents' educational background (science versus non-science degree), and to whether the parent thought that it was important for elementary school age children to learn about science tools.

Decoding representations: young children's knowledge of what makes a picture a good symbol

Melissa Allen Preissler (University of Edinburgh)

Eleanor Hodgson (University of Edinburgh)

Paul Bloom (Yale University)

What makes a picture a good symbol for a real world referent? Factors which help us interpret a picture as referential include understanding the intention of the artist, the resemblance of the picture to the actual referent, and the detail of the representation itself. Here we show that 3- and 4-year olds are sensitive to all of these aspects of pictures as symbolic entities, and furthermore show adult like competency in understanding that other people need visually detailed pictures, in the absence of intentional knowledge, to decode representations. In three experiments, we ask children whether other people would know the referential content of detailed vs. non-detailed pictures and ones that resemble or do not resemble a referent. Our results show that young children understand that given only visual information (with or without information about an artist's intention), detailed representations and representations that greatly resemble their referent are better symbols than abstract pictures and pictures that don't look like a given referent. Significantly, children also know that other people rely upon these cues to decode representations, suggesting that by 4-years of age, children understand that pictures are symbols to be decoded by a shared

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audience.

Preschooler's understanding of the communicative nature of written symbols

Diana Leyva (Clark University)

Marianne Wiser (Clark University)

Symbolic understanding is the ability to appreciate that one thing is intended to stand for another thing and is a major achievement in human cognition. In this study, we took this socio-cultural approach to examine preschoolers' ability to produce, read and use written symbols (a grocery list) for communicative purposes. Sixty middle-class preschool children, divided into three groups (Young, Middle, Old), were presented with a "grocery-list" task: 1) Production: children were asked to help the experimenter remember what needed to be bought; 2) Reading: children were asked to read back their own list before going to the store; 3) Use: After buying the items, children were asked to help the experimenter find out if all groceries were bought. Scores were based on children's success at producing, reading and using the list. A striking difference in children's ability to think of producing/using a list was found. Young preschoolers were not able to come up with the idea of producing/using the list, whereas older children were. Age groups also differed in their success recording, reading and using the list. Findings suggest that around the age of 4 and a half, children come to understand that their notations are intended for communicative purposes.

Talking books: What kind of parental talk do they promote?

Julia Parish-Morris (Temple University)

Tilbe Goksun (Temple University)

Kathy Hirsh-Pasek (Temple University)

Roberta Michnick Golinkoff (University of Delaware)

Anna S Richardson (Dartmouth College)

Despite the popularity of electronic books and learning toys, little research has assessed the nature of parent-child interaction around electronic storybooks. The current study addresses three questions in a randomized design: First, are dialogic reading behaviors different when reading an electronic versus a traditional book? Second, what is the nature of the difference? Third, what are the implications of these differences for emergent literacy? Eighty 3- and 5-year-old children (half boys and half girls) and their parents were randomly assigned to read either an electronic or a traditional book. Results revealed three key differences: (1) Parents who read electronic books made more behavior-related verbalizations per minute (e.g., "Don't touch that! Wait while it reads to you"); (2) Parents reading traditional books made more story-related verbalizations per minute (e.g., "What is Caillou doing? Is he happy?"); and (3) Parents reading traditional books made more utterances per minute that went beyond the story ("Caillou is scared to go to the doctor. Were you scared when we went last week?"). Thus, traditional paper books encourage parents to read in ways that are dialogical and content-focused while electronic books become a 'battleground' for behavioral control.

1:00-2:15 SY05 Symposium Session 5 Volmer III

Social inclusion and exclusion in children: An inter-group perspective

Organizers: Lindsey Cameron & Adam Rutland (University of Kent)

Social exclusion can have wide-ranging negative consequences for children's psychological development (Graham & Juvonen, 1998; Rubin, Bukowski & Parker, 1998). This symposium will focus on how social exclusion is affected by group membership and the inter-group context. We present recent research which examines key features of the inter-group context: contact with the ethnic outgroup, the role of

Thursday—P.M.

perceived norms, socio-economic status, school context and social-moral reasoning about exclusion. The contributors in this symposium are developmental and social psychologists from the United States, the United Kingdom, Spain and Germany, whose research provides evidence of the potential theoretical and methodological value of the growing conversation between developmental and social psychology. A unifying feature of the symposium is a focus on how different forms of inter-group contact (i.e. direct, indirect), within different settings (i.e. countries, school neighborhood) can influence attitudes towards the out-group, stereotyping, inter-group friendships and more implicit out-group attitudes. Melanie Killen will present a theoretical model and research extending Piaget's (1932) work on children's understanding of fairness and justice with an emphasis on the role of the inter-group context. Specifically, this paper will show how ethnic intergroup contact in various contexts (e.g. school and neighborhood) amongst North American children affects intergroup attitudes, and how stereotypes influence their moral judgments. Ileana Enesco and colleagues will describe studies examining the effect of ethnic intergroup contact on the out-group attitudes of Spanish children aged 6 to 16 years in either ethnically heterogeneous or homogeneous schools. Feddes and colleagues will present a longitudinal study examining the effect of direct and indirect friendships on the out-group attitudes of 7-11 year old German children and ethnic minority Turks. They found that increased direct and indirect out-group friendship was associated with more positive out-group attitudes and the relationship between contact and out-group attitude was mediated by anxiety and norms. Lindsey Cameron and colleagues examined how psychological theories concerning inter-group contact can be translated into prejudice-reduction interventions for use in schools. In this research white British children experienced indirect contact with an ethnic outgroup through reading fictional stories that involved friendship between children from their own ethnic group and the ethnic out-group (Asian British). This research found that different variants of the intervention affected children's explicit and implicit out-group attitudes. There were also mediators and moderators of this effect including age, direct contact and perceived parental and peer group norms for inter-group friendship.

Social cognition, intergroup contact, and exclusion: How social experience informs judgments

Melanie Killen (University of Maryland)

Ethnic diversity and intergroup attitudes in primary school

Ileana Enesco (Universidad Complutense)

Irene Solbes (Universidad Complutense)

Silvia Guerrero (Universidad Complutense)

Carolina Callejas (Universidad Complutense)

Development of children's intergroup attitudes: The role of direct and indirect cross-group friendship

Allard Rienk Feddes (Friedrich-Schiller-University Jena)

Peter Noack (Friedrich-Schiller-University Jena)

Adam Rutland (University of Kent)

Prejudice-reduction through story-reading: Indirect contact in the classroom

Lindsey Cameron (University of Kent)

Adam Rutland (University of Kent)

1:00-2:15 PS05 Paper Session 5St John I

Language

Chair: Michael Bamberg (Clark University)

Thursday—P.M.

Engaging multiple sign systems: Aesthetic experience and early communicative development

Helen L Johnson (City University of New York)

The present paper posits that by providing opportunities to engage with multiple sign systems, aesthetic experiences make a unique and vital contribution to the child's development of language and literacy, as well as to the sense of self as an active and engaged learner. Emphasizing the significance of personal agency in shaping and motivating language and literacy development, the paper highlights some critical features that link aesthetic experience and communicative development. The relationship between these features and the child's early development of language and literacy, and the special contribution of aesthetic experience to these processes are considered.

Pre-school children's talk about inanimate entities in naturalistic contexts: Its contributions to their creative usage of newly-learned verbs

Juan Hu (Clark University)

Nancy Budwig (Clark University)

Kaya Ono (Clark University)

Although previous studies suggest individual differences exist in children's ability to creatively use a newly learned verb in un-modeled constructions, there has been little examination for why this is so. The present study, grounded in a construction framework which highlights the importance of language use and general problem-solving abilities to language learning, attempts to address this issue of individual differences. We compare 18 pre-school children's generalization performance in novel verb experiments (see Ono & Budwig 2006) with data from the same children's talk about inanimate entities in naturalistic contexts. Results reveal that generalizing children significantly differ from non-generalizing children in talk about inanimate entities in everyday talk. More specifically, differences were found in subject focus and subject diversity with generalizing children less focused on "self" and making use of more diverse inanimate subjects in their natural conversation. Discussion focuses on (1) how the study of subjects, to which children link different verbs, may help explain the qualitative process in early construction development; (2) how the study of children's talk about inanimate entities sheds light on a comprehensive understanding of children's world view, and (3) in terms of methodology, how naturalistic data provides valuable information to account for experimental results.

Meaning equivalence: Modality specific processing and extraction of meaning

Kavita L Seeratan (University of California-Berkeley)

Theorists suggests that multiple representations of a given concept expressed using different modalities may be encoded, internally embodied, and processed for meaning via distinct cognitive subsystems (Clark & Paivio, 1991; Mayer, 1997); Other researchers suggest that sharp modality-specific distinctions may exist at preliminary stages of cognition (e.g., formation of a mental representation) but that later stages of meaning-making (e.g., mental model construction) have no such confinement to modality (Schnotz & Bannert, 2003; Seeratan, 2006). This debate continues in light of little empirical support. We propose that in addition to assessing and enhancing deep comprehension, the Meaning Equivalence methodology plays an instrumental role in advancing knowledge about modality-specific processing and meaning extraction. Specifically, the study described in this paper provides evidence to suggest that unique mechanisms may be involved in the extraction of meaning from multiple representations expressed through image-based versus text-based (or intermixed) modalities.

Talking about space in a visuo-spatial language: does exposure to sign language offer children a special developmental path?

Gary Morgan (City University London)

Thursday—P.M.

It has been argued that to develop spatial language, children must solve arbitrary form-to-meaning mappings in which semantic components are encoded onto linguistic labels through a language filter. Because sign languages describe spatial scenes with movement and placement of the hands in space, child signers may find spatial semantics-to language mapping easier to learn than child speakers. This hypothesis was tested in two studies: a longitudinal analysis of a native signing child's use of BSL spatial verbs to describe motion and location events between the ages 1;10 and 3;0 and performance of 18 native signing children between the ages of 3;0 and 4;11 on a sentence comprehension task involving spatial language. The results from both studies argue against a developmental advantage for sign language learners in the acquisition of spatial language while highlighting the special nature of gesture in cognitive development.

1:00-2:15 IS02 Invited Session 2 St John II

Social cognitive development in adolescence: implications of work in neuroscience

Chair: Michiel Westenberg (Leiden University)

It is commonly believed that adolescence marks fundamental changes in one's perspective on social relationships. Neuroscience research has recently demonstrated that adolescence also marks fundamental changes in the brain. The four presentations focus on various aspects of social-cognitive development during adolescence and will discuss the relations with the developing brain. Michiel Westenberg focuses on the presumed increase of social-evaluative concerns during adolescence: are adolescents truly more concerned about what others think of them? And if so, is the increasing fear of negative social evaluation primarily due to cognitive development (i.e., perspective-taking skills) or to other aspects of adolescent maturation? Data from studies of public speaking anxiety will be used to illustrate the above; the potential relationship to the developing brain will be discussed. Abigail Baird addresses the question why adolescents are often singled out for their poor decision-making, while at the same time they seem to have infinite resources and capacity for accommodating and assimilating information from their peers. The answer appears to lie in the neurodevelopmental relationship between medial temporal lobe structures and frontal cortices, as this relationship is critical for the ability to successfully integrate cognitive, emotional and social processes in order to make sound decisions. A series of studies will be presented that help illuminate this development during the teenage years. Monique Ernst notes that adolescence is characterized by a propensity toward risk-taking, novelty/reward-seeking and impulsive behavior. In tandem with pubertal changes, these reward-related behavioral patterns may contribute to a distancing from familial ties and a stronger focus onto peer relationships. The neural circuits underlying decision-making and more specifically reward processes may play a prominent role in this shift. A theoretical framework is formulated that provides testable hypotheses about the nature and behavioral consequences of the maturation of the neural circuits involved in reward and social processes. Robert Selman highlights a fundamental challenge: how to better understand the relationship between social thought and social actions, for instance, not physically harming someone who has insulted or excluded them? In social-cognitive neuroscience one idea is that the adolescent brain is impulsive and immaturely functioning in areas such as future time perspective. In large-scale quantitative social setting research, as in real estate, the idea is that "context is everything." Can these movements come together, or are they looking at different aspects of social development and relationships?

Adolescent maturation and an increase of social-evaluative concerns: Why do so many fear public speaking tasks?

Michiel Westenberg (Leiden University)

Thursday—P.M.

If your friends jumped off the Brooklyn Bridge: The role of peers in adolescent decision-making
Abigail Baird (Vassar College)

Decision-making and reward systems in adolescence
Monique Ernst (National Institutes of Health)

A case conference on an adolescent's thoughts and actions in an incident of ostracism: Can a neuroscience consult help us close the gap?
Robert Selman (Harvard University)

2:30-3:45 PL02 Plenary Session 2Grand Ballroom

Adolescent brain development: A developmental period of vulnerability and opportunity

Ronald E Dahl (University of Pittsburgh)

Adolescent development is a period of special opportunities as well as vulnerabilities with respect to a wide range of behavioral and emotional problems in youth. This presentation considers the role of brain/behavior/social-context interactions during pubertal maturation that can influence these developmental trajectories in positive and negative ways. A model will be described that focuses on neurobehavioral changes at puberty that lead to an increase tendency toward risk-taking and sensation-seeking in adolescence. These biologically-based changes in drives, emotions and motivations (“igniting passions”) often emerge early in adolescence, whereas the gradual and relatively prolonged maturation of self-regulatory skills and judgment continue to develop through late adolescence. This may be particularly relevant to individuals who enter adolescence with previous vulnerabilities, including those at biological, familial, or social risk—particularly youth living in social contexts that create challenges to the gradually emerging skills in self-control. Key features of the model will be illustrated through a consideration of brain/behavior/social-context interactions in sleep/wake regulation in adolescence. The clinical and social policy implications of this model—and its relevance to early intervention and prevention of behavioral and emotional problems in youth—will be discussed.

4:00-5:00 SY06 Symposium Session 6Foyer

How opportunities for action emerge: The development of affordances in a complex social environment

Organizer: Patricia Zukow-Goldring (University of Southern California)

Organizer: Dankert Vedeler (Norwegian University of Science and Technology)

Discussant: Alan Costall (University of Portsmouth)

Affordances refer to what the environment offers an organism for action. From the traditional Gibsonian perspective (1979), affordances are invariant properties of the world. To detect affordances, creatures rely on a process of discovery through exploration. Thus, the range of affordances is a property of the world itself. In contrast, Witherington (2006) propose an emergence model of affordance development, conceptualizing affordances as novel properties of organism-environment relations. The range of what an object affords does not preexist an organism's interaction with the object.

From the traditional view, Eleanor Gibson (1969) investigated the development of affordances (opportunities for action) in terms of perceptual differentiation. While noting that humans learn most affordances, E. Gibson and Rader (1979) stressed observation of others over instruction by them. Elaborating, E. Gibson and A. Pick (2000) discussed how the social context “acts back,” responding to infants' spontaneous exploratory activity—yet, they did not discuss whether or how caregiver-infant interaction affects the learning of affordances. Given that E. Gibson (1997) argued persuasively for investigating learning

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in “species-typical” environments, the participants of this symposium are responding to her call by examining these processes in naturalistic contexts.

This symposium considers new theoretical explanations of affordances and how affordances develop in diverse cultures (UK, France, Indonesia, China, Norway, US-Latino and Euro-American) as children participate in real-time, socio-cultural contexts. For coherence, all presenters address their definition of development, affordances as discovered or emergent, as product or process, the socio-cultural history of affordances, and the developmental process of affordance learning.

Vedeler investigates how a toy’s affordances emerge in the context of a shared history of infant-mother interactions with the same toy. Zukow-Goldring focuses on how caregivers educate infants’ attention to notice perceptual information specifying affordances for action, especially foregrounding the importance of the body’s work. Bril, Boyer, and Yu examine cultural variations in adult scaffolding as children learn to engage in a complex activity by discovering the invariance—affordances—of the task.

Costall, the discussant, argues that we need to take into account the emergence of affordances within a broader set of human practices, to pay more attention to children’s active role in helping adults to help them, and to situate the child-adult-and-object triad within a wider sociocultural framework.

The social and historical context for the development of an infant’s exploration of affordances

Dankert Vedeler (Norwegian University of Science and Technology)

Caregivers assist infants to detect affordances and effectivities

Patricia Zukow-Goldring (University of Southern California)

Children learning of affordances in a tool use task and adult scaffolding: A cultural comparative approach

Blandine Bril (Ecole des Hautes Etudes en Sciences Sociales)

Isabelle Boyer (Ecole des Hautes Etudes en Sciences Sociales)

When Chi Yu (Ecole des Hautes Etudes en Sciences Sociales)

4:00-5:00 SY07 Symposium Session 7 Volmer I

On Piaget on reason

Organizer: Leslie Smith (Freelance, Lake District, UK)

Jean Piaget (2006) was writing three short papers before his death in 1980, now available in English translation:

Paper I: Scientific Report on Work during 1978–1979

Paper II: Reason as Objective of the Understanding

Paper III: Reason: Introduction

These papers develop the research-programme sketched in his first book with its claim that “reason is a capacity born from action” (Piaget, 1918). This symposium sets out to build on these papers in three ways:

[a] to provide analysis of their main ideas within Piaget’s epistemological model;

[b] to contribute to their assessment by reference to psychological perspectives;

[c] to identify implications for the 2007 conference theme on neuroscience.

This symposium includes presentations by four speakers and an open discussion. Paper 1 focuses on

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Piaget's recent account, on three things that reasons are not, and on two that they are. Paper 2 uses evidence from several recent studies of children's guided collaborative activity to argue that our understanding of the development of reasoning must include an adequate account of the way that language functions as both a psychological and a cultural tool, and include a suitable theoretical model of the dynamic relationship between the 'intermental' and the 'intramental'. The argument builds on the work of Piaget and Vygotsky in their shared aim of understanding the development of the ability to reason. Paper 3 deals with epistemic reasoning about the meaning of actions and the constitution of knowledge, considered from the point of view of variation and individual differences. Evidence is presented from a recent Finnish study, based on a large representative sample of youngsters (aged 12, 15 and 17+) in their performance on Piagetian group tests, such as the Pendulum and similar Science Reasoning Tasks. No gender differences in formal operational reasoning were found in contrast to significant differences in educational outcomes. These findings are discussed by reference to claims about universal reason. Paper 4 aims to show why Piaget took almost his entire life to discuss reason, a topic he had already thematized in his first major work, the Bildungsroman "Recherche" as early as 1918. There are virtually no explanations for this.

Home Work: The symposium will conclude with an open discussion that does not assume prior reading of Piaget's papers. But even to the end, Piaget was no intellectual slouch, so you are invited to bring along your copy: Piaget, J. (2006). Reason. *New Ideas in Psychology*, 24, 1-29.

Reason and reasons: Developing a singularity into pluralities

Leslie Smith (Freelance, Lake District, UK)

The dialogical roots of reason

Neil Mercer (University of Cambridge)

Same reason, different outcomes: Epidemiological considerations of epistemological (formal operational) reasoning in Finnish schools

Jarkko Hautamäki (University of Helsinki)

Why did reason come so late in Piaget's life?

Jacques J Vonèche (Geneva, Switzerland)

4:00-5:00 PS06 Paper Session 6 Volmer II

Theory of Mind I

Chair: Peter Mitchell (University of Nottingham)

Do children start out thinking they don't know their own minds?

Peter Mitchell (University of Nottingham)

Mark Bennett (University of Dundee)

Fenja Ziegler (University of Nottingham)

Various researchers have suggested that children below 7 years of age do not recognize that they are the authority on knowledge about themselves. Unlike previous research, children in the current investigation (30 in each of the age groups 5, 7, and 9 years) quantified knowledge by judging how well they knew (out of 10) and how well their mother knew (again out of 10) when, for example, the child was thinking. Surprisingly, even 5-year-olds tended to assign relatively more knowledge to themselves than to their mother. Indeed, children's estimations were at variance with ratings made by their mothers: Their mothers sometimes rated themselves as knowing more about their child than they rated their child as knowing. At the very least, mothers were inclined to be less positive than their children in rating how

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much their child knew than how much they themselves knew about the child's mental states. While previous research seemed to suggest that children shift from viewing their mother to viewing themselves as the authority on knowledge about them (the children), these new findings might suggest the opposite trend.

Associations among false-belief understanding, executive function, and social competence: A longitudinal analysis

Rachel A Razza (Teachers College, Columbia University)

Clancy Blair (The Pennsylvania State University)

A growing number of studies have demonstrated associations among false-belief understanding (FBU), executive function (EF), and social competence. The majority of these studies, however, have been cross-sectional and limited to higher-income populations. Thus, this study explored longitudinal associations among FBU and its correlates within a low-income sample of preschoolers attending Head Start, the federal educational day care program. Sixty-nine children (average age = 5 years 1 month) were assessed over their preschool and kindergarten years. Results indicate bidirectional relations between FBU and social competence. Concurrent, rather than longitudinal, associations were reported between FBU and EF. FBU was supported as a mediator of the longitudinal association between EF and social competence. These findings extend understanding of FBU by examining its development and correlates in early childhood. Implications for future research and practice are discussed.

Young children's development of understanding others' mind: From perspective-taking to theory of mind

Masuo Koyasu (Kyoto University)

In this paper I will talk on a unified theory of the mind in young children including perspective-taking abilities, theory of mind, and the display rules. Research on young children's perspective-taking abilities began with Piaget's "three mountains task." Though this method has a productive power, I have pointed out that there is a serious limitation in the paradigm. In the "three mountains task," even if children cannot directly guess the viewpoint of a person in another position, they can solve the problem by conducting mental simulation or mental rotation. The false belief task by Wimmer and Perner (1983) gave us a more valid measure of understanding others mind. It has been pointed out that there are at least three types of perspective-taking abilities; to infer what other people see (perceptual), to infer what other people feel (affective), and to infer what other people think (cognitive). These three types of perspective-taking abilities should be integrated into a unified theory of the mind. To achieve the goal, it is essential to use tasks which include misrepresentation of the protagonist; a false perception task, a false cognition task, and a false affection task.

Theory-of-mind 'on-line': Young children's response times to false and true beliefs and their subsequent emotions

Maria Nunez (Glasgow Caledonian University)

The aim of this study is to assess mental state inferences 'on-line' and put temporal measures in relation to the usual behavioral measures. 101 preschoolers are presented with a set of tasks using a procedure that tracks their inferences regarding true and false beliefs and the subsequent emotions. Every task presents a sequence of events in the computer following standard scripts of the unexpected transfer and the unexpected contents versions of the FB paradigm. The stories are self-administered; as the child clicks the mouse, each episode is revealed and its narrative, automatically unfolded. Each story has two key episodes where the character's behaviour is either Consistent or Inconsistent with her inferred belief or emotion. Differences in RRTT between the two conditions will reveal sensitiveness to the deviation in the character's behaviour in relation to the inferred mental state. Responses to the usual "belief question" and

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justifications are also recorded. Findings show a coherent pattern across the set of measures, revealing the RRTT as a sensitive measure to approach the assessment of the inferences on-line. Discussion will include how to adapt this procedure for simultaneously recording ERPs in order to fully capture the on-line nature of mental state reasoning.

4:00-5:00 SY08 Symposium Session 8 Volmer III

Morality and the mind embodied

Organizer: M Kyle Matsuba (University of Northern British Columbia)

The purpose of this symposium is to present current thinking in moral psychology in light of recent trends in cognitive science and neuroscience. There has been a keen interest in identifying specific cognitive processes, neuroanatomical areas, and neurophysiological pathways that are associated with a variety of experiences and behaviors, including those associated with morality. The papers in this symposium begin to draw links between research in these diverse disciplines. In the first paper, a theory of ethics is proposed that merges our understanding of neurobiology and moral functioning. Called the "Triune Ethics," the author argues that there are three ethics that drive human morality: 1) Security ethic is based primarily in instincts for survival and physical flourishing; 2) Engagement ethic involves the emotional system that drives us towards intimacy; and 3) Ethic of Imagination is the source of our deliberative reasoning, which guides the intuitions and instincts of the other parts of the brain. In contrast to the first author's broad and comprehensive efforts to merge various fields, the second paper is much narrower in scope by considering the neurological processes associated with moral personality. Here, the author makes the case for the emergence of spindle cells and their importance to moral personality development. Specifically, spindle cells appear to coordinate emotion toward focused problem solving typical of moral judgments and self-control in social contexts. In addition, these neurons potentially organize emotions into complexes supporting morally significant extensions of self in perspective-taking, online judgments, and offline behaviors that promote self-understanding as a moral agent. Finally, the third paper shifts the discussion to more abstract cognitive processes. Here, the author presents a theory of moral character development involving moral schemas that are easily primed and readily activated to direct our attention selectively to certain moral features of our experience. These chronically accessible moral schemas provide a dispositional readiness to discern the moral dimensions of experience, and to underwrite the discriminative facility in selecting situationally appropriate behaviors. One challenge for this theory is to specify the developmental sources of moral chronicity. In his paper, the author presents a case for early child-caregiver interactions believing that prototypic knowledge structures are progressively elaborated in the early dialogues with caregivers who help children review, structure and consolidate memories in script-like fashion. How these early social-cognitive units are transformed into autobiographical memory is what he believes to be the key characterological turn of significance for moral psychology.

Triune ethics: Neurobiology and moral functioning

Darcia Narvaez (University of Notre Dame)

Reflections on the developmental neuroscience of moral personality

Kevin Reimer (Azusa Pacific University)

The social cognitive development of moral character

Daniel K Lapsley (University of Notre Dame)

The development of fair and moral behavior: Psychological and economic perspectives

Organizer: Michaela Gummerum (University of British Columbia)

Organizer: Monika Keller (Max Planck Institute for Human Development)

In recent years, economists have become increasingly interested in behavior related to morality, fairness, reciprocity, altruism, and trust, and in many economic studies, experimental game theory is used as a method to investigate these topics. In this symposium, we would like to introduce the paradigm of economic game theory to a broader developmental psychological audience and combine it with psychological research on moral and social development. The four presentations in this symposium adopt a multi-method approach to address issues of social and moral development and economic decision-making in children, adolescents, and young adults using quantitative and qualitative methods and studying both individual and group behavior.

Keller and colleagues analyze patterns of discourse in same-age three-person groups of 9- to 17-year-olds in a situation in which participants could share 20 coins with another anonymous group (dictator game). With increasing age participants use more sophisticated arguments to persuade others focusing on psychological reasons, generalized norms, and debate normative demands. Negative evaluations decrease allocations to the anonymous other group.

Leman and colleagues investigate gender and age effects in the sharing behavior of children and adolescents in two distribution tasks. In these two games, participants have either a free choice about how much to offer to the other group (Dictator game), or make a strategic offer to avoid the other group rejecting an offer and losing all the money (Ultimatum game). Results reveal gender differences for in Dictator game, but strategic constraints in the Ultimatum game resulted in few gender differences from 10 years-of-age.

The last two presentations investigate dictator game allocations in preschool children.

Malti & Staffebach studied kindergarten children's sharing behaviors in two prosocial situations in relations to self- and other-reported prosocial behavior and the attribution of moral emotions. Results revealed that sharing behavior in the dictator game was significantly related to the distribution behavior in a justice experiment. Negative emotion attributions to the victimizer of a moral rule predicted children's behavior in dictator game and teacher ratings of prosocial behavior.

Gummerum and colleagues present two studies which investigate the validity of the dictator game in two samples of preschool children from Germany and Canada. In study 1, both moral judgment and negative emotion attribution to a victimizer significantly predicted sharing behavior in dictator game. In study 2, children who were part of an anti-bullying training in their day-care centre were more prosocial in dictator game than participants from control samples.

Sharing in children and adolescents: Discursive strategies and outcomes

Monika Keller (Max Planck Institute for Human Development)

Thomas Canz (Max Planck Institute for Human Development)

Gender and age differences in decisions about sharing with others

Patrick Leman (Royal Holloway University of London)

Monika Keller (Max Planck Institute for Human Development)

Michaela Gummerum (University of British Columbia)

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Jutta Mata (Max Planck Institute for Human Development)

Children's morally relevant behaviors: Links with moral emotions

Tina Malti (University of Zurich)

Monika Staffelbach (University of Zurich)

The validity of economic games: Investigating preschool children's prosocial and fair behavior

Michaela Gummerum (University of British Columbia)

Katrin Rust (Max Planck Institute for Human Development)

Yaniv Hanoch (University of Plymouth)

4:00-5:00 SY10 Symposium Session 10 St John II

Transitions in socio-emotional development: Mechanisms and methods

Organizer: Annerieke Oosterwegel (Utrecht University)

Organizer: Theo L Dawson (Developmental Testing Service, LLC)

This symposium aims to draw attention to transitory states in the domain of socio-emotional development and to discuss ways to empirically assess mechanisms of transition in this domain.

Models of development tend to describe a number of consecutive levels or stages. Little attention is given to the actual process of development from one level to the other, or the mechanisms through which such development takes place. Yet, it could be argued that actual growth and development is present in the transitions rather than in the levels or stages described (Dawson-Tunik, Fischer, & Stein, 2004). Moreover, transitory states may represent potentially sensitive periods in developmental pathways.

Apart from their relevance to growth and development, transitory states in the socio-emotional domain themselves appear soil for psychopathology. Empirical findings so far show that social cognition in transitions is often characterized by signs of irrationality, including: (1) shifts in the dominance of competing perspectives; (2) incoherence; and (3) radical forms of relativism. Moreover, some studies suggest that social cognition in transition is accompanied by anxiety and aggression. Most of these phenomena have been observed at more than one developmental transition, suggesting that they may reflect general characteristics of developmental transitions.

The current attention for intraindividual variability in behavior appears an open invitation for the study of mechanisms of transition. So far, however, transitions tend to be primarily studied in the domain of learning and cognition. Both theorizing and empirical research in the socio-emotional domain is scarce.

The purpose of this symposium is to bring together some of the studies on transitory states that address the socio-emotional domain. The studies in this symposium address transitions in identity development, moral reasoning, self-evaluation, and social status. The studies on identity and moral reasoning take a qualitative approach, using interview data. The studies on self-evaluation and social status take a more quantitative route. Accommodation and hierarchical integration appear the mechanisms under study so far.

By presenting this work-in-progress we intend to draw the audience into a discussion on how transitory mechanisms in socio-emotional development should be conceptualized, and how such processes could be grasped empirically and statistically.

Mechanisms behind transitions of commitments

E Saskia Kunnen (University of Groningen)

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Patterns of (ir)rationality in developmental transitions: A qualitative perspective

Theo L Dawson (Developmental Testing Service, LLC)

Hierarchical re-organization in self-understanding: A quantitative analysis using growth mixture modeling

Jan Boom (Utrecht University)

Annerieke Oosterwegel (Utrecht University)

A dynamic systems model of dyadic interaction: the interplay of long-term and short-term dynamics

Paul van Geert (University of Groningen)

Henderien Steenbeek (University of Groningen)

5:15-6:30 SY11 Symposium Session 11 Foyer

How do neurodevelopmental disorders inform developmental social cognitive neuroscience?

Organizer: Daniela Plesa Skwerer (Boston University)

Organizer: Helen Tager Flusberg (Boston University)

Discussant: Simon Baron-Cohen (Cambridge University)

For the past 25 years the emerging field of developmental cognitive science has had a strong interest in neurodevelopmental disorders, which may provide a unique perspective on genetic and neurobiological influences on developmental processes. At a theoretical level debates have focused on whether specific disorders provide evidence for or against a modular view of the mind, whether specific cognitive functions may develop along alternative pathways, and whether there are fundamental differences between brain and behavior development in atypical populations. There has been a growing appreciation that the answers to these debates are not as clear-cut as was once thought, because of the highly complex relationships between genes, brain development, environments and behavior that are evident in even the simplest and best understood single gene disorders. This symposium brings together a group of leading researchers who will present papers that address these debates by focusing on social cognitive-affective development in three unique genetic populations whose phenotypes include core features that are related to social behavior: fragile X syndrome, autism and Williams syndrome. The papers will focus on several important themes: constraints on brain development, with a specific focus on the social/cognitive-affective neural circuitry; the complex interplay between neurobiological and behavioral measures in research on neurodevelopmental disorders; and individual variation within and between populations. The first paper summarizes a study on developmental trajectories of attentional and social-cognitive profiles in infants and toddlers with fragile X syndrome. The second paper summarizes studies comparing children and adults with fragile X syndrome, autism and controls on facial emotion discrimination tasks using integrated methodology that tapped behavioral, eye-tracking, physiological and fMRI activation responses. The third paper summarizes a series of studies comparing children and adolescents with autism spectrum disorders to matched typically developing controls on behavioral tasks that tap receptive and expressive processing of facial and vocal stimuli. The final paper focuses on implicit processing of static and dynamic facial expressions of emotion in adolescents and adults with Williams syndrome using behavioral and psychophysiological measures of arousal. The discussant will analyze the contributions made to the field of developmental cognitive science by the research presented on these different syndromes.

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Early attentional and social profile in infants and toddlers with fragile X syndrome: Could developmental changes in low-level attentional and emotional processing impact on higher level social cognition?

Gaia Scerif (Oxford University)

Kim Cornish (McGill University)

Annette Karmiloff-Smith (University of London)

Social affective information processing and individual differences in behavior and brain function: Insights from autism and fragile X syndrome

Kim M Dalton (University of Wisconsin)

Richard J Davidson (University of Wisconsin – Madison)

Implicit and explicit processing of emotional facial and prosodic information in children with autism

Ruth Grossman (Boston University School of Medicine)

Helen Tager Flusberg (Boston University School of Medicine)

Robert M Joseph (Boston University School of Medicine)

Implicit processing and autonomic responsiveness to social-affective information in adolescents and adults with Williams syndrome

Daniela Plesa Skwerer (Boston University)

Helen Tager Flusberg (Boston University)

5:15-6:30 PS07 Paper Session 7 Volmer I

Spatial, causal and mathematical reasoning

Chair: Susan L Golbeck (Rutgers University)

Interventions and causal learning in young children

David M Sobel (Brown University)

Jessica A Sommerville (University of Washington)

A variety of researchers have suggested that adults' causal learning benefits from data from interventions—intentional manipulations on the world, which change the values of events (Lagnado & Sloman, 2004; Steyvers et al., 2003). What about young children? Schulz, Gopnik, and Glymour (in press) found that 4-year-olds were more accurate at recognizing causal structures when shown data from interventions as opposed to just observational information. They posit that interventions provide conditional probability information, which children can use to make causal inference. We suggest that in addition to this information, interventions provide control over the learning environment. Over four experiments, we show that varying the degree to which 4-year-olds control their learning environment affects their learning accuracy. Specifically, Experiment 1 and 2 find that 4-year-olds who use interventions to discover causal structure are more accurate than learners who only confirm another's discovery. Experiment 3 and 4 find that 4-year-olds who observe sequences of interventions that are more accessible to them or who are given rationales more in line with learning causal structure are more accurate learners. These data suggest that a mechanism for children's causal learning integrates low-level probabilistic information with social and intentional factors inherent to human action.

Conceptual and procedural knowledge: The case of mathematical cognition

Darcy Hallett (University of Oxford)

Research in mathematics cognition has had a long history of attempting to separate children's conceptual

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understanding of mathematics from their procedural knowledge used to answer mathematics questions. Conceptual knowledge is often defined as the extent to which it is “interconnected” and “rich in relationships”. Procedural knowledge, on the other hand, is often defined as “goal-directed action sequences” that work on mathematic symbols without any reference to outside knowledge. As such, conceptual knowledge is seen as connected knowledge while procedural knowledge is inherently unconnected. While these definitions can be useful, I argue that they miss the fundamental distinction between these types of knowledge. What makes knowledge more or less conceptual is not necessarily its degree of interconnectedness, but the extent to which it is understood to serve as a model of reality. In contrast, procedural knowledge is not seen as a reflection of anything real, which makes it composed of inherently arbitrary rules that can only be learned and not discovered. After elaborating on these different approaches, I argue that defining conceptual and procedural knowledge in terms of its relation to reality is a more useful approach that fits with many of the research findings in this field.

Dimensions for symbol systems: Using a single unit of measure for symbols

Julia Penn Shaw (SUNY – Empire State College)

What patterns do we use to structure meaning? How do these meaning patterns become more complex with age? In this study, participants create abstract symbols, having the four attributes of concrete representation, emotional point of view, social hierarchy and contextual image, and represent them on individual cards. The abstract attributes of the symbols on the cards are manipulable in ways similar to the multiple attributes of size, shape, and color on blocks or beads. Adolescents and adults built personal symbol systems by arranging ten of their own digital symbols in a personally meaningful way. All 700 intelligent and educated participants constructed their personal symbol systems using at least one of four patterns: story/process, hierarchy, partition, and image. (A very small number of participants used no pattern at all). These patterns operated like dimensions because the participants intercoordinated them with each other to create multidimensional symbols, just as length, height, and width together create 3-dimensional objects. Personal symbol systems became more complex from college age to past sixty to a statistically significant degree ($p = .01$). This paper presents video-clips and photos of personal symbol systems at different levels of complexity. The researcher will present learning paths for moving from less complex to more complex patterns, suggestions for neurological evidence of these patterns, and potential uses for this new knowledge about patterns of symbol processing.

The impact of labels upon children’s and adult’s abilities to use geometrical definitions

Eva Teubal (David Yellin College of Education)

Ainat Guberman (David Yellin College of Education)

Jeanne Albert (David Yellin College of Education)

The aim of the present study was to compare the effect of conventional labeling upon adults’ and children’s ability to use formal definitions in identifying geometrical shapes. We hypothesized that 1) adults would outperform children (longer memory span; familiarity with written language; monitoring ability; greater awareness of the distinction between mathematical and everyday language; better understanding of hierarchical taxonomies; and that 2) labeling would enhance identification of prototypical items and would interfere with the identification of nonprototypical items. Fifty seven adults and 41 first graders were presented with a sheet of paper with 30 and 15 shapes respectively and different definitions in the form of “party invitations” (9 to adults and 5 to children). Each invitation contained either a conventional or a nonsense label for the “guests”, and a list of defining characteristics: We found that children’s correct response rates were above chance levels and their performance in the conventional labels condition was higher than in the nonsense labels condition. Adults significantly outperformed children, but the differences between the two groups were quantitative rather than qualitative: the impact

of labeling was in the same direction for the two groups- facilitating prototypical choices and hindering nonprototypical ones.

“We make assumptions and then we find out the truth” Two studies on children’s nonmonotonic reasoning

Abel Ruben Hernandez-Ulloa (Lancaster University)

Research on human reasoning has focused mainly on inferential processes that can be characterized through the use of either deductive or inductive models, and many psychological studies focus on deductive reasoning. However the possibility of changing one’s conclusions when new and relevant information is acquired is the primary concern of nonmonotonic logics developed mainly by researchers in the field of Artificial Intelligence (AI). Researchers in AI have claimed that the hallmark of human reasoning is its nonmonotonic aspect, surprisingly there is a considerable lack of empirical evidence to support such claims. This paper presents the main findings of an empirical investigation undertaken to explore the appearance and development of nonmonotonic reasoning in children. The methodology followed was primarily based on Piaget’s model, as nonmonotonic logics and Piaget’s model share similar epistemological concerns. The results show that nonmonotonic reasoning does indeed develop during childhood. Evidence for the generation of new knowledge by abductive reasoning also indicates new horizons for research into a key aspect of human rationality in terms of the creative logic of scientific discovery, and offers new insights about nonmonotonic reasoning which are relevant in the field of AI.

5:15-6:30 SY12 Symposium Session 12 Volmer II

Continuity in theory of mind from infancy to preschool years

Organizer: Diane Poulin-Dubois (Concordia University)

Discussant: Beate Sodan (Ludwig-Maximilians University)

Recent research on theory of mind development has documented infants’ precocious abilities in human action interpretation. However, the nature of these early achievements is the topic of a hot debate. This symposium brings together the most recent findings on the continuity between early and later theory of mind skills from four laboratories in three different countries. The first study shows that infants’ understanding of the pointing gesture at 12 months is related to the later understanding of visual perspective taking and to the ability to explain others’ behavior in terms of mental states (such as desires, beliefs, and emotions) at the age of 39 months. Also, infants’ understanding of others’ intentions at the age of 12 and 15 months is related to children’s understanding of their own intentions at 39 months. The second paper reports that 12-month-olds’ interpretation of future interactions of agents predicts performance on a battery of theory of mind tasks (ToM) at four years of age. However, no such relationship is found for infants in a nonsocial cognition task. In the third paper, 6-months-olds’ action understanding was assessed using a modified version of the Woodward-paradigm. At the age of four years, the same children were retested with five ToM tasks. Results revealed a correlation between infants’ decrement of attention to goal-directed action and their ability to solve a false-belief task at the age of 4 years. In follow-up studies, infants’ action-understanding at the age of 6 months was related to theory of mind skills at the age of 24 to 30 months even when verbal and general intelligence, as well as temperament, were controlled for. The fourth paper examines whether infants’ ability to detect goal-directed actions predicts their ability to imitate intentional actions. Infants completed an infant-controlled habituation task that measured their ability to detect goal-directed actions at the age of 10 months. At 14 months, 20 of these infants returned to the laboratory to complete an imitation task. A sequence of four accidental and four intentional actions was modeled in order to activate a computer animation display. A significant positive correlation between infants’ performance on the habituation task (i.e., difference score) and the percentage of time they

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completed the intentional action alone during the imitation task. Taken together, the findings from these four papers suggest that there is both short- and long-term continuity in social cognition between infancy and early childhood.

Pointing gesture and intention understanding as precursors of a theory of mind

Cristina Colonesi (University of Amsterdam)

Carolien Rieffe (Leiden University)

Willem Koops (University Utrecht)

Paola Perucchini (University of Rome)

How does infants' performance on goal-attribution tasks relate to other social-cognitive skills?

Valerie Kuhlmeier (Queen's University)

Mariko Yamaguchi (Johns Hopkins University)

Does infant action interpretation predict later theory of mind abilities?

Gisa Aschersleben (Universität des Saarlandes)

Annette Hohenberger (Middle East Technical University)

From intention-in-action to intention-in the mind: infants' goal detection and intentional imitation predict later theory of mind

Diane Poulin-Dubois (Concordia University)

Kara M Olineck (Concordia University)

5:15-6:30 PS08 Paper Session 8 Volmer III

Moral Development II

Chair: Larry Nucci (University of Illinois at Chicago)

Children's concepts of rules, personal choice and sense of self

Larry Nucci (University of Illinois at Chicago)

Kristin Lagatutta (University of California)

Sandra Bosacki (Brock University)

A personal domain of privacy and prerogative has been hypothesized as essential to the construction of a sense of self and agency. Children as young as three years of age identify areas of behavior that should be up to the child to control or determine, rather than being subject to parental rules. Older children and adolescents justify claims about these areas of prerogative and privacy as central to their sense of self. This study employed methods from theory of mind research to investigate whether young children have intuitions about control over personal issues as connected to self and identity. Children ages 4, 5, and 7 years were presented situations which contained behaviors (e.g., play, dress, expressive activity, friend choice) that were described as essential or peripheral to the protagonist's self-identity, but that were counter to parental rules. Behaviors that were counter to moral rules were used as a contrast. Consistent with expectations, young children predicted that people would comply and feel good or transgress and feel bad significantly more often for the moral or peripheral-personal rule situations than for the essential-personal rule situations. Non-compliance was thus associated with the personal domain behaviors essential to self-identity.

Evidence for a cognitive bias: If it is unfair, it must have been intentional

Elizabeth Donovan (Boston University)

To correctly interpret an action in a social or legal context, we must determine whether that action was

intentional. This is true for judgments about everyday social interactions, such as determining whether the waitress intended to give everyone at the table except you a glass of water. It is also true for legal judgments, such as deciding whether someone is guilty of murder or manslaughter. Therefore, any factor that affects our ability to judge intentionality has important social and legal ramifications. One topic that has received particular attention within psychology is the relationship between intentionality and morality. This paper investigates whether immoral, negative outcomes lead people to attribute more intentionality than non-moral, negative outcomes. Specifically, it explores whether accidental outcomes that are unfair (moral) are more likely to evoke attributions of intentionality than accidental outcomes that are not unfair (non-moral). Findings from four experiments suggest that both children and adults are more likely to attribute intentionality after witnessing an accidental act that results in an unfair outcome, than an identical accidental act that does not result in an unfair outcome. The findings are suggestive evidence of a cognitive bias to automatically find someone to blame for an immoral outcome.

Judging in morally relevant situations: a result of moral intuition or moral reflection?

Karin Heinrichs (Ludwig-Maximilians-University Munich)

How do people judge in everyday life? Are moral judgments results of moral intuition (Haidt 2001) or are they results of moral reflection as Kohlberg presumed? Based on a process model of judging (Heinrichs 2005) an action-theoretical perspective will be explained which can be used as a theoretical framework first to reconstruct Haidt's and Kohlberg's approach to moral judging, secondly for pointing out to what types of morally relevant situations both authors referred to. Especially one of the core assumptions defines judging to be essentially influenced by an individually constituted situation. Taking the dominance of the situation for granted would open up new vistas to differentiate Kohlberg's and Haidt's approach to moral judging. By accentuating the constituted situation it can be underlined that both authors have focussed on judgments in very different morally relevant situations and that the situation might influence the mode of data processing. So moral dilemmas used by Kohlberg for moral diagnosis might provoke moral reflection, but the situations Haidt has taken into account would lead to moral judgments formed intuitively, in an automatic-spontaneous, more affective mode of data processing.

Personhood, agency and self-understanding: Morality as a binding thread

Stephanie A McKenzie (Simon Fraser University)

Over the last decade, notions of personhood, self-understanding and agency have been receiving increased attention in Psychology (e.g., Martin, Sugarman & Thompson, 2003; Smythe, 1998). The importance of morality has been highlighted in discussions of what it means to be a person (House & McDonald, 1998; Notterman, 2004; Paranjpe, 1995, 1998), how persons interpret themselves and their actions (Taylor, 1985) and in characterizing the human capacity to develop and exercise agency (Williams, 1995). This paper will explore the relationship between morality, self-understanding, agency and personhood. More specifically, drawing upon the Taylor's (1985) notion of strong-evaluation as constitutive of persons, it will be argued that both selves and persons are moral phenomenon. William's (1994) conception of "having the world truthfully" as definitive of agency and his claim that agency is inherently moral will also be considered. This paper will argue that morality is a common thread that binds personhood, agency and self together and is essential for understanding human psychology.

A comparison study of moral judgment (personal/impersonal) between older and younger adults

Maryam Ziaei (Shahid Beheshti University)

Samaneh Asadi (University of Isfahan)

Shole Amiri (University of Isfahan)

Thursday—P.M.

The aim of this study was to investigate differences between personal and impersonal moral judgments between older and younger adults. For this purpose 160 participants (80 older and 80 younger) were selected randomly. Older adults were between 50-60 years old and younger group which is selected from university students, were between 18-22 years old. Participants were presented 10 stories (5 personal and 5 impersonal) with moral dilemmas were used. To link the imaging data to behavior the reaction time for each response was assessed as a means of speed of mental processing. Data will be analyzed using appropriate statistical models. And finally the results will be discussed according to related theories and literature compliances.

5:15-6:30 SY13 Symposium Session 13St John I

Exploring Indigenous conceptions of self, mind, and wellness

Organizer: Christopher E Lalonde (University of Victoria)

Discussant: Michael J Chandler (University of British Columbia)

This symposium explores the diverse ways in which Aboriginal groups in Canada are engaged in research activities. The session begins with a pair of presentations that describe the challenges that arise in the current context of research with Aboriginal peoples in Canada. The three papers that follow, will summarize the results of ongoing research projects being carried out with Aboriginal communities on the west coast, the prairies, and the northern regions of Canada.

Navigating the changing landscape of ethical guidelines for research involving Aboriginal peoples

Christopher E Lalonde (University of Victoria)

In Canada, research with Aboriginal peoples (First Nations, Métis, Inuit) is governed by several overlapping (and sometimes conflicting) sets of ethical guidelines. The federal funding agencies require researchers to adhere to a national policy statement regarding Ethical Conduct for Research Involving Humans. This statement does not contain policies that are specific to research with Aboriginal groups, however, but merely a set of "best practices". While new federal guidelines are being developed, universities, Aboriginal organizations, and individual First Nations have adopted policies and protocols that govern the conduct of researchers working within Aboriginal communities. In this presentation I outline the challenges these shifting sets of expectations pose for researchers and cultural communities, and provide several examples drawn from our own ongoing program of research into Aboriginal health.

Reframing and reclaiming research: Engaging First Nations communities in health research

James W Allen (University of Victoria)

Robin A Yates (University of Victoria)

In pursuing of their right to political self-determination, Aboriginal communities in Canada are also pressing for increasing control over research that occurs within their communities. This desire to assert authority covers not only studies that touch upon matters of traditional indigenous knowledge and cultural practices, but more recently to all academic research carried out with or about Aboriginal peoples. For First Nations, the process of redefining the nature of relationships between communities and researchers has been described as "reframing and reclaiming research." This paper describes the results of a collaborative venture between First Nations communities and a network of researchers in British Columbia to bring together key stakeholders for a series of community workshops to create new ways to carry engage in research with Aboriginal communities.

Thursday—P.M.

Youth health and the participation of women in First Nations governance

Robin A Yates (University of Victoria)

James W Allen (University of Victoria)

Christopher E Lalonde (University of Victoria)

The well-being of First Nations youth in British Columbia, Canada, appears to be influenced by community efforts to preserve and promote traditional culture and to assert control over community life. In particular, the participation of women in local government may have a positive influence on local youth. To investigate this community factor, in-depth interviews were conducted with eleven First Nations women, which revealed themes regarding how and why these women became involved in their local government, how they conceptualized their roles as women, what perspectives they held regarding the development and transmission of culture, and the ways in which they valued youth.

Is developmental theory informative about risk, resilience, and the promotion of wellness among Canadian Aboriginal adolescents?

Jake Burack (McGill University)

Tara Flanagan (McGill University)

Aron Blidner (McGill University)

Heidi Flores (McGill University)

Tamara Fitch (McGill University)

Models from developmental psychology are routinely applied to the study of resilience and wellness among different populations. Typically, in these models, individuals are active participants in their own developmental process as they are constantly engaged in complex transactions with the myriad of components that comprise the environment. Although the models are construed as universal, the various components of the transactions as well as the transactions themselves vary in relation to societal, communal, familial, and individual differences. To further fine-tune this conceptualization, well-being is not at all considered to be constant even for an individual, as the transactions and their components are in constant flux and reorganization in relation to changes across the life-span with regard to physiology, the psychological tasks that are associated with different ages of the individual, and the ways in which persons of different ages are treated and perceived. This approach provides a common framework of processes, but is it sufficiently sensitive to differences across individuals, communities, and populations? In particular, the focus of this presentation is the extent to which notions of risk, resilience, and well-being as conceptualized within these developmental frameworks are relevant, or can be made relevant, to Canadian Aboriginal adolescents.

Self-knowledge in Cree children: A tri-cultural study of self-cognition

Ulrich Teucher (University of Saskatchewan)

Peter Mitchell (University of Nottingham)

Haruo Kikuno (Osaka Shoin Women's University)

Theory-of-mind research shows that children as young as 3 to 4 years old confidently trust their own authority regarding the location of objects in the external world. In contrast, Self-knowledge research has claimed that Euro-American children younger than 7 years old ordinarily defer their authority regarding knowledge about themselves to their parents. Recent studies have lowered the age of success but it has remained uncertain whether these findings are culturally specific, representing Westernized notions of self and knowledge. More to the point: do Aboriginal children who live in communities where self-knowledge is tightly interwoven with kinship, spirituality, and one's place in the environment, have different concepts of such knowledge? The new line of evidence offered here indeed suggests such cul-

tural differences. Applying a cross-cultural methodology that we previously used for samples of children in Britain and Japan, we posed pairs of self-knowledge questions to children from Cree communities in Saskatchewan, offering a counter procedure for quantifying their answers, as well as eliciting their explanations for their scores. Preliminary results appear to confirm our predictions, namely that young Cree children believe that self-knowledge is not bounded by the individual self but is transparent to relevant guardians.

5:15-6:30 IS03 Invited Session 3 St John II

Theory of mind and the brain

Chair: Mark A Sabbagh (Queen's University)

Theory-of-mind development shows a universal, stereotypical developmental trajectory that can be particularly impaired in the case of neurodevelopmental disorders such as autism. These findings, and others, have inspired researchers to investigate the neural substrates underlying successful theory-of-mind reasoning. The goal of this symposium is to present four papers that provide a glimpse of the range of methodological and theoretical approaches that some researchers are currently taking to address these interesting issues with different populations.

The first two talks will discuss work that has used brain electrophysiological methods with preschoolers (i.e., EEG/ERP) to assess the functional neural changes that are associated with the development of false-belief reasoning. David Liu will provide evidence that preschoolers who pass false belief tasks seem to recruit left inferior frontal regions while solving the task, though preschoolers who fail false belief tasks do not. Liu will also talk about the neural systems that are recruited to reason about beliefs versus desires. Given that children's sophisticated desire reasoning emerges prior to belief reasoning, this work has the potential to shed light on the neurobiological developments supporting that timetable. Complementing Liu's work, Mark Sabbagh will talk about work from a relatively large sample of children showing that individual differences in baseline EEG activation over left medial frontal regions and right temporal-parietal regions predict children's performance on theory-of-mind tasks, while controlling for age, vocabulary, and executive functioning skills. These findings are informative about how neural developments set the stage for theory-of-mind development.

The remaining two talks will provide focus on the neural correlates of theory of mind in adults from complementary theoretical and methodological perspectives. Ian Apperly will talk about his and his colleagues' work with neuropsychiatric patients suggesting that lesions to right temporal-parietal regions may disrupt the deployment of theory-of-mind reasoning, per se, whereas lesions to frontal regions may disrupt the ability to perform computations that are critical to success on diagnostic tests of theory of mind, but nonetheless peripheral to theory of mind competence. Kevin Pelphrey will talk about his work using fMRI with adults showing that the superior temporal sulcus is critically involved in the processing of biological and intentional motion. Given that an emerging body of research shows that intention detection skills are present from very early in infancy, Pelphrey's findings provide a starting place for thinking about the neural foundations of theory-of-mind relevant achievements very early in development

Neural correlates of children's developing understanding of beliefs and desires

David Liu (University of Washington)

How do neuromaturation changes set the stage for preschoolers theory of mind development?

Mark A Sabbagh (Queen's University)

Thursday—P.M.

How can evidence from adults with brain injury constrain accounts of theory of mind development?

Ian Apperly (University of Birmingham)

Charting the typical and atypical development of brain mechanisms for social perception

Kevin Pelphrey (Duke University)

6:30-7:30 REC1 Reception1Grand Ballroom

President's Reception (Sponsored by LEA/Taylor and Francis, Publishers)

Modeling development of higher cognitive tasks

Organizer: Jan Boom (Utrecht University)

In this symposium a collection of recent work on modeling of development is brought together: conceptual, mathematical, logical, computational, and statistical modeling. Development is a complex process involving the emergence of new levels of performance, which often defies simple observation or experimentation and instead require sophisticated analysis and modeling. In general, modeling may make theory more precise, may connect different levels of abstraction, may integrate different strands of theorizing, and may lead to more valid measurement. The presenters will illustrate their ideas on modeling with concrete examples and empirical data where applicable.

The first presentation (Computational Developmental Cognitive Neuroscience: An Emerging Interdisciplinary Field) addresses the emergence of a new interdisciplinary field, involving research in computer science, neuroscience, and psychology. Here psychological methods are supplemented by detailed computational models inspired by discoveries in neuroscience. Examples illustrate: the importance of structural growth in simulating stages of psychological development; how psychological development results from integration of computationally separate brain modules; primitive robots as child surrogates in psychology experiments.

The second presentation (Modeling the Developing Mind: Towards a New Language for Specifying Changing Cognitive Structures) advances a framework that allows mapping the results of structural equation modeling and dynamic systems modeling of the organization and developmental interactions between cognitive processes with an analysis of their logical and conceptual characteristics. All in all, the paper will attempt to develop a new language for modeling and specifying cognitive structures that aims to integrate psychometric, cognitive, and developmental theorizing about the developing mind.

The third presentation (Fundamental Measurement Using Organismic Theories: Developmental Quantitative Models of Mental Attention) will focus on modeling of mental attention as a key component in higher cognitive functioning. The task modeled is a verbal-span task that yields a good measure of mental-attentional capacity. A dynamic interaction between several models is contrasted with a simple inhibitory model. The study is meant to illustrate how organismic theories, mental task analysis, and logical or mathematical modeling can dynamically interact to clarify organismic processes.

The fourth presentation (Strategies as a Latent Categorical Variable in Advanced Modeling) will focus on statistical modeling of the development of qualitatively different levels of thinking. The common core of these techniques is Logistic Regression. This will be illustrated in a non-technical way (with graphical means) with real data from a large cross-sectional data-set, a small micro-genetic data-set, and a simulated data. The IRT model will be briefly illustrated with data on moral development.

Computational developmental cognitive neuroscience: An emerging interdisciplinary field

Thomas R Shultz (McGill University)

Modeling the developing mind: Towards a new language for specifying changing cognitive structures

Andreas Demetriou (University of Cyprus)

Fundamental measurement using organismic theories: Developmental quantitative models of mental attention

Juan Pascual-Leone (York University)

Friday—A.M.

Janice Johnson (York University)

Manolo Escobar (York University)

Strategies as a latent categorical variable in advanced modeling

Jan Boom (Utrecht University)

9:00-10:00 SY15 Symposium Session 15 Volmer I

Symbolic and conceptual development in children's early understanding of number

Organizer: Marianne Wiser (Clark University)

Organizer: Mathieu LeCorre (Harvard University)

Discussant: Heike Wiese (Universität Potsdam)

The study of the development of arithmetic competence embodies much of the history of cognitive development over the last 30 years. On the one hand, Gelman and Gallistel have argued that the development of all of adult symbolic arithmetic competence is driven by a unitary, innate, non-verbal representation of the positive integers isomorphic to verbal counting. On the other hand, many (Sophian, Spelke, Carey, Fuson) have viewed counting as a socio-cultural activity and emphasized that the function and meaning of counting changes in ontogenesis, as counting gets internalized. Specifically, on this view the ontogenetic roots of the full adult arithmetic competence are comprised of several systems of representation that do not have the expressive power to represent the positive integers. The external symbols for numbers (the verbal count list, and Arabic digits) play a causal role in the construction of the full adult arithmetic competence out of the innate representations.

The participants in this symposium make a case for the latter view, presenting evidence that arithmetic competence is the product of the interaction between external symbolic systems and two innate mechanisms with numerical content, namely parallel individuation and analog magnitudes. Mapping the first four count words on their innate representations for small sets, children induce the notion that "next" in the count list means "add 1 individual" (the successor function). This generalization gives meaning to the count words they know, and to counting. Later, they map the numerals in their count list onto a representation of numerical size that is more compact than counting—i.e., analog magnitudes—which in turn supports the development of knowledge of the numerical order of the numerals (e.g., "ten" more than "six"). Another aspect of conceptual change about number and counting is manifest when children think of counting to compare sets, an ability that may be related to learning to use numerical notations to represent numbers.

How children construct the positive integers

Mathieu LeCorre (Harvard University)

Young children figure out how counting works when they grasp the successor function

Barbara W Sarnecka (University of California—Irvine)

Cardinality, counting to compare, and number notations

Doga Sonmez (Clark University)

Marianne Wiser (Clark University)

9:00-10:00 SY16 Symposium Session 16 Volmer II

ADHD and motivational modulation of cognitive control: Brain, behavior and treatment perspectives

Organizer: Hilde M Geurts (University of Amsterdam)

Organizer: Marjolein Luman (VU University)

Friday—A.M.

Discussant: Katrien S van Meel (Leiden University)

Children with Attention Deficit Hyperactivity Disorder (ADHD) have difficulties with adjusting to continuous changing environmental demands (Barkley, 1997). These problems have been recognized as malfunctions in cognitive control domain. Brain areas that have been associated with cognitive control problems in ADHD are, among others, the anterior cingulate cortex (ACC), the orbitofrontal cortex (OFC) and the dorsolateral prefrontal cortex (DLPFC). Recent theoretical frameworks suggest multiple causal pathways responsible for the pathogenesis of ADHD (Nigg et al., 2005; Sonuga-Barke, 2005). Next to problems in the cognitive control domain, motivational dysfunctions have been identified that are covered by malfunctions in both behavior and brain activity (limbic system, ventromedial prefrontal cortex (VMPFC)). There is empirical evidence of a reciprocal interaction between cognitive control and motivation (see for a review Luman, Oosterlaan & Sergeant, 2005): using appropriate motivational stimulation may modulate impaired cognitive control in ADHD. Greater understanding of the pathways that lead to the diagnostic category ADHD is of great importance for specifying the underlying brain dysfunction on the one hand and development of clinical management strategies on the other.

In the first talk by Edmund Sonuga-Barke (University of South Hampton) current theoretical thoughts on the causal pathways that lead to ADHD is provided by introducing the dual-pathway model (Sonuga-Barke, 2005). Implications for behavioral treatment are discussed. In the second talk by Hilde Geurts (University of Amsterdam) empirical data is presented that shows evidence of modulation of cognitive control functions (such as interference control) in ADHD by manipulating motivation. The role of social motivators is discussed here. The third talk by Marjolein Luman (VU University), focuses more on specific aspects of reinforcement that are critical in creating an optimum in stimulating the ADHD child to perform well. The final talk by Chris Hollis (University of Nottingham) focuses on a psychophysiological perspective of studying the interaction between cognitive control and motivation, using EEG measurements. Discussion by Katrien van Meel (Leiden University) focuses on the interaction between brain, behavior and implications for treatment. Furthermore, issues that need to be implicated in future research (such as the comorbidity problem) are discussed.

Conceptualising the role of reward and motivation in Attention Deficit Hyperactivity Disorder

Edmund Sonuga-Barke (University of South Hampton)

What's in a game? The effect of social motivation on cognitive control in children with ADHD and autism

Hilde M Geurts (University of Amsterdam)

Marjolein Luman (VU University)

Katrien S van Meel (Leiden University)

Motivational modulation of stimulus response learning in ADHD: Is frequent rewarding critical?

Marjolein Luman (VU University)

Katrien S van Meel (Leiden University)

Hilde M Geurts (University of Amsterdam)

Investigating the effects of motivation on electro-physiological measures of response inhibition in ADHD

Madeleine J Groom (University of Nottingham)

Chris Hollis (University of Nottingham)

Elizabeth F Liddle (University of Nottingham)

Martin J Batty (University of Nottingham)

Friday—A.M.

Amy C Goodall (University of Nottingham)
Carolyn Nahman (University of Nottingham)
Mario Liotti (Simon Fraser University)
Peter F Liddle (University of Nottingham)

9:00-10:00 SY17 Symposium Session 17 Volmer III

Non-reductive approaches to the emergence of perspective-taking and selfhood

Organizer: Jack Martin (Simon Fraser University)
Organizer: Bryan Sokol (Simon Fraser University)

Several recent attempts have been made to theorize the emergence of perspective-taking and selfhood during ontogenesis in ways that do not rely on strong forms of innateness or strict social determinism, or assume the pre-existence of mental structures and representations that sever the developing person from the sociocultural and biophysical world. Such approaches also avoid treating the agentive self as either mechanistically determined or transcendently free. What such attempts have in common is a focus on activity with others in the context of sociocultural practices. In such formulations, the “appropriation” of language and other sociocultural, relational practices as constitutive of mind and selfhood is possible only because of intersubjective activity in worldly context. Briefly put, it is only because we act in the world with others that we acquire perspectives and become selves at all.

In this symposium, three papers will be presented that theorize developmental accounts of perspective-taking and/or selfhood that minimize assumptions concerning pre-given representational structures and capabilities and emphasize the generative resources of interactivity within conventionalized relational and linguistic practices. Many of the ideas contained in these papers may be traced to the influence of Piaget, Mead, Vygotsky, and Wittgenstein. However, each of the presentations suggests important reinterpretations and extensions to the work of these influential scholars. In particular, new conceptions of emotional relatedness, social positioning and exchange, and pre-conceptual forms of agency and perspective-taking figure prominently in the accounts presented.

In addition to providing theoretical accounts of the emergence of perspective-taking and/or selfhood during ontogenesis, the presentations that constitute the symposium also draw on relevant research in developmental psychology, developmental psychopathology, educational psychology, and cognitive neuroscience in support of the theoretical positions and claims advanced. Implications for further empirical and theoretical inquiry are charted, and critical assessments of the proposals made are entertained.

Foundations for the self

R Peter Hobson (University College, London)

Moving between social positions: Cultivating the perspective of the other

Alex Gillespie (University of Sterling)

From positions to persons through perspectives: Extending Selman’s stage theory of perspective-taking

Jack Martin (Simon Fraser University)
Bryan Sokol (Simon Fraser University)
Theo Elfers (Simon Fraser University)

Emotional Development I

Chair: Kristin Neff (University of Texas at Austin)

Alone in one's suffering: The implications of perceived isolation versus recognition of common humanity when confronting personal inadequacies or negative life experiences

Kristin Neff (University of Texas at Austin)

In recent years there has been an increasing amount of research into self-compassion, a self-attitude construct that assesses feelings of self-kindness versus harsh self-judgment, a sense of common humanity versus isolation, and mindful awareness versus over-identification when confronting suffering or perceived inadequacies. Most research into self-compassion has been conducted using the Self-Compassion Scale (Neff, 2003), which includes the six components of self-compassion mentioned above. Research has typically only looked at total Self-Compassion Scale scores, however, and has not closely examined individual components of self-compassion. Two of the self-compassion subscales, common humanity and perceived isolation, are particularly worthy of independent examination as they tie into cognitive-developmental advances in social perspective-taking. One of the hallmarks of mature social understanding from a Piagetian perspective is the abandonment of egocentrism and increased recognition of shared as well as unique aspects of one's life experience. This paper will review several studies that specifically examine perceived isolation versus recognition of common humanity when confronting suffering or personal inadequacies. Results generally indicate that these aspects of self-other understanding are powerful predictors of healthy functioning. Perceived isolation tends to predict the most variance in outcomes, although feelings of common humanity also contribute to well-being, especially in terms of positive psychological health and academic motivation.

Emotional lexicon in written fictional narratives of securely and insecurely attached children

Rita Piras (University of Rome – La Sapienza)

This study aims at examining the relation between attachment security, as measured by the SAT (Attili, 2001), and mind comprehension, as the ability to refer to mental states by language: using terms that refer to internal states imply the comprehension of others as having a mind, and is considered an indicator of theory of mind (Bretherton & Beeghly, 1982; Bartsch & Wellman, 1995; Dunn, Bretherton & Munn, 1987; Camaioni, Longobardi & Bellagamba, 1998). The aim is to analyze the use of internal state words that refer to positive and negative emotion in children's written narratives, and verify if securely and insecurely attached children differ in their use of emotional lexicon in narratives. Participants were 135 Italian children equally distributed for each of the three primary school grades (3rd, 4th and 5th) and for gender (Boys: 64, Girls: 71). Ambivalent children used significantly more positive emotional terms than secure children and than avoidant ones. Ambivalent and avoidant children, didn't shown a different use in positive and negative emotional terms, whereas securely attached children used significantly more negative than positive emotional terms. Results will be discussed in terms of different strategies in emotion regulation that characterize the different kind of attachment.

Exploring potential mechanisms underlying rejection sensitivity and social anxiety: Using cognitive tasks to obtain a picture in milliseconds

Arlene Young (Simon Fraser University)

Marlena Szpunar (Simon Fraser University)

Children's attributions and expectations in social situations can have far reaching effects on their social and emotional development. It has been hypothesized that children with negative social expectations

Friday—A.M.

may differentially attend to and process negative or threatening social information, thus contributing to interpersonal difficulties. Rejection sensitivity and social anxiety have been described as contributors to ongoing negative expectations in social situations. This talk presents research utilizing cognitive experimental techniques to examine potential attentional biases associated with social anxiety and rejection sensitivity in children from grades 4 & 5 (N = 46) and grades 6 through 8 (N= 46). Children completed a dot-probe task depicting faces with neutral versus angry expressions. Results showed that, within the younger age group, children higher in rejection sensitivity and/or social anxiety were significantly more likely to show an attentional bias toward threat-related pictures. This finding held for all aspects of social anxiety: fear of negative evaluation; avoidance in new social situations; and general social distress. In contrast, no attentional bias was observed in older children regardless of their self-ratings for social anxiety or rejection sensitivity. Future research directions and implications of these results for an integrative model of the development of social-emotional difficulties are discussed.

Development of emotion regulation: A function of cortical efficiency

Connie Lamm (University of Toronto)

Marc Lewis (University of Toronto)

An important task of childhood is learning to regulate one's emotions, especially in social interactions. Yet, few studies have examined the neurocognitive correlates of children's emotion regulation. Recently, we conducted several studies examining the cortical signatures mediating the evaluation of negative feedback and cognitive control — key aspects of emotion regulation — in 5- to 16- year old children. To tap emotion regulation processes we designed an emotional go/nogo task. We were interested in two ERP components: the nogo N2, generally linked to cognitive control, and the feedback-related negativity (FRN), thought to represent evaluative processing of negative feedback. Results revealed decreases in amplitudes with age for both components, suggesting cortical efficiency. However, results could also reflect a variety of age-related changes, such as increases in skull thickness, that are only incidentally associated with neurocognitive function. Our third study investigated this problem by incorporating a number of executive-function tasks to measure the development of cognitive control at a behavioural level. Results suggest that age-related decreases in amplitudes are a function of cortical efficiency and not a structural epiphenomenon. Thus, increases in efficiency allow for the utilization of improved cognitive control and modulated evaluation of negative feedback, leading to better emotion regulation.

9:00-10:00 SY18 Symposium Session 18 St John II

The development of children's reasoning about ownership

Organizer: Ori Friedman (University of Waterloo)

Normal social interaction depends on our ability to reason about ownership, and to respect others' property. As such, reasoning about ownership is an important domain of social cognition. Nonetheless, little is known about the psychological basis for reasoning about ownership, and few studies have investigated the development of this ability in childhood. The four talks in this symposium address this gap in our knowledge: each presents new research on the development of children's ability to reason about ownership.

In Talk 1, Hay presents two observational studies examining an antecedent of ownership reasoning, possessive behaviour. The first study investigates whether toddlers protest when an object they possessed recently (but not currently) is taken by a peer, and also examines whether these protests are linked to children's later use of possessive pronouns. The second study investigates these protests, to the taking of recently possessed objects, in infants as young as 9 months.

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In Talk 2, Friedman presents two experiments investigating the heuristics children aged 3 to 6 use in determining who owns what. The first experiment investigates when children begin inferring that the person who first possesses an object is its owner. The second experiment investigates when children begin inferring that the person who decides who else is permitted to use an object is its owner.

In Talk 3, Blake and Harris present an experiment investigating 3- and 4-year-olds' ability to reason about ownership in scenarios where an object is transferred from one person to another. This experiment manipulates two factors: whether children are told that the object was brought from the first possessor's home or not, and whether the second person acquires the object as a gift or by theft.

In Talk 4, Kalish, Anderson, and Kim discuss ownership as a conventionalized status, and presents two lines of research. The first line of research investigates the ability of children, aged 4 to 5 and 7 to 8, to differentiate changes in ownership status (who owns an item) from changes in physical status (who has the item). The second line of research investigates 10-year-olds' and adults' intuitions about the legitimacy and effectiveness of different systems of conventions for ownership.

Taking toys from babies: Nonverbal antecedents to an understanding of ownership

Dale F Hay (Cardiff University)

When do children infer ownership from 'first possession' and 'control of permission'?

Ori Friedman (University of Waterloo)

Learning the rules of ownership: How children understand giving and stealing

Peter Blake (Harvard University)

Paul L Harris (Harvard University)

Children's understanding of ownership status

Charles W Kalish (University of Wisconsin-Madison)

Craig Anderson (University of Wisconsin-Madison)

Sunae Kim (University of Wisconsin-Madison)

10:30-11:45 PLO3 Plenary Session 3 Grand Ballroom

The foetal androgen theory of neural sex differences and autism

Simon Baron-Cohen (Cambridge University)

Autism (a condition leading to social and communication difficulties) affects males much more often than females. The explanation for this must either lie in diagnostic practice, hormones, or genetics, or a mix of all three. In this paper I summarize work from our lab investigating the role of foetal testosterone (FT) in post-natal typical behavioural sex differences (e.g., in social and communication development), and in the development of autistic traits. The study uses amniocentesis, the timing of which coincides with the surge in FT production, and is a longitudinal follow-up. Whilst this methodology does not rule out the role of genes, it suggests FT is a key factor underlying some key sex differences in the mind and brain, and may be related to the number of autistic traits an individual has. Converging evidence for the link between testosterone and autistic traits comes from two other sources: rare medical conditions where FT is elevated (such as Congenital Adrenal Hyperplasia) and the timing of puberty in autism (which is under the influence of androgens). The discussion ties these different lines of evidence together, and considers how FT has its effects in the developing brain.

Friday—P.M.

12:00-12:30 MEM Annual Member's Meeting Grand Ballroom

All conference participants are encouraged to attend.

1:00-2:15 SY19 Symposium Session 19 Foyer

Methods in cross-cultural research: Emics, etics, pleasures, and pitfalls

Organizer: Ashley E Maynard (University of Hawai'i)

Discussant: Maria-Christina Stewart (University of Hawai'i)

The 1990s brought to surface the importance of incorporating culture into theories and methods in psychological research. As researchers have learned the importance of considering culture and incorporating cultural sensitivity into their work, many are taking the time to encourage fellow scientists to join them in bringing culture to the forefront of their research. Segall, Lonner, and Berry (1998) and Weisner (1996) assert that culture is the main influence on human behavior; Marsella (1998) urges researchers to incorporate culture as a higher priority in our research; Bhawuk (2000) advocates for considering how worldviews influence the science we conduct, disseminate, and value; and Greenfield (1997) cautions us about our assumptions of other cultures and urges us to take a critical eye to how our research imposes our own culture. Although these are worthy goals, turning theory and an idealized approach to research into actualized sets of data brings with it many challenges. This symposium deals with a variety of issues in conducting culturally sensitive research, including the importance of addressing semiotics, cultural informants, triangulation of mixed methods, and issues in receiving funding in the pursuit of appropriate method design and data collection.

Semiotics will be discussed as a means for providing insight into how various interpretations arise from a single stimulus and how this knowledge may further elucidate constructive ways that we may design and administer culturally understood, relevant, and reliable instruments in qualitative research. The importance of informants, emic perspectives, cultural references, triangulation, and cultural adaptation of methods are also presented as means of producing ecologically valid data and enabling internal validation of methods. Research examples will provide a context for identifying and creating solutions for methodological issues in cross-cultural research. And of course, the influence of funding on methodology and the conduct of cross-cultural research should not be forgotten. As researchers seek funding for culturally sensitive research, they must be knowledgeable of the diversity of scientific criteria within qualitative methods in order to both engage in research that is tailored to their community and to defend their proposals to funding agencies.

Semiotics and the construction of culturally appropriate qualitative measures

Lance Linke (University of Hawai'i)

Cultural connections: Inside informants for minority research

Rebecca Luning (University of Hawai'i)

Methods in the cross-cultural study of infancy

Daria Ebnetter (University of Osnabrueck)

Culture-sensitive research with Maya street-working children: A mixed-method approach

Katrin Tovote (University of Hawai'i)

Culturally appropriate research: Qualitative methods and their funding climate

Marianna Fischer Valdez (University of Hawai'i)

Piaget's Theory I

Chair: Mark H Bickhard (Lehigh University)

Maturation of peripheral sensory systems and cognitive reorganizations: just coincidence?

A J Malerstein (retired-University of California, San Francisco)

Complete myelination of peripheral sensory tracts may be expected to assist reorganizations of cognitive structure. Until fully myelinated, neural tracts do not transmit information reliably to downstream neuronal circuits or schemes. The peripheral visual neural tracts are fully myelinated shortly before Stage 4 (8-12 Mo.) of the Sensorimotor Period, when the child clearly begins to differentiate one object scheme from another. The primary visual cortex responds differentially to lines or edges and movement of light flashed on the retina. The most reliable distinguishing feature of an object is movement of its edges as a set. The Stage-3 child has visual information reliably segregated in terms of line/edge-movement to construct the object schemes that characterize Stage 4. The peripheral neural tracts for hearing are not fully myelinated until shortly before the Intuitive Phase (4-7 yrs.) of the Preoperational Period. The primary auditory cortex responds to pitch along with a particular change in direction of pitch and to novelty of pitch or amplitude. Just prior to the Intuitive Phase, auditory information is reliably segregated in terms of such bits of sounds that would distinguish the components of words—e.g. faster vs. fastest, aslug vs. theslug—components that are critical for understanding seriation and classification, which begins in the Intuitive Phase.

The construction of physical reality by phase locking processes among perception-action cycles: Towards a psychological theory of brain

Luc-Laurent Salvador (Montpellier II University)

Laurent Ferrier (Montpellier III University)

The paper presents and defends a constructivist approach of the perception of physical reality which is novel in five respects: It is based on a monism of the cycle rooted in the baldwino-piagetian notion of organization conceived as a perception-action cycle tending to self reproduction. It is proposed that like any other cycles in physics, chemistry or biology, perception-action cycles constitutive of the body tend mechanically to phase locking at inter and intra-subjective levels. It is suggested that through locking perception-action cycles of different modalities come to a spatiotemporal agreement which makes the common phase appear as a reality, i.e., something independent of any of the cycles which are locked on it. Empirical validation will be found in a meta-analysis of the negative asynchrony phenomena observed in experimental situations of finger, hand or feet tapping. In the organization of the perception-action cycle, the brain appears to be situated at the precise locus where interactions with other cycles occur. This means that it is nor the alpha neither the omega of mind processes but a specific part of the body which evolved as the best possible medium for the phase-locking processes of ontologically priming cycles.

The brain doesn't work that way

Mark H Bickhard (Lehigh University)

The functioning of the brain cannot be understood in terms of neurons as threshold switches. Neurons don't work that way, and, in addition, neurons are not the only functional units in the brain. When we look at how the brain actually functions, we find strong support for an alternative—microgenetic—model of central nervous system functioning. Microgenesis, in turn, has strong implications for the nature of representation and cognition. It forces an interactive, pragmatic model of representation.

Friday—P.M.

Is behavior the motor of evolution? Piaget's interactivist and constructivist evolutionary theory

Brian D Cox (Hofstra University)

MarthaLeah Chaiken (Hofstra University)

Jeanette McCarthy Gallagher (Temple University)

Piaget never fully accepted the orthodox neoDarwinian theory. He did not believe that complex behavioral repertoires could be built solely by chance, but envisioned instead a bidirectional relationship between the actions of an organism and its genes. Far from being merely idiosyncratic, however, the theory was built in dialectic with the ideas of distinguished biologists, from James Mark Baldwin to C. H. Waddington, Jacques Monod and Paul Weiss in such works as *Biology and Knowledge* (1967/1971), *Adaptation and Intelligence* (1974/1980) *Possibility and Necessity* (1981/1987, 1983/1987), and finally, *Behavior and Evolution* (1976/1977). Piaget borrowed contemporary ideas in biology as support of his lifelong interest in organic auto-regulating systems and equilibration in knowledge development. Some of these ideas, unorthodox at Piaget's death, but increasingly supported in biology today, were incorporated directly into genetic epistemology. In this paper, we discuss Piaget's late evolutionary theory in light of some examples from today's work that accentuate the role of epigenesis in influencing genes that regulate development. We believe that examining these ideas in context will shed light on what Piaget was trying to do in the purely epistemological work of *Possibility and Necessity*.

From mental images to mental simulation

Sandra Bruno (University Paris 8)

In their book *Mental Imagery in the Child* (1971), Piaget and Inhelder experiment the relationship between In their book *Mental Imagery in the Child* (1971), Piaget and Inhelder experiment with the relationship between imagistic representation and thought. This question was not tackled by later researchers, at least, not within a strict-information-processing frame. But now, a new trend considers this issue in another light: one of conceptual understanding and problem solving. We will present a historical and comparative approach to static and dynamic mental imagery. We would like to outline and analyse the evolution of studies dealing with mental images, from Inhelder and Piaget 's work to contemporary discoveries: 1. The Piagetian position: Mental Images (MI) belong to the symbolic functions of the mind. The roots of MI are to be found in motricity: perceptive motricity and gestural motricity (internalized imitation). Moreover, the development of MI is under the control of logical operations, which allow us not only to represent static and reproductive events, but also to anticipate new events by mentally simulating their evolution. 2. The implication of motricity in MI: Neuroscientific data show motricity brain area activation during MI, converging with Piaget at three different points: the role of motricity in imagery creation, the role of motricity in encoding data and the role of motricity in imagery recalling. 3. Conceptualization and imagery simulation: studies in various area of research (education, naïve physics, problem solving ...) investigate how the visual mental representation of a phenomenon may precede its understanding.

1:00-2:15 PS11 Paper Session 11 Volmer II

Atypical Development I

Chair: Jake Burack (McGill University)

The self through time: Autobiographical memory and delayed self-recognition in typical development and autism

Sarah Lopez-Duran (Bard College)

Past research indicates that children with autism struggle with tests of autobiographical memory and demonstrate irregularities with regard to mirror self-recognition. To examine the link between auto-

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biographical memory and self-recognition, typically developing children were compared to children with autism on tasks of delayed self-recognition and recalling actions and mental states. Four groups of children were included: a) typical 3-year-olds, b) typical 5-year-olds, c) children with autism with a verbal mental age of 5 years and d) children with non-autism developmental delay with a verbal mental age of 5 years. Children with autism performed significantly worse than typical 5-year-olds on: delayed self-recognition, recalling whether they or an experimenter had placed a picture card during a card sort game, and recalling intentions during a turn-taking game. This is despite performing the same as typical children with regard to receptive language and visual memory. In contrast, children with non-ASD developmental delays performed similarly to typical 5-year-olds on delayed self-recognition, as well as recalling their own and another's intentions. It is possible that tasks targeting the link between the past and present self are uniquely challenging for children with autism spectrum disorders, and may indicate a difficulty conceptualizing of the self through time.

Development of theory of mind in young children with autism: Implications for theory and research

Rupal Bonli (University of Saskatchewan / Saskatoon Health Region)

Deborah Hay (University of Saskatchewan / Youth Resource Centre)

The study of atypical populations can provide insight into typical brain development and functioning. Theory of Mind Mechanism (ToMM) is one of the dominant theories in accounting for the social cognitive deficits that characterize autism. Although it has been influential in explaining these impairments in autism, the data on the universality and specificity of ToMM deficits in autism are unclear. Researchers are uncertain whether these differences are methodological or real. This study addressed the methodological issues identified in past research and examined the development of ToMM skills in a homogeneous group of high-functioning autistic children (aged 3 to 8 years; n=38) and in typically developing children (n=52). Five measures of ToMM were used and three types of analyses were performed. As a group, the autistic children performed as well as, or better than, their language-matched peers on tasks assessing precursor ToMM skills. As a group, they did less well on tasks assessing strategic deception and false belief. Interestingly, there were significant individual differences among the group. Almost half of the 7- to 8-year-old children with autism correctly responded to questions about deception and understanding another's false belief. The results are discussed in terms of implications for ToMM theory and research.

A comparison of optimal outcome children with a history of autism to high-functioning children with autism

Elizabeth Kelley (Queen's University)

Letitia Naigles (University of Connecticut)

Deborah Fein (University of Connecticut)

An earlier study documented continuing pragmatic and semantic difficulties in a group of 5-9-year-old optimal outcome (OO) children with histories of autism (Kelley et al., 2006). The current study assessed whether these children had caught up to their typically developing (TD) peers. Fourteen OO children (aged 9-14) were compared to a group of TD peers and a group of children with high-functioning autism (HFA). All groups scored within the normal range on standardized tests of language, NVIQ, and planning, although there was a tendency for the OO and TD groups to score higher on these tasks than the HFA children. The OO children scored significantly higher than the HFA group on more in-depth language tests, adaptive behavior, the ability to make inferences, and theory of mind. None of the OO group and all of the HFA group met the criteria for ASD on both the ADOS and the ADI, while the children in the OO group met criteria for autism by history on the ADI. Results confirm diagnostic assignment of the OO children, and suggest that they continue to close the gap with their TD peers while showing

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mild residual deficits in pragmatic and semantic functions.

Gene-brain-behavior relationships in autism: Insights into the genetic and neurological underpinnings of social cognition

Molly Losh (University of North Carolina, Chapel Hill)

Michele Poe (University of North Carolina, Chapel Hill)

Joe Piven (University of North Carolina, Chapel Hill)

Ralph Adolphs (California Institute of Technology)

Francesca Happé (King's College London)

This study examined social cognitive impairments that may index genetic susceptibility to autism, and the neural mechanisms underlying such deficits. Specifically, we aimed to identify those specific social cognitive abnormalities aggregating in families of individuals with autism to begin to delineate specific brain-behavior relationships of genetic significance to autism, and cast light on those neurological systems and structures involved in typical social cognitive development. Thirty-five high-functioning adults with autism and their parents, and their respective age- and IQ-matched controls were administered a battery of social cognitive tasks shown through lesion and fMRI studies to tap specific regions of the brain (amygdala, superior temporal sulcus, right somatosensory cortex). We detected significant impairments in both individuals with autism and their parents on four of the five tasks administered (all of which have been shown to rely on amygdala function). These results suggest that dysfunction in specific neural structures may be genetically mediated in autism. Findings will be discussed in relation to gene-brain-behavior relationships in autism, and implications for genetic and neurological underpinnings of social cognitive development in typically developing individuals.

Neural mechanisms of hot and cold executive functions in typical and atypical development: An electrophysiological investigation

Travis E Baker (University of Victoria)

Karin Brocki (Uppsala University)

Kimberly A Kerns (University of Victoria)

Sidney Segalowitz (Brock University)

Clay B Holroyd (University of Victoria)

From a developmental cognitive neuroscience approach, we investigated the neural and cognitive mechanisms that underlie both “hot” executive function (hEF) and “cool” executive function (cEF) in both typical and atypical development, specifically Attention Deficit Hyperactivity Disorder (ADHD), and Fetal Alcohol Spectrum Disorders (FASD). The specific aim of this project tested the hypothesis that many of the cognitive and behavioral impairments associated with these disorders result from the impact of abnormal reinforcement learning signals carried by the midbrain dopamine system on frontal brain areas involved in cognitive control. We examined the error-related negativity (ERN), a component of the event-related brain potential (ERP) associated with performance monitoring. ERN tasks included a novel T-Maze task (hEF) and a Flanker task (cEF). Results revealed that ERP components related to hEF, such as the feedback ERN and P200, were morphologically different for FASD and ADHD children compared to controls. Specifically, the FASD children differed significantly from ADHD and control participants with respect to the fERN, however ADHD children did not differ from control participants with respect to the fERN, but did reveal differences in the P200. Although children with ADHD and FASD demonstrate similar behavioral patterns, our ERP results suggest important differences underlying the neural etiology of these disorders.

Adolescence

Chair: Michael J Chandler (University of British Columbia)

Values concerning morality and social motivation in low-income Brazilian adolescents

Angela Uchoa Branco (University of Brasilia)

Priscila Parada (University of Brasilia)

Candida Alves (University of Brasilia)

The study of values and beliefs concerning morality, social interactions and relationships between people is extremely relevant in face of nowadays-pervasive individualism. Scientific knowledge about the ontogenesis of human values and ethics urgently demand psychologists to contribute with the promotion of moral and prosocial development. This study investigated the discourse of 12 low-income high school adolescents (15 to 19-years-old) living in Brazil, concerning germane topics related to moral and social issues. The participants were individually interviewed and participated of a focal group session. Excerpts from a soap opera were shown to incite moral reasoning, criticism and debate. Results showed an unexpected introvert and individualistic trend among the participants, who frequently reported their fear to approach new people. They only felt safe at home, and strangers were dangerous people, prone to lead them to a life of drugs and crime. When asked to take the perspective of the soap opera character, they chose passivity over action. Conflicts are always bad and dangerous, necessarily leading to violence. We discuss the psychological danger afflicting those adolescents, whose experience seems to develop passivity, a tendency to closure and unwillingness to participate of supportive social networks in the community.

Cognitive emotion regulation in adolescents and the role of emotion language

Gerda Wesseling (The Australian National University)

Richard O’Kearney (The Australian National University)

Tim Windsor (The Australian National University)

Don Byrne (The Australian National University)

By using a new technique to elicit emotion language and map the subsequent process of cognitive emotion regulation in adolescents, the role of emotion language in this process is investigated. Developmental shifts, gender differences, differences between internalizing and externalizing youth have all been shown in relation to emotion language. Similarly, these factors have been observed in relation to cognitive emotion regulation. This paper reports on the interplay between emotion language and cognitive emotion regulation in adolescents. More specifically, it firstly replicates some of the previous research into developmental shifts in emotion language, the impact of emotion language abilities on internalizing symptomatology and gender differences in emotion language. Secondly, links are made between differences in emotion language and differences in the process of cognitive emotion regulation, thus arriving at a model which contains emotion language, the process of emotion regulation and depression and anxiety. This model sheds light on the interplay of these variables, allowing us to better understand the complex processes underlying the mental health of adolescents.

“Storm and stress” redefined: Consideration of the timing of emotion-related changes in adolescence

Tom Hollenstein (Queen’s University)

The current view is that adolescence is a time when moodiness, conflict, and risk-taking behavior are more probable but that not every adolescent experiences such “storm and stress.” The present paper

presents an argument that challenges this notion to suggest that emotion-related changes are inevitable. Normative hormonal and neural changes indicate that there is a temporal gap between emotional arousability and the ability to regulate these emotions. Moreover, because the changes in the biological, cognitive, and social domains can occur over a wide age range, the relative timing of these transitions may be an important factor in determining individual differences in the timing, magnitude, quality, and duration of transient emotional upheaval. I will argue that the question is not whether emotion-related change occurs for only some adolescents, but (a) When does it occur? (b) How does it manifest? (c) How intense is the distress? and (d) How do environmental factors dampen or amplify these experiences? To begin answering these questions, preliminary data from the Adolescent Transition Questionnaire will be presented.

A developmental study of the relationship among some areas of frontal lobe performance, spatial ability and social cognition

Shole Amiri (University of Isfahan)

Maryam Ziaei (Shahid Beheshti University)

Samaneh Asadi (University of Isfahan)

The purpose of this study was to investigate developmental relationship among some areas of frontal lobe (orbitofrontal and dorsolateral prefrontal cortex) performance, spatial ability and social cognition. Reaction time was used to determine performance of subjects in tasks related to functions of those regions and variables. Using cluster sampling, 160 subjects were selected randomly from elementary, guidance, high schools and university students. Three groups of tasks were used: 1. Delayed Match and Non-Match to Sample Tasks, Letter fluency and WAIS-R in order to examine the role of DLPFC and OFC, 2. spatial ability tasks (rotation, location-exchange, location-shift tasks and the three mountain task of Piaget) and 3. Social cognition tasks (emotional and cognitive perspective taking). Data will be analyzed using MANOVA and Pearson Correlation. The results will be discussed according to theories and literature compliances

Freedom and responsibility: Age graded variations in adolescent attributions of moral agency

Travis Proulx (University of British Columbia)

Michael Chandler (University of British Columbia)

In our previous work on adolescents' developing conceptions of self-unity, age-graded variations were observed with Canadian adolescents describing themselves as increasingly multi-voiced and context dependent as they grew older. We anticipated that these observed age-graded variations in self-concept were partially motivated by the developing ways that adolescents and adults come to deal with matters of freedom and responsibility. We hypothesized that younger participants may express an internal locus of control for both their positive and negative behaviors (maximize freedom), while older adolescents may express an internal locus of control for their positive behaviors, and an external locus of control for their negative behaviors (minimize responsibility). To examine this hypothesis, Canadian high-school students were asked to separately explain why they believed that they demonstrated their 'good' and 'bad' behaviors. Their answers were coded as expressing either an internal or external locus of control. In keeping with our predictions, there were no significant differences between the mean ages of adolescents who expressed internal or external attributions for 'good' behaviors, however, adolescents who expressed an external locus of control for 'bad' behaviors were significantly older than those who externalized their 'good' behaviors. Furthermore, there was a strong linear relationship between young people's general conception of personal self-unity and their moral attribution for 'bad' behaviors; participants who generally view themselves as unified and autonomous generally adopt an internal attribution for their 'bad' behaviors, while participants who generally view themselves as polyphonous and contextualized

generally adopt an external attribution for these same behaviors.

1:00-2:15 PS13 Paper Session 13St John I

Social Interaction

Chair: Yasuji Kojima (Hokkai-Gakuen University)

Social interactive quality of parent-child scaffolding as a predictor of children's of executive function

Maximilian B Bibok (Simon Fraser University)

Jeremy I M Carpendale (Simon Fraser University)

The present study examines how specific social interactive patterns of parent-child scaffolding are predictive of the executive functioning (EF) of children, 20–28 months of age. Prior empirical and theoretical research has suggested that the quality of parental scaffolding is predictive of children's cognitive and academic performance. A ring puzzle was used to assess parent-child scaffolding of 90 parents and their children, and children were assessed on a battery of cognitive and emotional EF tasks. Patterns of parent-child interaction in which supportive parental behaviours follow the emotional/cognitive errors of children were predicted to be positively correlated, respectively, with children's emotional (inhibition) and cognitive (attentional switch) EF performance. Preliminary data suggests that global rating of parental scaffolding is positively correlated with children's attentional flexibility. Results of this study will help contribute to our understanding of how different forms of parent-child social interaction contribute to children's executive function.

Why do people open their mouths when feeding babies? The interplay of communicative and executive functions

Jodie A Baird (Villanova University)

Hrysoula Davis (Villanova University)

Courtney Casperson (Villanova University)

Julie Williams (Villanova University)

Diego Fernandez-Duque (Villanova University)

When feeding an infant from a spoon, many adults have a tendency to open their own mouths. Such automatic behavior may be part of an adult-infant dyadic interaction by which the adult elicits an imitative response in the infant (communicative intention hypothesis). In support of this possibility is the fact that infants are sophisticated imitators and that adults exhibit infant-directed speech and action. Alternatively, the opening of one's mouth may instead be epi-phenomenal. The 'feeding' context combined with sensorimotor cues from holding a spoon might act as cues to open one's own mouth. In this scenario, a failure in inhibition makes evident what would otherwise be a covert process. This executive failure hypothesis predicts that mouth opening will be negatively related to measures of inhibitory control such as the spatial compatibility task (Simon task). To address this possibility, we individually videotaped 16 female undergraduates who spoonfed cereal to 8-month-old baby M. who—in truly Piagetian style—was the daughter of the principal investigators (JAB & DFD). Subjects who frequently opened their mouths had largest conflict costs in the Simon task. Data in relation to the communicative intention hypothesis will also be discussed.

Beyond flight or fight: Developmental changes in young children's understanding of peer conflict

F Francis Strayer (Université Victor Segalen Bordeaux 2)

Emma Baumgartner (Università degli Studi di Roma 'La Sapienza')

Friday—P.M.

Bianca Pistorio (Università degli Studi di Roma 'La Sapienza')

This study examines children's reactions to peer conflict using direct observation, individual interviews and simulated puppet play. Reactions to physical attacks, object struggles, as well as verbal and disruptive aggression were coded in five categories; counter-attack, flight; emotional display, negotiate, and seek help. More than 900 episodes of naturally occurring conflict were observed in eight preschool groups. Drawing from sociolinguistics studies of verbal disputes, we attempted to isolate five coping styles. Theoretically driven clustering of children's reactions to provocation revealed four modes of coping with conflict: Fight, Flight, Standoff and Mediation. Differences in coping were systematically related to observer evaluations of individual differences in psychosocial adjustment, and to teacher reports on conflict management. Findings used to elaborate a developmental model of quantitative and qualitative changes in young children's reactions to social provocations.

Social construction of the self among elementary school children

Sofia Hue (Université Victor Segalen Bordeaux 2)

Contemporary models emphasize dynamic co-construction of the self in social context, a notion already evident in Cooley's conception of the Looking-glass self (1902). Nevertheless, theoreticians do not agree about which social source influence child's self-development. In the school setting, teachers, male and female peers represent primary sources of information that shape children's sense of themselves. This study examined how these representations of children's competences influence the emergence of individual differences in self-concept. 684 children evaluated themselves using Harter's (1979) "Perceived Competence Scale for Children". This instrument assesses personal perceptions on four dimensions of the self: cognitive, social, and athletic competences, as well as global self-esteem. Teachers and peers assessments provided measures of perceived academic competence, sociability, athletic ability, disruptive behavior, and withdrawal in the school setting. Findings revealed four multidimensional self-profiles: Excellent-Image, Cognitive-Image, Social-Image and Negative-Image. Discriminant functions analyses indicated how social perceptions were linked to specific self-images age and gender groups. Results indicated that girl's are more sensitive to teacher's evaluations, while boys refer mostly to peer opinions. Finally, results show that sex, age, and child characteristics modulate the link between perceptions of the child in the school setting and emerging representations of the self.

1:00-2:15 IS04 Invited Session 4 St John II

Social cognitive biases in development: A neuroscientific perspective

Chair: Wil Cunningham (Ohio State University)

Psychological research taking social cognitive and developmental perspectives has documented the fundamentally biased nature of social processing. Almost universally, people often perceive the world in highly egocentric ways with such processes develop early in life. In this symposium, current work in social cognition, developmental psychology, and social neuroscience will be presented regarding social biases with the goal of finding new insights at the intersection of these theoretical and methodological perspectives. Wil Cunningham and Joan Chiao will present data regarding the brain mechanisms underlying intergroup perception. Adam Rutland will explore the ways that children represent and express prejudice. Lastly, Jennifer Pfeifer will address the development of neural mechanisms underlying the processes of the self.

Automaticity and control in the evaluation of social groups

Wil Cunningham (Ohio State University)

Friday—P.M.

From me to we: Building blocks to group preference

Joan Chiao (Northwestern University)

Children's implicit and explicit prejudice: Self-presentation and social perspective taking

Adam Rutland (University of Kent)

Factors influencing self-relevant information processing in the pre-teen brain

Jennifer Pfeifer (University of California, Los Angeles)

Mirella Dapretto (University of California, Los Angeles)

Matt Lieberman (University of California, Los Angeles)

2:30-3:45 PLO4 Plenary Session 4 Grand Ballroom

The construction of commonsense psychology

Chris Moore (Dalhousie University)

Human social understanding is a conceptual system that assigns equivalent psychological capacities to self and other, while recognizing the possibility of diversity in psychological orientations to objects and states of affairs. This conceptual system requires a form of common representational code for both the observation and execution of intentional action. In this talk I present a constructivist approach to the development of social understanding. There are three core components of this approach: 1) general purpose pattern detection mechanisms that operate on multimodal input; 2) a structured social environment in which there is available matched first and third person information; 3) representation at progressively more abstract levels of meaning. Together, these components yield a series of levels of commonsense psychology, starting with a form that is intrinsically interactional and ending with a form that can be manipulated in imagination to organize future oriented decision-making.

4:00-5:00 SY20 Symposium Session 20 Foyer

Perception and action in social and non-social domains in children and adults: Re-thinking theory of mind, stimulus-response compatibility, and intentionality

Organizer: Adele Diamond (University of British Columbia)

Organizer: Bernhard Hommel (Leiden University)

Perception of another's action often leads to an internal motor representation of that action in the observer. Brass asks, "If there's a shared representational system for perception and action, how can we distinguish between internally generated motor representations and externally triggered ones?" He'll report evidence from functional MRI suggesting that the inhibition of imitative behaviour involves mechanisms related to the self-other distinction. Moreover, the data suggest it is not the experience that others are like me that enables Theory of Mind but rather it is the experience that others are different from me.

Humphreys has closely related data from patients with selective social reasoning deficits following brain lesions. Traditional Theory of Mind tasks require two abilities dependent on different neural systems: (a) inhibiting one's own self-perspective (dependent on lateral PFC) and (b) inferring someone else's perspective (not dependent on lateral PFC). More refined measures are required to tease these two abilities apart. Humphreys will also report evidence dissociating 'higher-level' social reasoning abilities from 'lower-level' ones (e.g., 'reading' emotions) and will discuss the implications for decomposing social reasoning processes.

Actions are mentally represented in terms of the perceived effects they produce (the goals of the actions). Hommel will discuss how the acquisition of action-effect associations can be studied even in infants.

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Action effects are perceived and encoded very early, and integrated automatically at the neural level. However, using those action-effect representations for intentional action relies on selecting contextually appropriate action-effect associations, requires frontal cortex, and develops later.

Perception of a stimulus on one side of space, even if it's location is irrelevant, causes children and adults to activate the hand on that side. To respond with the other hand requires inhibition of that. Thus people are slower to press the righthand button when they see a butterfly if the butterfly appears on the left of the screen versus the right. This "Simon Effect" is well documented in cognitive psychology. Diamond reports that if the task is shared so that the person sitting beside you should press the righthand button whenever the butterfly appears and you should press the lefthand button whenever the frog appears, you still show the Simon Effect. If, however, the interpersonal dimension is removed and the task is presented as a Go/No-go (press for frog, but not for butterfly), the Simon Effect is NOT found. This is as true in young children as it is in adults.

Reconceptualizing what enables a 'theory of mind'

Marcel Brass (Ghent University)

Exploring social cognition through neuropsychological case studies

Glyn Humphreys (University of Birmingham)

Dana Samson (University of Birmingham)

Ian Apperly (University of Birmingham)

Becoming an intentional agent: the development of voluntary action

Bernhard Hommel (Leiden University)

Rena M Eenshuistra (Leiden University)

Maaïke Weidema (Leiden University)

Development of a 'social Simon effect'

Adele Diamond (University of British Columbia)

Cynda Ashton (University of British Columbia)

4:00-5:00 SY21 Symposium Session 21 Volmer I

Neural foundations of social communication: Research findings from the FPR-UCLA Center for Culture, Brain, & Development

Organizer: Jennifer H Pfeifer (UCLA)

Discussant: Ashley Maynard (University of Hawaii)

How do we effectively communicate with each other during social interactions? Albeit clearly important, language itself is only one route to social communication. Affective information can be transmitted between persons via non-verbal facial displays of emotion. Speech can also be integrated with gestural information to enhance or alter spoken word meanings. A particular class of gestures—emblematic gestures, which are culturally specific—can even convey meaning without speech. This symposium presents innovative research on the neural foundations of social communication, ranging in topic from language to emotion and gesture. Specifically, three presentations using functional magnetic resonance imaging (fMRI) address the neural correlates of implicit language learning, understanding facial expressions of emotion, and integrating beat gestures with speech. A fourth presentation using transcranial magnetic stimulation (TMS) investigates the neural processes involved in observing culturally familiar and unfamiliar emblematic gestures. Several of these presentations also make use of varied populations including normal adults, typically-developing children, and children with autism spectrum disorder. Connections

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can be drawn among the different presentations based on commonalities between the neural regions supporting these varied facets of social communication. Like language learning, integrating beat gestures with speech involves primary auditory cortex. The mirror neuron system is implicated in processes supporting the interpretation of emotional expressions as well as culturally familiar emblematic gestures. Perhaps most strikingly, autistic children show similar deficits in recruiting frontal brain regions for two different social communicative tasks, language learning and emotion understanding. Together, these research findings demonstrate that neuroimaging and neuropsychological techniques, such as fMRI and TMS, can help us arrive at new insights about the origins of these important interpersonal abilities, as well as the causes of dysfunctional social communication skills that characterize pervasive developmental disorders like autism.

Neural correlates of implicit language learning: Effects of age and linguistic experience

Kristin Stamm McNealy (UCLA)

Ashley A Scott (UCLA)

Mirella Dapretto (UCLA)

Social communication in the face: Mirror neuron system activity to emotional expressions correlates with children's social cognitive functioning

Jennifer H Pfeifer (UCLA)

Marco Iacoboni (UCLA)

Mirella Dapretto (UCLA)

Do you see what I'm saying?: Gesture modulates activity in auditory cortex during speech perception

Amy L Hubbard (UCLA)

Stephen M Wilson (UCLA)

Daniel E Callan (ATR Computational Neuroscience Laboratories)

Social interaction and the brain: The imprint of culture on the neural processing of gesture

Istvan Molnar-Szakacs (UCLA)

Allan Wu (UCLA)

Francisco Robles (UCLA)

Marco Iacoboni (UCLA)

4:00-5:00 SY22 Symposium Session 22 Volmer II

Science learning, epistemology and development

Organizer: Jen Arner (Clark University)

Discussant: Marianne Wiser (Clark University)

This symposium takes as foundational the premise that science learning requires epistemological development and change. Each paper explores a different issue at the intersection of scientific epistemology and individual science learning. The first paper describes the development of epistemological understanding from pre-adolescence through young adulthood with data gathered in the context of an investigation of the development of scientific reasoning. Participants were assessed on a variety of components of scientific reasoning and epistemological understanding at ages 12, 17 and 21. Overall, the understanding that knowledge and information seeking are embedded within a theoretical context developed gradually and was far from ceiling even among the 21 year olds. Schooling and prior scientific reasoning skills helped explain some of the individual variation. The second paper presents evidence of conceptual

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changes in undergraduate students' understanding of mind and human nature. Data are presented regarding the growth of content knowledge by psychology majors as they are exposed to the discipline. It is further shown that compared to majors in other fields, psychology majors hold stronger beliefs regarding scientific over folk psychology but also adopt a more critical stance regarding any claims about mind. The third paper explores interactions between the personal epistemologies of undergraduates and the scientific disciplinary epistemologies which they encounter in science classes. While there is substantial surface similarity in students' personal epistemologies, further probing reveals significant differences at five key nodes: source and shape of knowledge, certainty of knowledge, nature of reality and assertions, role of intuition, and student's stance in relation to knowing. It is suggested these different patterns are the result of students' agentive reasoning about epistemological issues and deployment of epistemological resources in the context of their science learning, their own personal epistemology, and their social location.

Scientific reasoning and scientific epistemology: The development of understanding that theories are frameworks, not facts

Merry Bullock (American Psychological Association)

Beate Sodan (LMU München)

Petra Barchfeld (LMU München)

Conceptual change in undergraduate Psychology student's conception of the mind and human nature

Eric Amsel (Weber State University)

Personal and disciplinary epistemologies: Working the hyphen in scientific thinking

Jen Arner (Clark University)

4:00-5:00 PS14 Paper Session 14 Volmer III

Education

Chair: Yeh Hsueh (University of Memphis)

Specific school interventions modulate preschoolers' superordinate taxonomic categorization as a function of object kinds

Solene Kalénine (Université Pierre Mendès France)

Francoise Bonthoux (Université Pierre Mendès France)

Agnès Blaye (Université de Provence)

Recent experimental data suggest that concepts can derive from similarity and contextual/functional relations, their involvement varying according to children and domains (Boyer, Bedoin & Honore, 2000; Kalénine & Bonthoux, 2006), in accordance with a pluralistic approach of conceptual development (Lautrey, 2003, Siegler, 2006). Perceptive similarity relations processing would be more efficient to construct natural kinds categories, for which perceptual attributes are central. On the contrary, contextual/functional relations processing would be more efficient to form artefacts concepts, for which functional information is central (e.g., Hughes, Woodcock, & Funnell, 2005). The differential implication of these two processes could be also affected by school interventions. To test this hypothesis, 5 year-old children's ability to categorize natural kinds and artifacts at the superordinate level was assessed, before and after their participation to a 3-sessions specific intervention. Interventions leaded children to look for either perceptual similarities or common functions among objects. Results showed that the kind of intervention changes children's patterns of performances according to domains. "Perception" intervention improved natural kinds' categorization to the detriment of artifact's categorization. The reverse pattern was ob-

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served for “function” intervention. Implication of these results on the conception of cognitive development and on pedagogy has to be considered.

Children’s ideas about their natural worlds: An exploration from multiple perspectives

Robert Louisell (St. Cloud State University)

Francis Kazemek (St. Cloud State University)

Jerry Wellik (St. Cloud State University)

We explored how children develop their understanding of the natural world through cognitive development as well as through the stories and experiences of their culture. To what extent are children’s conceptions influenced by their culture; e.g., by adult explanations or experiences with children’s books and television? When children revert to their naive conceptions (Gardner, 1991) from more schooled ones (Vygotsky, 1962), are their ideas influenced by “spontaneous” thinking or by cultural influences? We conducted a Piagetian interview (Piaget, 1929) with each child and followed by having the child tell a story about the topic of the interview. Finally, we interviewed the child’s parents—and sometimes, teachers—to determine possible influences on the child’s ideas. Stories were analyzed for developmental complexity (Applebee, 1978). Findings reflected the complex relationship of individual to culture in the child’s construction of ideas. Implications included: Parents should be interviewed in order to give a richer picture of the child’s thinking, children’s stories should be studied in order to assess the complexity of the child’s rendering abilities, and researchers must persistently sleuth out those cultural artifacts that influence the child as she develops her ideas; otherwise, they may miss key clues to the child’s true ideas.

The practice in the growing construction of the teaching action of the social educator of PROERD: A reading according to Piaget

Dalton Gean Perovano (Federal University of Parana)

Sônia Maria Chaves Haraemiv (Federal University of Parana)

The present study aims to present an extract of the result of the research performed in 2006, which studied the conceptions of graduation of 157 Social Educators (operatory-formal) of the Educational Program to Combat Drugs and Violence—PROERD in the state of Paraná, Brazil, which works in the area of primary preventive education. One of the aspects pointed out in the research is to evaluate the importance that practical knowledge has regarding the development of this educator, once by appropriating his practices he constructs or re-constructs his thinking structures, enhancing his capacity both in comprehension and extension simultaneously. It was observed in the reports of the social educators of PROERD, who were involved in social activities related to the various areas of the community or education, that they had less difficulties with the demands from the classroom than the military police officers deriving from operational or administrative activities. Such thing can be explained throughout the reflexive abstraction process, which contains two inseparable aspects: reflexioning and reflexion. This (inferior platform) can be called reflexioning, in a mechanism denominated empirical abstraction, that for this educator are the experiences which precede his theory, then, to contain the reflexion as an mental action of re-construction and re-organization about the superior platform of what was transferred from the inferior one.

Actuality of Lev S Vygotsky’s work: Verification of Brazilian scientific researches between the years 2000 and 2006

Pedro Paulo Fernandes Lagatta (University of São Paulo)

João Bosco do Santos Baring (University of São Paulo)

Rogerio Lerner (University of São Paulo)

The objective of this research is to make a bibliographical, analytical and descriptive survey about the

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Brazilian scientific production referring to the work of Lev Vygotsky, in order to observe a field, to inquire the present time of the scientific production and to trace possible perspectives. The corpus of the research will be constituted by articles, dissertations and thesis found in remarkable databases at Sao Paulo, with the clipping of the work limited between years 2000 and 2006. The option for Lev Vygotsky was made because of his innovation and importance, as well as the fact that just recently Vygotsky's works had come into Brazilian academic studies. Its social-historical perspective considers at the same time neurological mechanisms, the evolution of the human species and the individual inserted in a historical materialistic context. Such consideration of the filogenetic, social and ontogenetic aspects allow the joint of different areas of knowledge, what makes possible ample analysis of the complex human being's characteristics. From there comes the importance of searching how the ideas of Vygotsky re-echo in the Brazilian scientific production.

4:00-5:00 SY23 Symposium Session 23St John I

Intersubjectivity and autism: Illuminating the one with the other

Organizer: Timothy P Racine (University of Manitoba)

Organizer: Jordan Zlatev (Lund University)

Discussant: Timothy P Racine (University of Manitoba)

Intersubjectivity, which is generally understood as the sharing of experiential content among two or more subjects, is a capacity that persons share to certain extent with other animals but of which human beings also seem to possess unique forms. And no human being is devoid of it completely, including individuals with autism even though they seem delayed or disrupted in the expression of some of its forms. The human mind is therefore quintessentially a "shared mind" and intersubjectivity is at the root of what makes us human. However, the dominant approach within psychology, cognitive science and philosophy has construed intersubjectivity in terms of "theory of mind" or "other minds". Despite the hypotheses and empirical yield generated by this approach, the framing of the phenomenon to be explained contrasts to that suggested in the current symposium. Assuming a primary separation between the self and (the minds of) others and the need for a "bridge" to transverse this gap either by theory or simulation has to a certain extent obscured rather than clarified this shared mind.

In our session we focus on children with autism because they provide powerful evidence for the existence of intersubjectivity through their difficulties in engagement with others. The breach that autism introduces into the intersubjective system is not only partially constitutive of this disorder, but also serves as a reminder of the taken-for-granted nature of basic intersubjective grounding in, and to a certain degree through which, human forms of social understanding develop. The papers explore the relationship between intersubjectivity and autism from a predominantly affective, cognitive or imitative point of view. Hobson and Meyer discuss the importance of identification in intersubjectivity and argue that a disruption in this system is implicated in autism. Barresi and Moore draw on the neuroscientific literature to suggest that the inability to combine proprioceptive and sensorimotor information about the self, with exteroceptive information about others is at the core of this syndrome. Zlatev argues that due to the impairment in self-other mapping children with autism have a serious deficit in bodily mimesis, which in his analysis is closely linked to intersubjectivity and which places autistic children on a qualitatively different developmental trajectory in their cognitive, social and linguistic development. This symposium promises to enhance our understanding of intersubjectivity as a foundational capacity in human social development and will offer fresh insights into the nature of and potential causes of autism.

Autism and the nature of intersubjectivity

R Peter Hobson (University College London)

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Jessica Meyer (University College London)

A failure of intersubjectivity: Why autism produces two types of ToM

John Barresi (Dalhousie University)

Chris Moore (Dalhousie University)

Autism as an impairment in bodily mimesis

Jordan Zlatev (Lund University)

4:00-5:00 SY24 Symposium Session 24 St John II

Social cognition and temperament in the first years of life: Insights from typical and atypical development

Organizer: Oana Benga (Babes-Bolyai University)

Organizer: Elena Geangu (Babes-Bolyai University)

The papers of the present symposium converge in addressing the complex relationships between temperament and social cognition in early years, along typical and atypical developmental trajectories. Papers put forward the multidimensional approach to temperament, understood as reactivity and self-regulation, and address social cognition from a broader perspective covering social referencing, joint attention, emotional face processing, as well as self-regulation of behavior in affective and socially-relevant situations. The interplay of social cognition and temperament is examined across early development, from infancy to preschool years, in typically as well as atypically developing children (children with trait anxiety, and children with perinatal brain injuries, respectively), across a multimodal spectrum of approaches—behavioral, cognitive, neurobiological.

Social referencing and temperament in reaction to an unpredictable fearful situation

Elena Geangu (Babes-Bolyai University)

Tricia Striano (University of Leipzig)

Executive attention contributions to individual differences in children's self-regulation

M Rosario Rueda (Universidad de Granada)

Social cognition, executive processing and temperament in early childhood: The special case of preschool trait anxiety

Oana Benga (Babes-Bolyai University)

Ioana Tincas (Babes-Bolyai University)

Laura Visu-Petra (Babes-Bolyai University)

Social cognition in children with perinatal brain lesions

Jasmina Ivšac (University of Zagreb)

Marta Ljubešić (University of Zagreb)

Sanja Šimleša (University of Zagreb)

5:15-6:30 PS15 Paper Session 15 Foyer

Emotional Development II

Chair: Michel Ferrari (OISE University of Toronto)

Cognitive emotion regulation in adolescents, a new technique to map this process

Gerda Wesseling (The Australian National University)

Don Byrne (The Australian National University)

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Tim Windsor (The Australian National University)

Research into the process of cognitive emotion regulation has, despite showing important links between components of this process and mental health outcomes, shown significant conceptual and subsequent methodological shortcomings. In fact when it comes to adolescents, there is no sound technique, based on empirical research, that measures this process comprehensively and within the actual, realistic context of adolescent lives. This paper reports on a newly developed technique, involving the provision of a naturalistic, standardized context, upon which adolescents are asked to report on the process of cognitive emotion regulation, starting with the perception of emotions, followed by the interpretation of the emotions, on to goal setting and finally emotion regulation strategy use. This process is mapped out and subsequently some links are made between this process and levels of depressive and anxiety symptomatology.

Disentangling automatic and controlled processing in children's attention to threat: A multinomial modeling approach

J Bruce Morton (University of Western Ontario)

Priscilla Burnham (University of Western Ontario)

Bertram Gawronski (University of Western Ontario)

Individual differences in attention to threatening stimuli are associated with anxiety in children (Vasey, El-Hag, & Daleiden, 1996) as well as developmental risk for psychopathology (Lonigan, Vasey, Phillips, & Hazed, 2004), and may reflect underlying differences in automatic and controlled processing (Derryberry & Reed, 2002). Current evidence is based largely on individual differences in dot-probe and Stroop task performance and variously suggest the importance of automatic/reactive and effortful/self-regulatory processes. These tasks are however not process-pure, making it difficult to cleanly disentangle the role of automatic and controlled processes in children's attention to threat. Our paper presents a method of disentangling the contribution of automatic and controlled processes to task performance based on the quadruple process model (Quad model; Conrey, Sherman, Gawronski, Hugenberg, & Groom, 2005). The model estimates the simultaneous contribution of four processes thought to underlie tasks commonly used to study implicit social cognition. Used in conjunction with offline measures, these estimates can be meaningfully linked to existing theoretical models of threat processing. As such, our approach offers a promising means of clarifying the contribution of automatic and controlled processes to individual differences in children's attention to threat.

The role of spatial frequency information in the perception of fearful facial expressions across childhood: An ERP study

Petra Vlamings (Universiteit Maastricht)

Chantal Kemner (Universiteit Maastricht)

Until now it is unclear which information in the face is important for the processing of facial expressions in children. The content of each visual stimulus can be described as a summation of frequency functions across space, entitled 'spatial frequencies' (SF). Low spatial frequencies (LSF) represent the large scale variations whereas high spatial frequencies (HSF) represent small luminance variations. Several studies have provided evidence for an LSF advantage for the recognition of facial expressions in adults and some have suggested the involvement of a rapid subcortical LSF pathway. To investigate the role of SF in the perception of facial expression across childhood, we compared Event-Related brain Potentials (P1 and N170) to LSF and HSF faces with fearful or neutral expressions in a group of 3-4, 5-6 and 7-8 year old children and adults. As expected, adults showed increased amplitudes for fearful relative to neutral facial expressions for the N170 when faces were presented in LSF. In the HSF condition this

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effect of emotion on the N170 was strongly reduced and showed longer latencies. Developmental effects were observed for the level at which effects of facial expressions occurred (P1/N170) and the spatial frequency band that was critical (LSF/HSF).

The importance of emotions to change blindness

Ingrid Braun (OISE University of Toronto)

Michel Ferrari (OISE University of Toronto)

Change Blindness (CB) is a failure to notice large perceptual changes. The CB literature has focused on the visual conditions under which subjects succeed or fail at detecting change. Researchers believe that CB occurs whenever attention is not drawn to the changing object, such as when the change is masked by a flickering screen or “mudsplashes”, when the change occurs during eye movements, or when objects slowly change. Under these circumstances, observers must use deliberate attentional effort to detect change, instead of the motion transients that usually accompany it. Research explores whether CB results from failure to encode, retrieve, or compare pre-change and post-changed objects. Research focuses on the “general cognitive or representational meaning of the scene”, but not its personal meaning (e.g., emotional response) to the objects in the scene. The CD paradigm is also used to track attentional biases, and explore attention to personally meaningful stimuli, but research concerns problems or disorders with those objects. Missing from the literature is any discussion of the personal emotional meaning of the task stimuli beyond anxiety responses. We propose that emotion plays a critical role in defining salience accounting for differential change detection to more or less meaningful objects.

5:15-6:30 PS16 Paper Session 16 Volmer I

Theory of Mind II

Chair: Saba Ayman-Nolley (Northeastern Illinois University)

Tattling among pre-school children: The development of strategic social cognition

Gordon P D Ingram (Queen’s University, Belfast)

Tattling is the reporting of another’s misbehavior to a third party, in the expectation that the audience will confront the miscreant. Tattling in children is similar to gossip in adults: both involve the processing of strategic social information, which was central to the evolution of cooperative behavior in humans. Yet little is known about the developmental transition from the overt behavior of tattling to the covert behavior of gossip. In a three-month study, a mixture of participant observation and behavioral ecology was used to investigate tattling in a Belfast pre-school. Techniques adapted from primatology revealed the hierarchical structure of pre-school social networks. Acts of tattling are not isolated events, but the culmination of protracted and repetitive struggles for control of resources, which take place between pairs of children at particular positions in the hierarchy, and escalate in predictable ways. Children with good strategic social cognitive skills tend to use tattling as a relational weapon against those who are less adept at reputation management. Variability in adults’ responses to tattling—depending on the nature and explicitness of the information they receive—encourages the development of moral reasoning and theory-of-mind skills, as young children learn how to argue a case more effectively.

When perspective taking fails: Lessons from children and adults

Daniel M Bernstein (Kwantlen University College)

Jessica A Sommerville (University of Washington)

Joy Durham (University of Washington)

Dieu-Huong Huynh (University of Washington)

Andrew N Meltzoff (University of Washington)

By 4.5 years of age, children begin to appreciate that they and others can possess false beliefs. The ability to succeed on false belief tasks entails not just an appreciation that oneself and others can hold mistaken beliefs, but also invokes a host of other processes—for example, ignoring privileged knowledge and reasoning from a naïve knowledge state (hindsight bias or the “I knew it all along” effect). In this paper, we review evidence to suggest that under certain circumstances children and adults have difficulty ignoring privileged knowledge. In Study 1, we show that false belief performance relates to hindsight bias in preschoolers. In Study 2, we show that adults, like preschoolers, fail to ignore privileged but irrelevant information in a modified false belief task. In this task, participants watch Sally hide an object in one location within a 5-foot long Styrofoam-filled “sandbox” and then leave the room. While Sally is away, Ann moves the object to a second location within the sandbox. As predicted, participants were biased towards the second location when estimating where Sally would look for the object upon her return. Thus, adults and children fail to ignore privileged information when reasoning about others’ beliefs.

Temperamental influences on preschoolers’ social understanding

Dagmar Bernstein (Simon Fraser University)

Kallista A Bell (Simon Fraser University)

Christine M Yu (Simon Fraser University)

Although social interaction is considered critical to children’s social development, little research has examined individual differences that may influence the ability to interact with others. “Behavioral inhibition to the unfamiliar” (BI) refers to a temperamental pattern characterized by initial wariness, avoidance, and fear, when a child is exposed to unfamiliar objects, people, and situations (Kagan et al., 1984, 1987). Behavioral inhibition has not been considered in research examining preschooler’s performance on established measures of social understanding (i.e., false belief and emotion understanding tasks). The first goal of the present study is to address this gap in the literature. The second goal is to examine whether maternal responses to children’s negative emotional displays play a role in relations between BI and social understanding. Preliminary results from 70 mothers and their 3 1/2 to 4 1/2 year-old preschoolers suggest that mothers’ ratings of preschooler behavioral inhibition are unrelated to their child’s false belief understanding, but negatively related to their child’s ability to accurately label emotions. Early results further indicate that parent reported preschooler BI is positively related to mothers’ reports of distress and minimization responses to their children’s negative emotions. Our preliminary findings underscore the importance of considering emotion and false belief understanding separately in studies of preschool social understanding. They also highlight the importance of considering individual differences such as temperament when studying early social cognition.

The developmental relation between theory of mind development and gender-typed development in early childhood

Michael Miller (University of Victoria)

The relationship between Theory of Mind (ToM) development and gender-typed development has rarely been investigated despite similar social-cognitive milestones that are achieved in both developmental domains during early childhood. The current study predicted that ToM and gender-typed development are not only related, but that progress in one domain positively contributes to development in the other domain. Children 5 to 7 years old were administered tasks examining social perspective taking, interpretive ToM, gender constancy, gender stereotypes, and gender transgressions. Results showed that children’s social perspective taking understanding predicted their gender constancy knowledge. Children with interpretive ToM understanding were also found to be more likely to accept gender transgressions

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over gender stereotypes. Although an effect between social perspective taking and gender stereotypes was expected, this result was not found. Implications for expected and unexpected results are explored along with considerations for future research.

The impact of gesture on speech processing: Evidence from behavioral and ERP data

R B Church (Northeastern Illinois University)

Spencer Kelly (Colgate University)

Saba Ayman-Nolley (Northeastern Illinois University)

This paper summarizes two bodies of research on speech and gesture processing: one examines behavioral data and one examines ERP data. The paper will demonstrate that gesture, through differential activation of the left and right hemispheres, increases the strength of neural pathways by employing multiple neural pathways simultaneously. One significant effect of gesture that accompanies speech is that new information conveyed in speech is acquired easily and is more durable. The ERP research provides a neurological explanation for why gesture that accompanies speech correlates with efficient and sustained learning patterns. Together, the results from both the behavioral and ERP data reinforce the claim that gesture and speech form an integrated system of meaning during language processing (McNeill, 1992). The simultaneous activation of the multiple neural pathways may increase the strength and durability of neural activity and thus, explain gestures impact on memory and learning.

5:15-6:30 DS01 Discussion Session 1 Volmer II

How versatile is video data?: Connecting methodology to theory in an international study of two-year-old girls

Organizer: Julia Gillen (Open University)

Organizer Roger Hancock (Open University)

Participants: Julia Gillen (Open University); Roger Hancock (Open University); C A Cameron (University of British Columbia); Giuliana Pinto (University of Florence)

This workshop session will provide a venue for the discussion of issues connecting methodology to theory in interpretive research using video analysis of young children and their families. Although our data will be drawn from our 'Day in the Life' ecological study of two-year-old girls in diverse global communities, it is envisaged that the questions raised will be of interest to those also engaged in research with features in common, such as the use of semi-naturalistic video data, qualitative research involving very young children, or simply any interest in interpretive research methods (including working with adolescents in diverse contexts to create a record of a day in their lives). The discussion session will be linked to the symposium, 'A Day in the Life: Studying strong children in diverse global communities: An ecological approach' although the presenters will take into account that the participating audience may not be attending both. The essence of an interpretive approach to research is participation in dialogue, and in particular, we will have the opportunity to interrogate the proposition that video data is 'much more versatile than other forms of data and can be viewed by researchers from diverse backgrounds and disciplines, who might bring fresh perspectives to the data analyses'. (Jacobs et al., 1999).

Together with audience participants we will engage in close examination of a particular sequence of data discussing connections between specific theoretical frames introduced and their potential for analysis of the data shown. It is envisaged that we will be able, in collaboration, to explore a cyclical analytical approach to video data, including watching; classifying; analysing; and returning to theory in an iterative process.

We will then explore a multidisciplinary orientation to our overall dataset, one which is particularly

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salient to notions of an ethnographic perspective. Welcoming the viewpoints of audience participants, we intend to further explore the potential yield from a short video extract, illustrating how 'video allows for sophisticated analyses of both planned and unplanned observations' (Jacobs et al., 1999).

In the final phase of the discussion we will turn to the specific issue of ethical implications of working with this kind of video data. The session will afford an opportunity to consider the affordances and constraints of the use of video in interpretive research, to enact participatory methods and reflexivity and to arrive at judgments concerning the rigour of interpretive and ecological approaches to research, prompted by Becker, (1996).

5:15-6:30 PS17 Paper Session 17 Volmer III

Piaget's theory II: Conceptual issues

Chair: Keith R Alward (Alward Construction)

Adults' teleo-functional ascriptions of purpose to nature

Deborah Kelemen (Boston University)

Evelyn Rosset (Boston University)

Krista Casler (Franklin and Marshall College)

Consistent with Piaget's suggestions of childhood "artificialism", contemporary studies have found that, until around 9 years, children differ from adults by evidencing a general bias to explain all kinds of objects and behaviors in terms of a purpose. This presentation explores whether this "promiscuous teleology" is truly a childhood phenomenon. The possibility examined here is that despite maturation and the formal and informal acquisition of physical-causal explanations, an intention-based teleo-functional bias persists in adults revealing itself when physical-causal knowledge is fragile or incentives or resources to engage in physical-causal explanation are limited. A first study involved Romanian Romani adults who by socio-political circumstance tend not to receive scientific schooling. Roma adults chose between teleo-functional and physical-causal explanations of living and non-living natural object properties. Unschooled Roma differed from schooled Roma and American adults by endorsing scientifically unwarranted teleo-functional explanations at the level of young American elementary school children. In a second study, schooled American undergraduates made speeded judgments of the veracity of warranted physical-causal and teleo-functional explanations and scientifically unwarranted teleo-functional explanations. Despite accuracy on control items, speeded participants were significantly more likely than unspeeded participants to endorse unwarranted teleo-functional explanations, again showing tendencies comparable to young elementary school children.

Stepping off the pendulum: Why only a thoroughly action based approach can fully transcend the nativist-empiricist epicycles and ground mind in the natural world

Jedediah WP Allen (Lehigh University)

Recent psychological proposals have attempted to reconcile the history of errors inherent to nativist and empiricist positions. These proposals share in their rejection of the nativist-empiricist debate as misguided or altogether incoherent—subsequent solutions typically take the form of some eclectic union or outright dismissal. The central thesis of this paper is that, in dissolving or ignoring the distinction between nativism and empiricism, researchers have failed to accomplish the shared goal of transcending the limitations inherent to their respective positions. Nativism and empiricism are two distinct attempts to account for the source of our knowledge. While different in this respect, they share in their commitment to foundationalism and both have a strong tendency towards anti-constructivism. Foundationalism is contrary to both a developmental perspective and to naturalism: any foundation that cannot itself be

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accounted for (in principle), must be wrong. An action-based approach constitutes a positive alternative to the problems inherent in foundationalism and it was this important difference that separated Piaget from both nativists and empiricists. Of contemporary relevance, a series of infant studies have revealed alternative perceptual explanations for a number of classic nativist experiments. We suggest that the failure of past researchers to provide these perceptual controls was derivative from their nativism and its anti-constructivist corollary.

Social cognition and social coordination: Implications from Piaget's theory

Keith R Alward (Alward Construction)

It seems appropriate at this 37th meeting of the Society to ask in what way Piaget's theory can help frame the topic of neuroscience and social cognition. Nearly the sum of Piaget's pertinent thought on the interaction between social cognition and psychology is to be found in two books, *The Moral Judgment of the Child* (1932), and *Play Dreams and Imitation* (1941); a third, *Sociological Studies* (1995), is a compilation of a lifetime of Piaget's essays on the matter. There is one overarching fact which unites these works and that is that rational and normative thought depend upon the development of the individual in concert with others. This theme is so central that it is hard to know whether the epistemic subject is the individual or the collaborative group. While it may be debatable whether rational and normative thought resides in the individual or the group, it is clear that Piaget views collaborative cooperative reciprocal social coordination as essential to such thought. It seems fitting to ask of neurosciences what light it can shed on the nature and source of these higher order social coordinations as well as their role in the development of that which most clearly defines human nature, the capacity for rational and moral behavior.

Piaget's notion of "pseudo-empirical abstraction": An important but not well-known bridge between empirical and reflecting abstraction within the equilibration process

Thomas Thiel (University of Potsdam)

In Piaget's notion of equilibration the gradual differentiation of the two basic forms of knowledge is of great importance: Empirical abstraction and reflecting abstraction. But he distinguishes another form of knowledge, which unfortunately is rarely mentioned in the secondary literature: pseudo-empirical abstraction. In this presentation I will show with the help of some examples (video) of the longitudinal project "The equilibration of cognitive structures" how pseudo-empirical abstraction supports the development of reflecting abstraction. In this project we let 4-year old subjects arrange objects (wooden pieces) in a container. The task was constructed that way that the objects could only be arranged in the container by classifying objects with the same features (size, curvature). Was a child not able to arrange all objects in the container he located the reason for that in the objects themselves and not in insufficient coordinations of his actions. During repeated encounters with the same task the subjects started gradually to differentiate properties of the objects from phenomena which emerge by relating objects. The subjects recognized that the latter are a product of their own actions and not properties of the objects themselves. These are pseudo-empirical abstractions. They are reflecting abstractions which still have to rely on perceivable phenomena which can be read-off from objects. But sometimes pseudo-empirical abstractions lead a subject into a dead end which is of theoretical interest.

Neostructuralism: A call for context in the pursuit of structure

Susan Jean Mayer (Independent Scholar)

In contrast to anthropology, which has drawn more centrally upon inductive method, the fields of psychology and sociology lose all sense of legitimate organizing purpose in the absence of structural analysis. At the same time, psychology, in particular, has suffered from the rampant—at times mindless—over-theorizing of purported structural findings as has been evidenced, perhaps most dramatically, in the area of

educational research. In this paper, I argue for a principled pairing of structural and contextual analyses in research that seeks to inform normative claims regarding issues of educational practice, as well as, I would think, societal issues more broadly. Joining structural and contextual analyses tends both to constrain facile generalization based on findings seen as structural and, at the same time, to intimate of such findings' deeper, even intuitive, implications. As background, I draw upon recent European scholarship tracking structuralist throughlines from Saussure to Foucault, aligning myself with the proposed notion of a "nonclosed and decentral structure as the "germinal thought" of neostructuralism" (Frank, M., 1989, p. vi). Indeed, I argue that Piaget's constructivist commitments can be seen as pointing toward this very conception of structure as open and partial.

5:15-6:30 SY25 Symposium Session 25St John I

Social interaction and the contexts of socio-moral development

Organizer: Bryan Sokol (Simon Fraser University)

Organizer: Theo Elfers (Simon Fraser University)

Within the cognitive-developmental tradition, the psychological processes of perspective-taking and empathy have both been seen to play critical roles in children's socio-moral growth. The role of broader contextual influences on such growth, by contrast, has been largely neglected and typically limited to approaches that treat context as an intervening variable—that is, as a secondary factor that either promotes or impedes the expression of socio-moral outcomes, without actually affecting the cognitive-affective mechanisms of individuals. One of the central goals of this symposium is to elevate context beyond this secondary role and to demonstrate its constitutive impact on the psychological mechanisms that underlie children's socio-moral development. To accomplish this, the contributors to the symposium each take a "person-in-context" approach that emphasizes the importance of social interaction and social contexts on children's development, especially in the expression of their prosocial behavior. The symposium presenters focus particularly on describing the relational dynamics of children's peer contexts, both at the level of school classrooms and the larger community. Although Piaget is not often noted for his contribution to the study of such contexts, his analysis from *The Moral Judgment of the Child* on symmetrical peer relations and asymmetrical adult-child relations will be used as a theoretical backdrop for discussing the empirical findings of the various presentations.

Social interaction, empathy, and concern for others: Exploring contexts of care

Stuart Hammond (Simon Fraser University)

Theo Elfers (Simon Fraser University)

Snjezana Huerta-Kralj (Simon Fraser University)

Bryan Sokol (Simon Fraser University)

Relational and contextual considerations in the evaluation of a school-based social emotional competence promotion program for school-aged children

Kimberly A Schonert-Reichl (University of British Columbia)

Veronica Smith (University of Alberta)

Denise Buote (University of British Columbia)

Angela Jaramillo (University of British Columbia)

What is good teaching? A neo-Piagetian approach to understanding teacher candidates' conceptions of teaching

Jason M Stephens (University of Connecticut)

GNA Garcia (University of Connecticut)

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Neighborhoods as social contexts for civic development

Daniel Hart (Rutgers, The State University of New Jersey)

M Kyle Matsuba (University of Northern British Columbia)

5:15-6:30 IS05 Invited Session 5 St John II

Neuroscience of emotions and emotion regulation: Implications for social cognitive development

Chair: Marc Lewis (University of Toronto)

Theory and data from the neuroscientific study of emotional processes is beginning to have a major impact on our understanding of social, cognitive, and personality development. In this symposium, investigators of developmental and emotional neuroscience will report on their work in this emerging area. Don Tucker will outline mechanisms of learning from modern animal learning theory that have an interesting correspondence with Piaget's notions of learning through assimilation and accommodation. He will then present a speculative model of how dorsal and ventral corticolimbic circuits consolidate memory in unique ways to mediate these learning mechanisms. According to Leslie Carver, infants use adults' vocalizations and behavior to regulate their own behavior in novel situations—known as social referencing. Carver will review a neural system the development of which is thought to lead to the acquisition of social referencing. She will present data on age-related differences in the individual functions that comprise social referencing and subsequent emotion regulation, identify the neural correlates of these functions, and discuss the relations between them. Kevin Ochsner has investigated the neural correlates of emotional reappraisal in adults, using fMRI techniques. In this presentation he will discuss developmental changes in these neural configurations and their implications for understanding how cognition can be used to control emotion. Marc Lewis will outline a model of emotion regulation conceptualized as the interaction among many regulatory systems across all levels of the neuroaxis. According to Lewis, feedback between cortical and subcortical regulatory processes changes with development, as different neural systems mature according to different timetables. Emerging individual differences in the balance of these regulatory processes determine pathways of personality development and psychopathology.

Neurophysiological mechanisms of assimilation and accommodation

Don Tucker (University of Oregon)

The developmental trajectory of emotional reappraisal

Kevin Ochsner (Columbia University)

Development and neural correlates of infants' use of adults' emotional expressions in novel contexts

Leslie Carver (University of California, San Diego)

Cortical and subcortical regulation of emotional development

Marc Lewis (University of Toronto)

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9:00-10:00 DS02 Discussion Session 2Foyer

Irv Sigel Memorial

Organizers: Eric Amsel (Weber State University), K Ann Renninger (Swarthmore College), and Merry Bullock (American Psychological Association)

This discussion session is designed to be a tribute to Irv Sigel, who was 84 years old when he died on February 25, 2006. We invite audience members to share memories and reflections about this remarkable scholar who was pioneer in the field of developmental psychology. This session will celebrate the Irv's contribution to the field, including his unique talent to weave applied concerns with theoretical issues. Trained at Clark University and the University of Chicago, he held positions at Smith College, Michigan State University, the Merrill Palmer Institute, University of Buffalo, and Educational Testing Service. He was a founder of the Jean Piaget Society and served as a board member and as the sixth President of the Society. We welcome those who knew Irv well, and those who knew only his work, to participate in this session. We encourage you to share your stories about Irv and his participation in the emerging discipline of developmental psychology and the Jean Piaget Society. As noted on the JPS web site, "for all of his accomplishments, for his wit and mentorship, and for serving as a role-model for so many, we all owe him a collective debt of gratitude. He left his field of developmental psychology in a much better place than he found it."

9:00-10:00 SY26 Symposium Session 26Volmer I

Celebrating engagement: Its place in human relations and psychological method

Organizers: Vasudevi Reddy and Alan Costall (University of Portsmouth)

Dis-engagement and detachment have become the methodological imperative within psychological research, They have also, as in the 'theory-theory' approach to Theory of Mind, become the paradigm of how we are all supposed to make sense of one another, namely, as dispassionate observers making inferences from the available, but inherently psychologically meaningless, behavioural data. Such dis-engagement and detachment both in our own theoretical stance and as attributed to the people we study are deeply problematic, since they provide no basis for explaining how the world becomes meaningful for the child nor how action itself can develop at all. The four papers in this symposium explore the phenomenon of engagement and the problems of detachment in different aspects of human functioning. Using a case study of Kleinaian group psychotherapy with children, Leudar explores how play between the child and other people in the situation reveal genuine engagement. Such engagement can be used therapeutically and can show changes within the engagement. Explanations of change which focus on the mediating role of theoretical constructs fail to capture this immediacy or its interpersonal power. The theme of 'unprincipled' engagement is picked up by Hutto who explores a radical enactivist account of intersubjectivity and argues that the origins of intentionality and experience can be explained through the engagement of intentional—and not propositional—attitudes and responses. Both papers take a challenging non-representational and embodied stance to explaining psychological engagement. Looking at adolescent violence and crime, Wilson explores the many ways in which humans come to dis-engage from other people. Different kinds of crimes against people can be explained through looking at how skilful people are in dis-engaging from other people, particularly their victims. Psychology not only has problems in its neglect of engagements amongst its 'subjects' on the ground, but conflicts within itself between proponents of methodologies which favour or don't favour engagement. Using examples from the study of infancy, Costall and Reddy argue that current contrast between second- and third-person methodologies where the former is regarded as engaged, and the latter as necessarily detached, is deeply misleading, and based on a dualistic conception of behaviour. Psychology needs to celebrate engagement. It is

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the only way that it will begin to comprehend how its 'subjects' could ever be intersubjective.

Conversation of emotions—how to convert play into psychotherapy

Ivan Leudar (University of Manchester)

Unprincipled embodied engagements: Social cognition without representation

Daniel Hutto (University of Hertfordshire)

Moral disengagement: Disengaging from the victim in adolescent crime

Clare Wilson (University of Portsmouth)

Engagement, detachment and the third person perspective

Alan Costall (University of Portsmouth)

Vasudevi Reddy (University of Portsmouth)

9:00-10:00 PS18 Paper Session 18 Volmer II

Atypical Development II

Chair: Sandra Bosacki (Brock University)

Gaze aversion and face-to-face arousal in Williams Syndrome

Gwyneth Doherty-Sneddon (University of Stirling)

Debbie Riby (University of Stirling)

Lesley Calderwood (University of Stirling)

Leanne Ainsworth (University of Stirling)

Making eye contact with others influences our physiological arousal (e.g. Gale, et al., 1972)—a possible explanation of why we avert our gaze from other's faces when we are thinking especially about difficult material (Doherty-Sneddon et al., 2002). William's syndrome (WS) is a rare genetic disorder characterised by, amongst other things, hyper-sociality including high amounts of eye gaze (Mervis et al., 2003). In the current study we investigate face-to-face arousal and gaze aversion (GA) in ten young people with WS (mean age 15:1). Participants answered mental arithmetic questions of varying difficulty in natural face-to-face question-answer interactions. Their GA behaviour was coded from video recordings of the interactions and their electrodermal activity recorded. As predicted people with WS GA less than age related peers however they increased GA as question difficulty increased. Like typically developing children and adults people with WS tended to show higher levels of physiological arousal when looking at another person's face than when looking away. However overall levels of arousal for the WS participants were much lower than typical groups—perhaps allowing greater tolerance of mutual gaze. The increased GA during difficult questions suggests a similarity with typical attention shifting.

Development of brain sexual dimorphism and emotional processing in schizophrenia

Adrianna Mendrek (Université de Montreal)

There is some new evidence suggesting that deviations from normal brain sex differences are implicated in a development of various psychiatric disorders, such as schizophrenia. A few neuroanatomical investigations have found an intriguing reversal of typical sexual dimorphism in schizophrenia, in regions involved in processing of affect, including anterior cingulate, orbitofrontal cortex and amygdala. We have observed an analogous effect in brain function of patients who underwent testing with functional magnetic resonance imaging during exposure to negative emotional stimuli. Specifically, relative to females, male patients exhibited significantly greater activations in several limbic and corticolimbic structures; pattern that is largely dissimilar to what has been observed in the general population. These

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studies imply potential “masculinization” of females and “feminization” of males with schizophrenia. It is conceivable that the disturbance originates in abnormal levels of sex steroid hormones (testosterone, estrogen) during neural development in utero (organizational effect), and is further exacerbated by the abnormal levels of circulating gonadal hormones in the adolescence and adulthood (activational effect), though this speculation requires further investigation. Overall, examination of neurocognitive and socio-emotional sex differences will help us unravel mechanisms underlying development of not only schizophrenia, but also other disorders such as autism, ADHD, or psychopathy.

Pre- and perinatal complications in relation to development of anxiety in children

Ellin Simon (University of Maastricht)

S Bogels (University of Amsterdam)

Individuals with anxiety (disorders) are characterized by difficulties interpreting threatening stimuli and organizing or coordinating his/her behavior accordingly. This results from genes and neurobiological factors on the one hand and history of stressors on the other hand. The current study aims to investigate those environmental risk factors that have the capacity of affecting the expression of genes and neurobiology of the anxious phenotype. Pre- and perinatal complications are hypothesized to affect early brain processes. It is investigated whether these complications occurred more frequently in children with anxiety (disorders). In addition, possible relations between pre- and perinatal complications and visuospatial-copying capabilities are studied, as this reflects organizational and coordinational functions. Parents of high-anxious (n=110) children selected for a prevention trial, and a control group of median-anxious (n=90) children (8-12 years) were interviewed on complications during the pregnancy and delivery. Moreover, children’s visuospatial-copying abilities were measured utilizing a copying task (Gurvits, 2002). Children’s anxiety (disorders) were assessed using the ADIS interview for children and parents. Effect sizes for pre- and perinatal complications in high anxious and normal anxious children are calculated, as well as correlations between these complications, visuospatial copying and anxiety. Preliminary results will be presented at the conference.

Psychological language and self-perceptions in aggressive/socially withdrawn and “typical” children

Sandra Bosacki (Brock University)

Kim Sargeson (Brock University)

Linda Rose-Krasnor (Brock University)

Kenneth H Rubin (University of Maryland)

Kim Burgess (University of Maryland)

We investigated the relations between self-perceptions and psychological language in groups of Aggressive/Socially Withdrawn (n=16, 6 girls) and Typical (n=16, 7 girls) children. Children were identified through peer nominations from a base sample of 690, mainly Caucasian fifth graders participating in a larger study on friendship development, using an expanded Revised Class Play. To assess self-perceptions, friendships, and expression of psychological language, children participated in standardized self-report measures and videotaped interviews. Transcripts were coded for language and themes representing psychological issues. Groups differed in some aspects of psychological language. Correlational analyses revealed relations between psychological language and self-concept across both groups, as well as revealing a group difference in the associations between self-language and perceptions of behavioural conduct. This suggests that psychological language may play different roles in children’s social experiences and self-perceptions according to their peer reputation. Implications for socioemotional and cognitive development were discussed.

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9:00-10:00 SY27 Symposium Session 27 Volmer III

Assessment studies of early childhood education

Organizer: Dominique Colinvaux (Universidade Federal Fluminense)

Organizer: Zena Winona Eisenberg (The City University of New York – Graduate Center)

Discussant: Joseph Glick (The City University of New York – Graduate Center)

This symposium is concerned with the assessment of different aspects of early child care, bringing together developmental and educational data from Brazil and the EUA. Both the child and the adult's point of view are considered in examining features such as spatial organization and routine, as well as the educational dimension of activities proposed to young children. The first paper, by Blower, Azevedo & Vasconcellos, is concerned with children's assessment of the architectural design and spatial organization of a child care centre in Rio de Janeiro, Brazil. Using a post-occupancy evaluation (POE) methodology, the children, aged 3, were asked to draw the centre and talk about their wishes and expectations. Findings help us to understand the children's viewpoint of a 'place' to be in and thus outline basic principles for a child care centre. The second paper, by Eisenberg, discusses children's understanding of time in the preschool environment. The study, carried out with 3 to 5 years-old children recruited from child care centres in greater New York city, examines temporal concepts as they are used in children's talk with their parents at home and through a sequencing task related to school routine activities. The third paper, by Colinvaux, analyses the educational activities carried out at an university-based educational centre for early childhood in Rio de Janeiro, Brazil, with children aged 1;6 to 6 years. Data consists mainly of teachers' reports, obtained in written form and through interviews, and also of children's views of the process. Findings show the main features of the educational activities in terms of subject-matter and kinds of activities, as well as modes of child participation during the several stages of a project. By articulating the views of children and adults about places, routines and educational activities, the symposium helps to outline a set of principles and practices for early childhood care.

Children's assessment of spatial arrangements

Hélide C Steenhagen Blower (Universidade Federal do Rio de Janeiro)

Giselle Nielsen Azevedo (Universidade Federal do Rio de Janeiro)

Vera M R de Vasconcellos (Universidade do Estado do Rio de Janeiro)

Children's understanding of time

Zena Winona Eisenberg (The City University of New York – Graduate Center)

Educational activities in early childhood care

Dominique Colinvaux (Universidade Federal Fluminense)

Maria Vittoria de Carvalho Pardal (Universidade Federal Fluminense)

9:00-10:00 SY28 Symposium Session 28 St John I

Adult developmental concepts and hierarchical processes

Organizer/Discussant: Michael Lampion Commons (Harvard Medical School)

In this symposium we will present data and analysis using concepts that have deep roots in adult developmental models that have looked at development not only as a hierarchical process. The first paper will briefly review three approaches to wisdom, and then describe studies that aim to develop an integrated approach to wisdom, based on hierarchical complexity. Three major psychological approaches to wisdom are the: 1) social judgment, 2) personality and 3) cognitive (see Shedlock & Cornelius, 2003). After discussing the major existing approaches to wisdom the current paper examines data comparing some

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of the wisdom scoring with hierarchical complexity scoring, and results from a new wisdom instrument that combines concepts from both approaches. In the second paper, the concepts of generativity and of self-transcendence will be compared. Levenson has distinguished between ontogenic, sociogenic and liberative models of adult development. The concept of generativity may be captured in an ontogenetic model, whereas the concept of self transcendence may be captured in a liberative model. By examining statistical relationships between the items used to measure these notions, we empirically find commonalities and differences. We use Rasch analysis and factor analysis of the items to see how many dimensions these items need to be represented. The last paper examines the notion of seasons and periods in adult lives. The content and timing of 'seasons' and periods seem to vary a good deal with culture, class and cohort. The extent of relationship between seasons and Erikson's periods is also unclear. The idea of seasons, and periods, are re-examined in this paper from a new developmental perspective that combines factors such as culture and class with the effects of the acquisition of know-how and economically and socially programmed life tasks. The main goal of this symposium is to address the results we achieved comparing these adult development concepts and the idea of postformal stages of development.

Psychological approaches to wisdom—strengths, limitations and a proposal integrating them

Helena Marchand (University of Lisbon)

Michael Lomport Commons (Harvard Medical School)

Patrice Marie Miller (Harvard Medical School)

The relationship between generativity and self-transcendence

José Ferreira Alves (University of Minho)

Michael Lomport Commons (Harvard Medical School)

Michael Levenson (Oregon State University)

Margarida Pedroso Lima (University of Coimbra)

Pedro Lopes dos Santos (University of Oporto)

Seasons of life and periods

Patrice Marie Miller (Harvard Medical School)

José Ferreira Alves (University of Minho)

9:00-10:00 SY29 Symposium Session 29 St John II

The development of action understanding and action control in infancy

Organizer: Birgit Elsner (University of Heidelberg)

By definition, an action is a movement that is directed to a certain goal or that is performed to initiate desired changes in the environment. From an outside perspective, an action comprises two observable components: a movement and an effect produced by that movement. The outcome may have been intended by the agent, and thus, action effects are observable cues to underlying action goals. Because the intentional states of others have to be inferred from the overt action components, both the movement and the effect have to be represented to understand the actions of another person. This symposium combines four talks focusing on how infants understand goal-directed actions of other persons in the first two years of life, and how they develop the ability to perform own actions to attain their goals.

Southgate and Csibra investigated whether infant goal-attribution is based on own experiences or on more abstract principles, like efficacy. Six- to 8-month-olds looked longer at a biologically possible, but less efficient, goal-directed action than at a biologically impossible, more efficient, action. Thus, infants attribute goals to unfamiliar actions that adhere to the efficiency principle, even if these actions are biologically impossible and therefore cannot be familiar.

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In the study by Biro and Verschoor, infants watched goal-directed actions that differed according to the efficiency of the goal approach. Results show that the efficiency of the actions in the familiarization phase has an influence on goal attribution in the test phase.

Klein and Hauf familiarized 6-month-olds with certain actions on objects that produced specific effects. In a following test phase, infants looked longer at events in which the relations between actions and effects were reversed than at events in which these relations were unchanged. Hence, 6-month-olds notice changes in action-effect relations, which implies that they relate specific actions to specific effects.

Elsner familiarized 7-, 9-, and 11-month-olds to an action and an effect, and then changed either the action or the effect in two test trials. The looking times to the habituation films and to the test films were compared to see whether infants notice the changes and whether they find one of the changes more interesting. The results of all age groups give an integrative picture of infants' understanding of goal-directed actions in the first year of life.

Infants attribute goals to biologically impossible actions

Victoria Southgate (University of London)

Gergely Csibra (University of London)

The role of efficiency of action in infants' goal attribution

Szilvia Biro (Leiden University)

Do 6-month-old infants learn action-effect contingencies by observation and show visual anticipation afterwards?

Annette M Klein (Max-Planck-Institute for Human Cognitive and Brain Sciences)

Petra Hauf (St. Francis Xavier University)

Infants' perception of goal-directed actions in the first year of life

Birgit Elsner (University of Heidelberg)

10:30-11:45 PL05 Plenary Session 5Grand Ballroom

Empathy: A neurophenomenological and neuroconstructivist view

Evan Thompson (University of Toronto)

Recent models of empathy in affective and cognitive neuroscience propose that empathy has four main components: (i) affective sharing based on perception-action coupling; (ii) self-other awareness; (iii) mental flexibility to adopt the perspective of another; and (iv) emotion regulation. These components correspond closely to models of empathy in the tradition of phenomenological philosophy. I explore this convergence and present a unified "neurophenomenological" account of empathy. I also link this account to neuroconstructivist views of brain and mind.

Developmental Neuroscience I

Chair: Patricia H Miller (University of Georgia)

I didn't expect that! Neural systems in infancy and adulthood for anticipating goals

Vincent Reid (Durham University)

Tricia Striano (University of Leipzig)

Do infants understand the goals of other people's actions? If infants do detect goals, is it consistent with how adults process this information? As adults, we process and interpret this information in terms of intentions, beliefs and desires. In a previously unrelated line of research, neuroscientists have investigated the properties of language processing in the adult brain which has shown that specific neural responses exist for processing semantic information embedded in sentences. In developmental research, there have been continuing arguments about the parameters of understanding others in early development, as until now a direct comparison of infant and adult action processing capacities has not been made. In the presented experiments, we developed a paradigm based on language processing research whereby infants and adults assessed simple streams of action and were assessed in terms of the same neural mechanism—the N400 component of the event-related potential. Results demonstrate that 9-month-old infants use similar neural systems to adults when anticipating the conclusion of actions, providing evidence for this capacity. We detected a semantic processing system in preverbal infancy, suggesting that the semantic processing of language may rely on the same neural system as, or derive from, action understanding in early development.

Development of the human prefrontal cortex in childhood and adolescence

Harry B M Uylings (VU University Medical Center)

Zdravko Petanjek (University of Zagreb)

The development of the cerebrum is fascinating because of the multitude and complexity of the processes involved. At different time courses a multitude of neurons are generated and migrate across large distances, through other fibres and cell groups. These neurons differentiate mainly when they have reached their final location and are connected with particular neurons. In this way neuronal systems and cortical area specification arise that are necessary for the execution of many functions. The general rules of development are genetically programmed rather than each individual connection. In this presentation we will review the structural development of the human prefrontal cortex, which can be correlated with particular phases of human cognitive development. The development of cortical dendrites occurs mainly until 3-4 years of age, and chemical/ neurotransmitter maturation continues until the end adolescence. No postnatal neurogenesis is detected in human Broca's area.

Attending to sensory integration through goal-directed movement: An interdisciplinary approach utilizing science education to enhance neurocognitive development

Sinéad O'Reilly (Centre for the Advancement of Science Teaching and Learning)

T J J McCloughlin (Centre for the Advancement of Science Teaching and Learning)

H Gash (Centre for the Advancement of Science Teaching and Learning)

Odilla Finlayson (Centre for the Advancement of Science Teaching and Learning)

Sensory integration is a well-documented goal of human development that is understood to come about through adaptive iterative interactions between the human and the environment. In pragmatic terms, it is only in the case of impaired sensory processing do researchers begin to delve further into the compo-

nents of the process of sensory integration. Dysfunction may lead to difficulties in praxis that is often commensurate with the child being hindered in intellectual development due to the constraints imposed by their physical and/or social limitations. Sensory integration dysfunction is typically a symptom of several unrelated developmental disorders such as autistic spectrum disorders and other conditions, e.g., Down's syndrome. Remediation has typically been in the form of occupational therapy or other therapeutic programmes, a key component of which is active participation in goal directed movement. Heretofore, movement was thought to be crucial for learning, however only in terms of enhancing overall wellbeing and fitness. Now, it is known to be more fundamental than this, leading to neural development and improved functioning of the central nervous system. This work outlines one interdisciplinary approach to ongoing remediation contextualized within the mainstream primary school classroom, through the medium of learning science in an active, movement oriented environment.

Executive functions after age 5

Patricia H Miller (University of Georgia)

Lara L Jones (University of Georgia)

Executive functioning (EF) includes cognitive skills such as inhibition of prepotent cognitive responses, planning, flexible shifting from one set (e.g., sorting by color) to another (e.g., sorting by shape), and updating information in working memory. Most of this research has examined preschoolers. This paper examines EF during the school age years. EF continues to improve and becomes increasingly localized in the frontal areas of the brain. Studies have focused on school achievement, and often have found significant, though usually moderate, relations with EF. Significant correlations with language and math skills, source monitoring, suggestibility, and delay of gratification have been reported. Theoretical issues include, for example, whether EF is one or several cognitive functions, whether different EF components have different developmental trajectories, and whether the cognitive, biological, and social correlates of EF change from one age to another. Of methodological concern is that studies assessing preschoolers tend to use different sorts of tasks than studies assessing older children, and thus may not be assessing the same underlying EF components. A comparison of research on preschoolers and schoolage children reveals both similarities and differences in theoretical issues examined, methods used, and results obtained. The paper concludes with an agenda for future research.

Socioeconomic status and the neural correlates of auditory selective attention and self-regulation: An event-related potential/cortisol study

Amedeo D'Angiulli (Thompson Rivers University)

Anthony Herdman (Simon Fraser University)

David Stapells (University of British Columbia)

Joanne Weinberg (The University of British Columbia)

Gregory Miller (University of British Columbia)

Tim Oberlander (Children's & Women's Health Centre of BC)

Edith Chen (University of British Columbia)

Ruth Grunau (Children's & Women's Health Centre of BC)

Kimberly Schonert-Reichl (University of British Columbia)

Clyde Hertzman (University of British Columbia)

To investigate the relations between socioeconomic status (SES) and the neural correlates of selective attention and self-regulation, we compared Event-Related Potentials (ERPs) from a group of low- and high-SES children (aged 11-12) during an auditory selective attention task. Pre-and post ERP cortisol levels were determined from saliva samples collected during the school day, before and after the task. We

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found that while high-SES children “filtered out” distracters, low-SES children attended to distracters (the irrelevant information) as often as they attended to targets (the relevant information); this was reflected in the ERP difference waveforms between attended and unattended auditory stimuli or Nd (difference negativity)—significantly larger in the high-SES group. The Nd differences occurred without differences in concurrent behavioural performance (as reaction times and accuracy did not differ in the two groups). Cortisol levels over time followed the same trend in low and high-SES children. For high-SES children, however, an increase in selectivity of attention corresponded to an increase in post-ERP cortisol levels, whereas this relationship was weak and non-significant in low-SES children. Electroencephalographic power analysis confirmed that although they performed similarly, the children from the two groups recruited different neural processes to control their response to irrelevant information.

1:00-2:15 SY30 Symposium Session 30 Volmer I

The development of spatial literacy and schooling

Organizer: Susan L Golbeck (Rutgers University)

Discussant: Eric Amsel (Weber State University)

Literacy has traditionally been defined as the ability to read and write spoken language. But, children begin to explore many symbols systems besides written language during their school years. Some of these are embedded in traditional academic disciplines (e.g., mathematical notations, mapping and cartography). Others are more general such as drawing and photography. In this symposium, we will explore the notion of spatial literacy, its development, and its relevance for children’s learning in school. Four presentations will address children’s learning and the ways it can be influenced by the use of a specific spatial representational system. By considering the use of spatial representational systems across childhood and adolescence and across several discipline areas we are able to explore some interesting questions about learning and development more generally. Since the notion of spatial literacy has received relatively little attention in the developmental literature, this symposium should raise interesting questions and provide directions for future inquiry.

The first presentation, by Susan Golbeck, will focus on spatial literacy in early childhood and preschool. She will consider children’s use of photographic representations within the context of a traditional early childhood curriculum. In the second presentation Lynn Liben will discuss children’s use of maps in school and other real world contexts. She explores the notion of spatial thinking and map education across the elementary school curriculum. Rich Lehrer and Marta Kobelia consider mathematics learning and specifically geometry in fifth and sixth grade children. In their work, geometry is used as a vehicle for establishing mathematical literacy. Finally, Bruce Homer will present work from the Molecules and Minds Project. This is focused on high school students learning chemistry in a multi-media learning environment. Homer will present his work on the role of the learner’s prior knowledge, presentation format (the use of iconic images) and spatial knowledge in student learning. The discussant, Eric Amsel, an editor of the recent JPS volume, *Language, Literacy and Cognitive Development*, (Amsel & Byrnes, 2002), will reflect upon this work and speculate on the notion of “spatial literacy.”

Young children’s use of graphic images in classroom based activities: Influences of spatial knowledge and instruction?

Susan L Golbeck (Rutgers University)

Recruiting spatial thinking for using “real” maps in “real” environments

Lynn S Liben (The Pennsylvania State University)

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Inquiring about space: Developing mathematical habits of mind

Richard Lehrer (Vanderbilt University)

Marta Kobiela (Vanderbilt University)

Paul Weinberg (Vanderbilt University)

Mode of representation and individual factors in multimedia environments for learning chemistry

Bruce D Homer (New York University)

Jan L Plass (New York University)

1:00-2:15 ISO6 Invited Session 6 St John II

Moral development: The implications of work in neuroscience

Chair: Ulrich Müller (University of Victoria)

The study of moral development has a long and rich tradition in developmental psychology, and has been strongly influenced by the work of Piaget and Kohlberg. Within this tradition, moral development has been explained in terms of social-cognitive processes (e.g., social interaction, perspective taking), and moral judgment has been considered to be largely rational. Recently, there has been a surge of interest in the neurophysiological basis of moral reasoning. Taken together, the findings from this line of research challenge some of the major tenets of the traditional developmental approach to moral reasoning.

Unfortunately, there has, until now, been little exchange between neuroscientists and developmental psychologists. The goal of this symposium is to initiate such exchange. The contributors to this symposium will address the important questions such as: How can neuroscience inform developmental theorizing? What are limitations of the neuroscientific research on morality?

Elliot Turiel will argue that the potential of research on the neurological basis of morality to inform as about moral development remains unrealized because this research fails to address epistemological issues pertaining to the nature of the moral domain and its differences from other social domains. By contrast, research that accounts for epistemological considerations and their connections to features of situations entailing moral and social conflicts shows that moral and social judgments are central to processes of rational considerations in decision-making.

James Blair will present data indicating the important role that the amygdala and ventromedial prefrontal cortex play in some basic aspects of moral reasoning. He will also present data indicating dysfunction in these structures in individuals with psychopathy and argue that this dysfunction is the basis of their profound impairment in moral reasoning.

Jeremy Carpendale and Bryan Sokol will suggest that because morality evolves within social contexts, attempts to explain the construction of moral values and principles at the biological or neurological level are poorly suited to understanding the socially constitutive features of morality. Because morality depends on constructing meaning, and meaning is non-mechanistic, morality cannot be completely reduced evolved emotional reactions to particular events.

Paul Eslinger will present data from fMRI studies of typically developing children and clinical case studies that show that orbital and medial regions of the prefrontal cortex are critical mediators of developing social-moral emotions. These findings will be interpreted within the theoretical framework that most ordinary human action is implicitly moral and guided by social-moral processing at cognitive and emotional levels.

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The relevance of moral epistemology and psychology for neuroscience

Elliot Turiel (University of California, Berkeley)

Morality: The guiding of behavior through the interaction of the amygdala and ventromedial frontal cortex

James Blair (National Institute of Mental Health)

Is a neuroscience of morality possible?

Jeremy Carpendale (Simon Fraser University)

Bryan Sokol (Simon Fraser University)

Moral emotions in children and adolescents: fMRI data and the consequences of early frontal lesions

Paul J Eslinger (Penn State)

1:00-2:15 PT01 Poster Session I Grand Ballroom

Poster Session 1

1. Attachment insecurity and transgenerational transmission

Géraldine Bouchet (Université Toulouse II)

Sylvie Duthu (Université Toulouse II)

Teresa Blicharski (Université Laval)

Sylvie Bourdet-Loubere (Université Toulouse II)

2. What will you do next? Infants' use of attention versus emotion cues as predictors of behavior

Amrisha Vaish (Max Planck Institute for Evolutionary Anthropology)

Amanda Woodward (University of Maryland)

Laura Schofield (University of Maryland)

3. Do children with behaviourally inhibited temperament show a selective attention bias when encountering threatening and/or novel faces?

Marlena Szpunar (Simon Fraser University)

4. Social adaptation to preschool and maternal separation anxiety

Manuela Veríssimo (UIPCDE, ISPA)

António J Santos (UIPCDE, ISPA)

Carla Oliveira (UIPCDE, ISPA)

Ligia Monteiro (UIPCDE, ISPA)

5. How do the relational aggressors view the self and the friendship: The case of Chinese adolescent females

Ching-Ling Cheng (National Taiwan Normal University)

6. Development of perspective-taking and social evaluation fear in adolescence

Sindy Sumter (Leiden University)

Caroline Bokhorst (Leiden University)

Anne Miers (Leiden University)

Anke Blöte (Leiden University)

Victor Kallen (Leiden University)

Michiel Westenberg (Leiden University)

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7. *Attachment script representations: Associations with stylistic features of maternal and paternal narratives*
 - Ligia Monteiro (UIPCDE, ISPA)
 - Manuela Veríssimo (UIPCDE, ISPA)
 - António J Santos (UIPCDE, ISPA)
 - Orlando C Santos (UIPCDE, ISPA)
8. *Parent's concerns about internalizing and externalizing problems in preschoolers*
 - Ruth L Coupland (Simon Fraser University)
9. *Perception of biological motion in autism*
 - Dagmara Annaz (University College London)
 - Anna Remington (University College London)
 - Elizabeth Milne (The University of Sheffield)
 - Ruth Campbel (University College London)
 - Mike Coleman (University College London)
 - John Swettenham (University College London)
10. *Broader autism phenotype in parents of autistic children*
 - J E A Stauder (Universiteit Maastricht)
 - A M Scheeren (Universiteit Maastricht)
11. *Individual difference predictors of reading in individuals with down syndrome*
 - Kallista A Bell (Simon Fraser University)
 - Arlene Young (Simon Fraser University)
 - Larry E Roberts (McMaster University)
12. *Understanding of mind and emotion in children at risk of ADHD—an investigation of executive functioning and theory of mind in hyperactive and impulsive pre-schoolers*
 - Małgorzata Woźniak-Prus (University of Warsaw)
13. *Contagious yawning in children with and without autism*
 - Atsushi Senju (University of London)
 - Makiko Maeda (The University of Tokyo)
 - Yukiko Kikuchi (The University of Tokyo)
 - Toshikazu Hasegawa (The University of Tokyo)
 - Yoshikuni Tojo (Ibaraki University)
 - Hiroo Osanai (Musashino Higashi Gakuen School)
14. *Dissociation between key processes of social cognition in autism: Impaired mentalizing but intact sense of agency*
 - Nicole David (University of Cologne)
 - Astrid Gawronski (University of Cologne)
 - Natacha S Santos (University of Cologne)
 - Albert Newen (University of Tuebingen)
 - Kai Vogeley (University of Cologne)
15. *Theory of mind and social skills in typical preschoolers and children on the autism spectrum*
 - Candida Peterson (University of Queensland)
 - Jessica Paynter (University of Queensland)

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16. *Learning about objects in joint attention interaction: Live vs. TV*
Eugenio Parise (University of Leipzig)
Allison Cleveland (University of Leipzig)
17. *Great apes' understanding of others' line of sight*
Sanae Okamoto-Barth (Maastricht University)
Josep Call (Max Planck Institute for Evolutionary Anthropology)
18. *Direct gaze modulates face recognition in newborns*
Enrica Menon (Università degli Studi di Padova)
Silvia Rigato (University of London)
Teresa Farroni (Università degli Studi di Padova)
Mark Johnson (University of London)
19. *Individual differences in 4-month-old infants' response to a still-face procedure*
Nancy Mcquaid (Simon Fraser University)
20. *Encoding the goal of an uncompleted reaching action in 6- and 9-month-old infants*
Moritz M Daum (Max Planck Institute for Human Cognitive and Brain Sciences)
Wolfgang Prinz (Max Planck Institute for Human Cognitive and Brain Sciences)
Gisa Aschersleben (Saarland University)
21. *Great apes' referential use of emotional expressions*
David Buttelmann (Max Planck Institute for Evolutionary Anthropology)
Josep Call (Max Planck Institute for Evolutionary Anthropology)
Michael Tomasello (Max Planck Institute for Evolutionary Anthropology)
22. *Executive function and symbolic representation: Improving children's performance on the Less Is More task*
Danielle M Beck (University of Washington)
Stephanie M Carlson (University of Washington)
23. *Encoding and remembering the actions of others: Visual scanning and behavioral recall of the elicited imitation paradigm*
Thanujeni Pathman (Duke University)
Patricia Bauer (Duke University)
Kevin Pelphrey (Duke University)
24. *The selection of information seeking strategies: Do children prefer to look or ask?*
Kristen Dunfield (Queen's University)
Julie McLaughlin (Queen's University)
Tara Shuster (Queen's University)
Stanka A Fitneva (Queen's University)
25. *Adults orient faster towards upright than inverted schematic face: Continuity of face biasing system from birth?*
Przemyslaw Tomalski (University of London)
Mark H Johnson (University of London)
26. *Attribution of beliefs by 13-month-olds*
Luca Surian (University of Trento)

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27. *A developmental study of attentional versus perceptual processing in visual filtering*
Tamara Dawkins (McGill University)
Oriane Landry (The University of Nottingham)
Tara Flanagan (McGill University)
Darlene Brodeur (Acadia University)
Jake Burack (McGill University)
28. *Bridging the gap between neuroscience and qualitative methods: “glass boxing” computational cognitive simulation using agent-based modeling*
Paulo Blikstein (Northwestern University)
Uri Wilensky (Northwestern University)
29. *Early child care services and school readiness at 6 1/2 years: Who benefit from it ?*
Marie-Claude Geoffroy (Université de Montréal)
Sylvana Côté (Université de Montréal)
Jean R Séguin (Université de Montréal)
Sophie Parent (Université de Montréal)
Richard E Tremblay (Université de Montréal)
30. *The construction of scientific concepts in pre-operatory children*
Ronaldo Souza de Castro (Universidade Federal do Rio de Janeiro)
Eliana Bhering (Universidade Federal do Rio de Janeiro)
Heloisa Beatriz Alice Rubman (Universidade Federal do Rio de Janeiro)
Thatyana Machado Silva (Universidade Federal do Rio de Janeiro)
Raquel R Santana (Universidade Federal do Rio de Janeiro)
Jaqueline V F Domingues (Universidade Federal do Rio de Janeiro)
Monique A O Mendes (Universidade Federal do Rio de Janeiro)
Djalma B C Junior (Universidade Federal do Rio de Janeiro)
31. *You played with what on where? Infants’ understanding of object-surface relations*
James D Morgante (University of Massachusetts – Amherst)
32. *Developmental differences in the schema of an old person: What do children’s drawings say?*
Saba Ayman-Nolley (Northeastern Illinois University)
Jennifer E Baker (Northeastern Illinois University)
Lisa Krause (Northeastern Illinois University)
33. *Effects of a play-and-narrative intervention program on pretend play abilities of preschool children*
Hande Ilgaz (Lehigh University)
Ageliki Nicolopoulou (Lehigh University)
34. *Not just child’s play anymore: Parental perceptions of play in the 21st century*
Kelly Fisher (Temple University)
Kathy Hirsh-Pasek (Temple University)
Shelly Glick Gryfe (Fisher-Price, Inc)
35. *The effects of elaboration strategy instruction on the source monitoring performance of young children*
Valerie San Juan University of Calgary)

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Suzanne Hala (University of Calgary)

Alisha Brown (University of Calgary)

36. *Neural evidence for the detection of threat based on facial expression and eye gaze direction in seven-month-olds*

Stefanie Hoehl (Max Planck Institute for Human Cognitive and Brain Sciences)

37. *The neural correlates of inhibitory control in preschool children: Go/no-go task demands influence P300 amplitude and latency*

Sandra A Wiebe (University of Nebraska-Lincoln)

Daniel J Carroll (University of Birmingham)

Kimberly Andrews Espy (University of Nebraska-Lincoln)

38. *Differentiated brain activity for familiar and unfamiliar faces in mothers and their 3-and 6-month-old infants*

Martha E Arterberry (Colby College)

Marc H Bornstein (National Institute of Child Health and Human Development)

39. *What happens when I see my friends: Neural activation in relation to friendships*

Berna Güroglu (Radboud University Nijmegen)

Gerbert J T Haselager (Radboud University Nijmegen)

Cornelis F M van Lieshout (Radboud University Nijmegen)

Atsuko Takashima (FC Donders Centre for Cognitive Neuroimaging)

Mark Rijpkema (FC Donders Centre for Cognitive Neuroimaging)

Guillen Fernandez (FC Donders Centre for Cognitive Neuroimaging)

40. *Children's developing self-knowledge: what is different about dreaming and thinking?*

Stacey McHenry (University of Saskatchewan)

Ulrich Teucher (University of Saskatchewan)

41. *Social perception in the infant brain: Gamma oscillatory activity in response to eye gaze cues*

Tobias Grossmann (University of London)

Teresa Farroni (University of London)

Gergely Csibra (University of London)

42. *Top 5 conceptual questions in moral-cognitive neuroscience*

Noah Susswein (Simon Fraser University)

Sofia Meneres (Instituto Superior de Psicologia Aplicada)

43. *Meaning to be mean: Neural bases of detecting benevolent versus malevolent intentions*

Jeremy G Stewart (Queen's University)

Mark A Sabbagh (Queen's University)

Valerie A Kuhlmeier (Queen's University)

Tania Tzelnic (Queen's University)

44. *Development of the social brain: Changes in brain mechanisms underlying cooperation and competition*

Wouter van den Bos (Leiden University)

Eric van Dijk (Leiden University)

Eveline Crone (Leiden University)

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45. *Neurocognitive development of imitation inhibition: An fMRI study*
Jonne Oldenburg (Leiden University)
Egbert Hartstra (Leiden University)
Serge Rombouts (Leiden University)
Marcel Brass (Ghent University)
46. *Development of body image in toddlers*
Celia A Brownell (University of Pittsburgh)
Margarita Svetlova (University of Pittsburgh)
Sara Nichols (University of Pittsburgh)
Stephanie Zerwas (University of Pittsburgh)
Geetha Ramani (Carnegie Mellon University)
Yuliya Rinberg (Carnegie Mellon University)
47. *Positive attribution bias from playing a prosocial video game?*
Darcia Narvaez (University of Notre Dame)
Bradley Mattan (University of Notre Dame)
Carl MacMichael (University of Notre Dame)
48. *Teacher influences on school children's self concepts*
Marie Laurence Bon (Université Victor Segalen Bordeaux 2)
49. *Adults, peers and emerging self concepts among primary school children*
Judith Rousse (Université Victor Segalen Bordeaux 2)
50. *Modes of self representation during the primary school years*
F Francis Strayer (Université Victor Segalen Bordeaux 2)
51. *American and Japanese children's preference for the lucky*
Kristina R Olson (Harvard University)
Yarrow Dunham (Harvard University)
Carol S Dweck (Stanford University)
Elizabeth S Spelke (Harvard University)
Mahzarin R Banaji (Harvard University)
52. *Developmental changes in conceptions of the good life*
Aileen Edele (Max Planck Institute for Human Development)
Charles C Helwig (University of Toronto)
Gabriel Rauterberg (Yale Law School)
53. *Children as psychologists: The development of folk psychology in Korean children*
Hei-Rhee Ghim (Chunbuk National University)
Areum Kim (Chunbuk National University)
Jae-Yeon Cha (Chunbuk National University)
Si-Mi Yi (Chunbuk National University)
Hyeonjin Lee (Yeungnam University)
54. *When west meets east: Euro-Canadian children's evaluations and justifications of lie-telling in prosocial situations*
Trudi S F Chan (University of British Columbia)

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Cindy Lau (University of British Columbia)
Jennifer O’Leary (University of British Columbia)
Kang Lee (University of Toronto)

55. *Socializing through storytelling: Mothers’ internal state language and preschoolers’ social skills*

Michelle J Craig (Florida State University)
Stephanie M Curenton (Florida State University)

56. *Piaget’s contribution to the development of students’ creativity and mental image*

Maria Judith Sucupira da Costa Lins (Universidade Federal do Rio de Janeiro)
Edson Seiti Miyata (Universidade Federal do Rio de Janeiro)

57. *Two aspects of information-driven interactions: Towards a theory of consciousness*

Reza Maleeh (University of Osnabrueck)

58. *The role of efficiency of action in infants’ goal attribution*

Szilvia Biro (Leiden University)
Stephen Verschoor (Leiden University)

59. *Cognitive flexibility in bilingual and monolingual preschool children*

Emma Climie (University of Calgary)
Carly McMorris (University of Calgary)

60. *Auditory cues boost infants search for objects hidden in the dark*

Jeanne Shinsky (Royal Holloway, University of London)
Lindsey Frye (University of South Carolina)

61. *Bidirectional versus unidirectional action-effect associations in adults and 4 year-olds*

Rena Eenshuistra (Leiden University)
Stephan Verschoor (Leiden University)
Bernhard Hommel (Leiden University)

62. *Rational imitation of different aged models in 14-month-olds*

Norbert Zmyj (Max Planck Institute for Human Cognitive and Brain Sciences)
Moritz M Daum (Max Planck Institute for Human Cognitive and Brain Sciences)
Wolfgang Prinz (Max Planck Institute for Human Cognitive and Brain Sciences)

2:30-3:45 SY31 Symposium Session 31 Foyer

Sharing children’s point of view, understanding friendship and scaffolding self-knowledge during the preschool years

Organizer: Teresa Blicharski (Université Laval)
Organizer: Vera M R de Vasconcellos (Universidade do Estado do Rio de Janeiro)

This symposium focuses upon optimizing differential pedagogy through analysis of sociocognitive development during the preschool period. The objective is to better understand the interface between preschool children’s behavior and their understanding of the physical and social world. Mastering self-narrative during story-telling, artistic expression in creative productions, early friendship and social knowledge, and children’ understanding of spatial relations provide concrete examples of emerging sociocognitive skills for the preschool period.

Sperb analyzes children’s narratives of personal experiences in interaction with mothers. She shows that

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the style of maternal narrative and the topics chosen are not the only factors favoring the development of the child's ability to narrate. Children's narrative skills depend on how mothers adjust their verbal support to the child's developmental level, both in terms of age and stage of narrative skill. Blicharski & Bon examine artistic expression and discussions with five year old children about their paintings. Their results show that children evaluated by teachers as turbulent realized paintings that were considered as sadder and less realistic than paintings done by other children. Children's narratives elaborated in discussion with an adult about their just realized painting create a supportive environment for self-appreciation and thinking about one's relation to the world.

Vasconcellos and Nascimento analyze children's actions and narratives during pretend play as well as the teacher's role in allowing or not for their creativity in the context of a dramatization task. We examined how children represent/interpret reality in the pretend play situation. Participants included twenty-three teachers from public child care centers and each one interacted with four 5 to 6 years old children. The teacher was asked to create a drama situation with the children using puppets. They examined to what extent teachers were able to identify and assume the child's point of view. Their microgenetic analyses showed that teachers at times have difficulty in engaging in pretend play in the school context situation, and in accepting the imaginary situation. However, teachers do mediate children's creative productions; for instance, they built along with them scripts that include well-known characters from children's literature, which acquired new meanings when conceived of by children.

Bombi, Baumgartner & Di Norcia describe the interface between conception of friendship, assessed through an interview, and social exchanges observed among friends and no friends. Children were interviewed using a child-centred procedure assumed to reduce preschoolers' typical gap between tacit and explicit knowledge. Their results suggest that behavioural manifestations can be considered as emergent properties of deep-level cognitions concerning friendship. Children clearly distinguished the two types of relationships, and their behavioural correlates, but also they introduced subtle psychological differences between friend and non-friend concepts.

A common thread across these presentations is the interest in development of self-knowledge and self-confidence as well as teacher scaffolding strategies for facilitating the emergence and consolidation of these processes.

Talking about the past in mother-child interaction

Tânia Sperb (Universidade Federal do Rio Grande do Sul)

Children's painting of emotional themes as markers of psychosocial adaptation in preschool

Teresa Blicharski (Université Laval)

Marie Laurence Bon (Université Victor Segalen Bordeaux 2)

Creativity in narratives/dramatization

Cynthia Paiva do Nascimento (Universidade do Estado do Rio de Janeiro)

Vera M R de Vasconcellos (Universidade do Estado do Rio de Janeiro)

Friendships and mental state talk at five years

Anna Silvia Bombi (Università di Roma 'La Sapienza')

Emma Baumgartner (Università di Roma 'La Sapienza')

Anna Di Norcia (Università di Roma 'La Sapienza')

Developmental Neuroscience II

The changing face of emotion: fMRI responses to facial affect and identity in young children and adults

Rebecca M Todd (University of Toronto)

Jennifer W Evans (University of Toronto)

Marc D Lewis (University of Toronto)

Margot J Taylor (University of Toronto)

Emotionally expressive faces — especially those of parents and caregivers — are important stimuli for shaping children’s capacity for social understanding and self-regulation. The present fMRI study compared responses to happy and angry expressions on mothers’ vs. stranger’s faces in two groups of children (4-5 years and 6-8 years) and a group of young adults. A primary goal of the study was to compare group activation patterns in prefrontal brain regions subserving self-regulation and social understanding. A second goal was to investigate differences in responses to specific combinations of affect and identity. Results showed that although all groups showed similar activation patterns following angry faces in cingulate regions mediating self-regulation, the youngest children showed more subcortical activation and less right prefrontal activation than the older children, who showed less right prefrontal activation than adults. Differences between groups in right prefrontal regions, which are associated with modulating social behavior, may reflect maturational changes in systems mediating evaluation of social stimuli. Finally, analysis of group differences in response to specific face types revealed that older children showed greatest activation to angry strangers, and younger children to happy mothers. These results may reflect differences in social experience between kindergarten and school-age children.

Seeing the face through the eyes: A developmental perspective on face expertise

Teodora Gliga (Center for Brain and Cognitive Development)

While individuals differ in a number of visible body properties (body proportions, movement), almost all of us use preferentially people’s face, for individual recognition. We argue here that the driving force of this bias is triggered by an early interest, during infancy, in one particular face element—the eyes. We bring together evidence from different research groups showing that infants are attracted to eyes, especially to mutual gaze and that this has a direct and long lasting effect on their face learning capacities. On the contrary, when direct gaze is not salient enough (as it is in the case of autism) face processing doesn’t develop normally. Converging evidence comes from brain imaging studies, which show an early development of eye-processing mechanisms, which may be mediated initially by sub-cortical networks. The function of the initial eye interest is probably linked to eyes’ social and communicative roles. Face expertise becomes thus a by-product of human infant’s propensity towards social interactions.

Meaning making, agency, and the intentional brain

Nicola Marae Martinez (SUNY – Empire State College (NY))

Neuroscience research findings support the proposition that our brains construct our inner and outer worlds. For German Philosopher Martin Heidegger, “To be a work means to set up a world, and holds truth: Truth, as the clearing and concealing of beings, happens in being composed.” Taking an adult-centered online course as “the work” and a metaphor for a constructed world, the author will use an interdisciplinary approach to discuss how what we know about the brain, learning, and visual/social cognition can influence the way we think about the development of adults as learners. Two elements of visual and social cognition that surface in the analysis of adult learner engagement in learning and making mean-

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ing out of a complex, constructed world (the online course) are the role of attention and intentionality in both the construction of meaning and the meeting of course goals. In addition, the role of the student as actor and agent, within various degrees of autonomy, reveals the potential for the development of both personal and political autonomy as the course unfolds. The author will interweave case studies of visual components, collaborative learning activities and online dialogue to illustrate the theoretical underpinnings of the paper.

The emergence of social cognition from the interaction of neurological functioning and cultural participation

Bonnie G Kanner (Worcester State College)

The central tenets of this paper are that individuals develop social cognition in culture, that social cognition varies meaningfully across cultures, and that development of social cognition emerges from an interaction of neurological functioning and socio-cultural participation. While the last decade has seen a proliferation of exceptionally informative neuroscientific research exploring many areas of social cognitive development, it can be argued that much of this research appears to entail the assumptions that social cognition systems and their underlying neurological functioning are universal. Therefore, this research is centered on western understandings of what constitutes social cognition. The purpose of this paper is to suggest the importance of investigating whether different types of neurological functioning underlie culturally varying social cognitive understandings and activities. To support this argument, I will first discuss research which reports meaningful cultural variations in central aspects of social cognition including understandings of personhood, personal agency and emotions. I will then use these findings as a frame for demonstrating how current neuroscientific findings that investigate the underlying neurological functioning of social cognition are restricted to western understandings of social cognition (e.g. perspective taking; inferring mental states and intentions; interpreting particular emotions). I conclude with suggested directions for future research.

The role of perspective taken in the development of self-control

Angela Prencipe (University of Toronto)

Philip David Zelazo (University of Toronto)

In this talk I will discuss the general findings of 4 experiments in which we explore the role of perspective in the development of self-control among preschoolers. Four experiments were conducted to compare decision making under more or less motivated conditions, by manipulating the self-relevance of reward and loss information. For each experiment, half the children were instructed to make choices for themselves (Self condition), and half the children were asked to choose on behalf of the experimenter (Other condition). Success in each experiment requires children to choose an option that presents less immediate rewards in order to get more rewards. Performance for each task was measured by the number of advantageous choices (i.e., choosing the smaller amount). In most cases, performance was found to vary by age, condition, and sex. Results will be discussed in relation to cognitive development and development of prefrontal cortex in the preschool years. Overall, the findings highlight the importance of varying motivational factors, such as perspective, within tasks to better discern the relations among lower-level and higher-order control processes, and how these might interact with sex and age variables to contribute to the development of self-control.

2:30-3:45 SY32 Symposium Session 32 Volmer II

Qualitative change in cognitive development: Theory, models & applications (Part I)

Organizers: Brenda R J Jansen and Ingmar Visser (University of Amsterdam)

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Piagetian theory predicts qualitative differences between developing children rather than quantitative or gradual differences. Also in a number of non-Piagetian tasks, e.g. classification and categorization, theory predicts that children bring qualitatively different strategies or rules to the task at hand. In this categorical approach, it is assumed that a hierarchy of stages in which qualitatively different strategies are used, characterizes cognitive development. In contrast, in a dimensional approach it is assumed that development is characterized by gradual change. To distinguish these approaches we propose to apply latent variable models and especially techniques for the analysis of categorical latent variables. These models are appropriate for testing the existence of qualitatively different strategies instead of an array of strategies that differ quantitatively. In this symposium we present applications of latent variable models in several domains of cognitive development, and thereby provide an overview of the wide applicability and usefulness of such models.

In this part of the symposium (Part I), we demonstrate how models with categorical latent variables can be used to test theories on qualitative differences, in several domains of developmental psychology. In particular, in balance scale reasoning, transitive reasoning, and logical reasoning, models with categorical latent variables adequately describe individual differences, implying that a categorical approach is the correct one for these domains. In the first presentation, learning on the balance scale task is manipulated by providing different kinds of feedback to participants resulting in children using different strategies. In the second presentation, people's risk taking behavior on the Iowa Gambling Task was modeled by means of a categorical latent variable model. The Iowa Gambling Task is here recast as a proportional reasoning task with a dominant dimension, just like the weight dimension in the balance scale task. This application shows that differences within age groups may be more important than differences between age groups. In the third presentation, a transitive reasoning task is analyzed by means of a (multilevel) latent class model, testing two competing theories about the abilities that underly such reasoning in school-age children. In the fourth presentation, school-age children asked to interpret conditional statements such as "If it's Sandra's birthday, then she visits the zoo". Different interpretations that children use are categorized as conjunctive, conditional or biconditional using latent class analysis, in which age is found to influence the probability of using each of these strategies.

Learning on the balance task

Brenda R J Jansen (University of Amsterdam)

Decision making in healthy children, adolescents and adults explained by the use of increasingly complex proportional reasoning rules

Hilde M Huizenga (University of Amsterdam)

Individual differences in transitive reasoning: an explanation by fuzzy trace theory

Samantha Bouwmeester (Erasmus University Rotterdam)

Development of conditional reasoning styles

Verena D Schmittmann (University of Amsterdam)

2:30-3:45 SY33 Symposium Session 33 Volmer III

Theory of mind in vivo: Children's teaching

Organizer: Stephanie M Carlson (University of Washington)

Discussant: Douglas Frye (University of Pennsylvania)

Children's representational theory of mind, typically assessed using the well-known false belief task, has not been found to relate consistently to children's everyday functioning in ways we might expect. Recent

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research has incorporated more dynamic assessments of children's theory of mind skills being applied in the service of real-world goals. Examination of children's understanding and practices regarding teaching is a promising example of this approach. Teaching can be defined as an intentional activity to increase or correct someone's knowledge. By this definition, theory of mind is needed to recognize and engage in teaching (e.g., peer tutoring) because it depends on a person's understanding of knowledge differences between at least two parties, and on an intentional attempt to reduce these differences. Furthermore, skillful teaching encompasses a host of social-cognitive and executive-control abilities including the recognition and continual monitoring of the learner's knowledge gap, adjustment of teaching strategies, and reflection and control over one's own knowledge so that it can be temporarily set-aside to help someone else make discoveries for him/herself. The four papers in this symposium address age-related changes in children's understanding of teaching (i.e., "teaching cognition") from 3 to 11 years of age, its relation to representational theory of mind and executive function, and the assessment of teaching in "on-line" situations in both laboratory simulations and observations of everyday interactions among siblings. Furthermore, they represent cross-cultural perspectives on children's teaching in North America, Israel, China, and Guatemala. The findings suggest that the study of children's teaching serves as a window into both cognitive development and cultural socialization.

Children's theory of mind and understanding of teaching

Margalit Ziv (Tel Aviv University)

Douglas Frye (University of Pennsylvania)

Development of teaching skills in preschoolers: Relations to theory of mind and executive function

Angela Davis-Unger (University of Washington)

Teaching cognition among Chinese children: Common developmental trajectories and possible cultural variations

Jin Li (Brown University)

Sidney Strauss (Tel Aviv University)

"I know how to teach but my younger sister does not": Having "soul" and teaching in Zinacantec Maya sibling interactions

Ashley Maynard (University of Hawaii)

2:30-3:45 SY34 Symposium Session 34St John I

Affective and cognitive contributors to children's aggression and disruptive behavior disorders

Organizer: William Arsenio (Yeshiva University)

Organizer: Elizabeth Lemerise (Western Kentucky University)

Discussant: Elizabeth Lemerise (Western Kentucky University)

This symposium examines cognitive and affective influences on children's aggressive and behaviorally disruptive tendencies as part of a larger integrative approach to moral reasoning and behavior. This integration begins with an attempt to bridge differences between two seminal social cognitive models, the moral domain (e.g., Turiel, 2006) and the social information processing approaches (e.g., Dodge, Coie, & Lynam, 2006), and continues on to a consideration of the underlying emotional/motivational underpinnings of these theories. Piaget's later work on children's moral development (1954/1981) will be used as a framework for understanding how to combine cognitive and affective contributions in a coherent way.

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Despite important differences in cognitive developmental and social information processing approaches, both views stress that children's understanding of others' thoughts and actions has a critical influence on subsequent behavior. Research from both theories has shown that, compared to their peers, aggressive/disruptive children: a) sometimes have difficulties understanding others' intentions in potentially provocative situations; and b) sometimes value and use aggression to obtain instrumental outcomes despite the obvious unfair harm produced for victims. Although social cognitive models help to explain the unique nature of aggressive and behaviorally disruptive children's reasoning, to date, these models have been less useful in explaining the emotional and relational origins of these problematic social cognitions.

The four talks in this symposium begin to address these issues in a number of different ways. The first talk provides a theoretical framework for how children's early experiences of emotional and interpersonal reciprocity, and their affectively-laden representations of those interactions, form a base from which subsequent moral principles are both constructed and obtain their motivational force. The next two talks explore some of the affective factors that can influence social reasoning. Specifically, the 2nd talk describes a study in which a combination of physiological, observational, and self-report measures were used to clarify some of the complex influences of emotions on children's social information processing and behavior. In turn, the 3rd talk addresses some of the specific empathic processes that differ in behaviorally disruptive and non-disruptive elementary school-age boys. Finally, the last talk explores how the effects of harsh and abusive parenting on adolescent offenders' aggressive behavior are mediated by emotional, attributional, and moral processes.

An integrative framework for understanding cognitive and affective influences on children's aggressive/disruptive behaviors

William Arsenio (Yeshiva University)

Experimental elicitation of specific emotional information processing patterns for reactive and proactive aggression in boys with aggressive behavior problems

Bram Orobio de Castro (Utrecht University)

Maaïke Kempes (Utrecht University)

Hanneke Polman (Utrecht University)

Selective empathy impairments in boys with disruptive behavior disorders

Minet de Wied (Utrecht University)

The effects of harsh parenting on adolescents' emotions, attributions and aggressive behavior

Jason Gold (UMDNJ)

Margaret Wolan Sullivan (UMDNJ)

Michael Lewis (UMDNJ)

2:30-3:45 SY35 Symposium Session 35 St John II

Artistic representation and aesthetics: Children's knowledge and theories of the visual arts

Organizer: Constance Milbrath (University of British Columbia)

Organizer: Hanns M Trautner (University of Wuppertal)

Discussant: Anna M Kindler (University of British Columbia)

Developmental psychologists generally accept the central tenant that young children reason about their world by building naïve theories about the way the self, others, and things in the world work. Accordingly, researchers have dealt extensively with children's theories in what are considered core domains of knowledge; in particular with children's understanding of others' minds and mentalistic terms

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such as know, belief, or desire and with the notion that the young mind represents reality with naïve theories of biology and physics. Little attention, however, has been given to children's theories of art, perhaps because as Freeman has stated, art is not a unitary domain but rather arises from the confluence of domains "... a mentalistic competence communicative in nature, in which pictures are used prosthetically to extend the range of viewers' vision, in the sense of our visual understanding and our visual imagination (Freeman, in press)." To understand a child's theory or art, researchers must take into account the child's understanding of pictures as representations, of artists as intentional agents, and of the aesthetics that guide affective responses to pictures.

This symposium addresses this neglected area by presenting research that adopts a variety of approaches to children's comprehension and reasoning about the elements of visual art. Knowledge of how children think about artistic representations can deepen our understanding of the drawings they produce and, more importantly, convey information about children's comprehension of the many forms of graphic representation that are part of contemporary culture. Four presenters take a multiplicity of approaches in examining how children and adolescents think about artistic representations. In particular, what is the nature of the relationship between a child's own level of graphic competence and her understanding and appreciation of pictures; how does she learn to interpret and understand intentional decisions artists make in producing a work of art? Are aesthetic decisions and preferences a function of normative development or do individual proclivities and experiences sometimes prevail over intellectual growth? Finally, what strategies do children use to create a visually balanced work of art and how do children come to understand the rules and principles that determine these aesthetic judgments. The symposium's discussant will comment on the four presentations from a theoretical perspective that acknowledges a wide variety of visual languages as comprising the graphic universe and correspondingly divergent developmental pathways.

The relationship between production and comprehension in representational drawing

Richard P Jolley (University of Staffordshire)

Children's developing appreciation of photography as an artistic medium of representation

Lynn S Liben (The Pennsylvania State University)

Children's and adolescents' aesthetic judgments and reasoning about likes and dislikes of art work

Hanns M Trautner (University of Wuppertal)

The role of visual balance in children's developing aesthetic sense

Constance Milbrath (University of British Columbia)

4:00-5:00 SY36 Symposium Session 36 Foyer

Socio-emotional understanding in childhood: Individual differences and atypical development

Organizers: Robin Banerjee (University of Sussex) & Carolien Rieffe (University of Leiden)

Much work by developmental psychologists over the last twenty years has been devoted to children's reasoning about the social world, including their understanding of mental states. However, there are significant gaps in our understanding of how children come to reason about the emotional experiences and expressions that form a significant part of everyday social interactions. This symposium examines factors associated with socio-emotional understanding in both typically-developing groups and atypical populations. The first two papers concentrate on individual differences within age groups, as well as on developmental change. Paper 1 demonstrates that children's reasoning about social interactions that involve (unintentionally) upsetting faux pas is intimately connected to both earlier and consequent peer

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relations. Paper 2 adopts a neuropsychological approach, showing that advanced reasoning about emotional displays may be linked with the strength of lateralisation for emotion processing. In the latter two papers, differences in socio-emotional understanding are highlighted with reference to atypical populations. Paper 3 presents characteristic patterns of emotional reasoning in hearing-impaired children, showing subtle but important limitations in deaf children's judgements about emotional experiences and their emotion communication. Finally, Paper 4 provides intriguing evidence that motivational patterns associated with self-consciousness are likely to play a role in explaining the social-relational deficits found in children with autism spectrum disorders. Together, the papers underscore the importance of taking a multidimensional perspective—incorporating cognition, emotion, and motivation—when addressing children's social relationships.

Children's understanding of faux pas: Longitudinal associations between socio-emotional understanding and peer relations

Robin Banerjee (University of Sussex)

Dawn Watling (Royal Holloway, University of London)

Lateralisation of emotion and children's knowledge of emotion expression regulation

Dawn Watling (Royal Holloway, University of London)

Victoria Bourne (University of Dundee)

Social competence and emotions in deaf and hearing children

Carolien Rieffe (University of Leiden)

Mark Meerum Terwogt (Vrije Universiteit)

Social evaluation concerns in children with autism

Sander Begeer (Vrije Universiteit)

Patty Lunenburg (Vrije Universiteit)

Mark Meerum Terwogt (Vrije Universiteit)

4:00-5:00 SY37 Symposium Session 37 Volmer I

Scaffolding, construction, and change: Issues of conceptualization and analysis

Organizer: Nira Granott (OORIM)

Chair: K Ann Renninger (Swarthmore College)

This interactive symposium focuses on new conceptualizations of scaffolding, offering both theoretical ideas and practical methods for analyzing, modeling, or measuring scaffolding. The presentations highlight the potential power of successful scaffolding for breaking a cycle of thinking; moving a learner to more advanced levels of knowledge, and creating successful construction of knowledge. Implications for practice and for theory are indicated. The symposium's format allows time for moderated discussion among the presenters and the audience.

Renninger and Ray examine the roles of interest and beliefs in learner receptivity to scaffolding in a study on scaffolding preservice teachers (PT) how to scaffold students in an online mathematics environment. The analysis address the role of interests, beliefs, and self-efficacy. Findings show that motivation is an intertwined part of a belief system. PTs need to feel support and seek congruence between the tasks and their own actions. The challenge of learning to scaffold can break a cycle of thinking about mathematics-as-algorithm-only if the PT's mentors are responsive to the PT's interests and beliefs.

Hao et. al find two patterns of self-scaffolding within adults: (1) action scaffolds awareness (2) awareness scaffolds action. Awareness preceded action more often, and created more occurrences of successful

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scaffolding. Yet, although action preceded awareness less frequently, it generated successful scaffolding at a much higher rate. In light of findings that show similarity between developmental sequences at different time scales, implications are discussed in relation to Piaget's, Vygotsky's, and Nonuniversal theories.

Granott suggests that self-scaffolding is an important link between scaffolding and the individual's knowledge construction, bridging Piaget's and Vygotsky's theories. During self-scaffolding, the learner internalizes and constructs scaffolded knowledge. Self-scaffolding within peer group or individual is a special case within a two-dimensional framework for analyzing scaffolding, which can trace the evolution of the scaffolding concept. Conditions for successful scaffolding or self-scaffolding are analyzed based on variability within the scaffolding dynamic system and demonstrated with data of child-adult play interactions.

Van Geert and Steenbeek present a dynamic systems model of scaffolding, which specifies how a particular, current state of a learner's knowledge or skill changes into another, more advanced level during scaffolding. The model takes into account embodied and socially-situated dynamics of goal-governed actions by learners and instructors. A scaffolding event is interpreted as a social activity in which the participants have different but coherent goals and perceptions of their environment. The model is illustrated by actual learning and teaching processes.

Learner receptivity to scaffolding: Interest and beliefs as explanatory constructs

K Ann Renninger (Swarthmore College)

Lillian S Ray (Swarthmore College)

Does the cart always come after the horse? Action, awareness, and self scaffolding

Heping Hao (Saba Software)

David Henry Feldman (Tufts University)

Nira Granott (OORIM)

Bridging between Piaget and Vygotsky: Self-scaffolding as an internal construction of scaffolded knowledge

Nira Granott (OORIM)

A dynamic systems and dynamic action model of scaffolding

Paul van Geert (University of Groningen)

Henderien Steenbeek (University of Groningen)

4:00-5:00 PS21 Paper Session 21 Volmer II

"At risk" youth

Chair: Michael Weinstock (Ben-Gurion University of the Negev)

Does a bias in encoding affect interpretation or is it vice versa?: An eye-tracking study in aggressive children

T M Horsley (Vrije University)

M van der Schoot (Vrije University)

B Orobio de Castro (Utrecht University)

E C D M van Lieshout (Vrije University)

Biases in encoding and interpretation may lead to aggressive behavior (Crick & Dodge, 1994). Nevertheless the relationship between the two is still unclear. On the one hand, it could be that a bias in encoding affects the subsequent interpretation stage (bottom-up processing). On the other hand, it could be that interpretations have been formed prior to encoding and, in turn, affect the encoding of specific

social cues (top-down processing). In order to explore the relationship between encoding and interpretation, thirty low and thirty high aggressive children (10-12 years old) were instructed to view ten different cartoons (social situations). During presentation of the cartoons the eye movements of the children were monitored with an eye-tracker. In addition, the children answered questions concerning encoding and interpretation after each cartoon. The analysis of the answers revealed low encoding accuracy for situations with non-hostile cues and more hostile interpretations of so-called ambiguous situations in high aggressive children. This implies that interpretation does not proceed from encoding and probably even guides encoding. The eye movement data could confirm this if the high aggressive children would show longer encoding times (i.e. first pass gaze durations) on non-hostile relative to hostile cues (Wilkowski et al., 2006).

A decrease in egocentrism and an increase in empathy as precursors of moral judgment development in juvenile delinquents: Outcomes of participation in a restorative justice intervention program

Daniel Brugman (Universiteit Utrecht)

Micha de Winter (Universiteit Utrecht)

Judith K van den Bos (Universiteit Utrecht)

Marieke Meijnen (Universiteit Utrecht)

The aim of this paper is to find out whether a decrease in egocentrism and an increase in empathy pave the way for moral judgment development in juvenile delinquents who participate in a restorative justice program. Juvenile delinquents function at a lower level of empathy and moral judgment than their non-delinquent peers. Restorative justice seems to offer an approach that combines an enhancement of empathy and moral judgment: it confronts the perpetrator seriously with the consequences of his own behavior and motivates him to do something about it. Because role-taking is viewed as a precondition for moral judgment development, and role-taking is a constituent of egocentrism and empathy, we hypothesize that effects on egocentrism and empathy are a precondition for effects on moral judgment. In a quasi-experimental study with a pretest – posttest and delayed posttest design, the effects were measured of a restorative justice program for juvenile delinquents on egocentrism, empathy, and moral judgment. In the study participated 160 youngsters from 4 highly secured youth institutions in the Netherlands. It was investigated which instrument was the most sensitive to measure effects of the program, and whether and how the effect was related to the other measures. The implications of these empirical relations for moral motivation are discussed.

Family functioning and delinquency among at-risk youth in Hawai`i: An ecocultural approach

Keiko B Shimazu (University of Hawaii at Manoa)

Ashley E Maynard (University of Hawaii at Manoa)

The purpose of this research is to investigate an intricate relationship between family functioning and delinquency among at-risk youth in Hawaii from the qualitative perspective, using an ecocultural approach. The ecocultural theory of human development (Weisner 1984, 1997, 2002) signifies that every community provides “developmental pathways” for children that are made of “everyday routines of life” consisting of cultural activities, values and goals, resources, people in relationship, the tasks, emotions and feelings, and cultural scripts. This study intends to unpackage the richer reality of at-risk youth by investigating family, school, and neighborhoods in which these youths dwell and live. Such an approach is unique as conventional similar delinquency research is often limited to the use of variables, such as parenting style, monitoring, and supervision. The participants are twenty-two teenage youths currently engaged in school dropout prevention program at a public high school in Honolulu as well as five teachers and the director of the program. Qualitative face-to-face individual interviews were conducted based

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on Weisner's Emergent Literacy Ecocultural Interview (EL-EFI) and the Ecocultural Family Interview (EFI). Results are interpreted in terms of specific ecocultural components of the participants' lives. Suggestions for school- and community-based interventions will be discussed.

4:00-5:00 SY38 Symposium Session 38 Volmer III

Qualitative change in cognitive development: Theory, models & applications (Part II)

Organizers: Brenda R J Jansen & Ingmar Visser (University of Amsterdam)

Piagetian theory predicts qualitative differences between developing children rather than quantitative or gradual differences. Also in a number of non-Piagetian tasks, e.g. classification and categorization, theory predicts that children bring qualitatively different strategies or rules to the task at hand. In this categorical approach, it is assumed that a hierarchy of stages in which qualitatively different strategies are used, characterizes cognitive development. In contrast, in a dimensional approach it is assumed that development is characterized by gradual change. To distinguish these approaches we propose to apply latent variable models and especially techniques for the analysis of categorical latent variables. These models are appropriate for testing the existence of qualitatively different strategies instead of an array of strategies that differ quantitatively. In this symposium we present applications of latent variable models in several domains of cognitive development, and thereby provide an overview of the wide applicability and usefulness of such models.

In this part of the symposium (Part II), the focus is threefold: categorization in infants, classification in children, and representation of knowledge of the Earth in children. In the first presentation, finite mixture models are used to analyze infants' responses in a sequential touching paradigm. The goal is to classify infants by the type of information they use to build categories of the objects that are presented to them, i.e. taxonomic information or information about parts of objects. In the second presentation, school-age children are asked to free-classify multi-dimensional stimuli. Children were found to use different one-dimensional classification rules dependent on their age, thereby casting doubt on theories that propose holistic strategies in children's classification behavior. In the third presentation, children's mental models of the earth are analyzed using latent class analysis. With increasing age, children are found to have more consistent ideas about the earth, but at younger ages their earth knowledge is found to be fragmented and sometimes contradictory. The symposium ends with an overview of latent variable models and their applicability, with practical pointers for researchers that are interested in applying such methods themselves. A taxonomy of the models that are used in the various applications is presented highlighting their commonalities and differences, for example in terms of the nature of dependent and independent variables (continuous versus dichotomous).

Flexible categorization in 18-month-olds

Denis Mareschal (Birkbeck College)

Rule-use in free classification

Maartje E J Raijmakers (University of Amsterdam)

Coherent or fragmented knowledge of the earth? A latent class analysis

Marthe Straatemeier (University of Amsterdam)

Han van der Maas (University of Amsterdam)

Detecting rules in learning and development

Ingmar Visser (University of Amsterdam)

Social cognitive development

Chair: Julia Penn Shaw (SUNY – Empire State College)

Goal complexity modulates imitation of object-related acts in 18-month-old infants

Chi-Tai Huang (Tzu Chi University)

Shin-Ru Jiang (Tzu Chi University)

Mei-Jun Tsai (Tzu Chi University)

The goal-directed imitation theory (GOADI) suggests that imitation involves representing an observed act as a set of components specified from major to less important goals. Research has shown that children imitate object selection more accurately than they imitate selection of an effector or movement path that is more reliable when object choice is not required. The present study explored whether 18-month-olds imitate object manipulation in terms of a hierarchical organization of goals. An overall ipsilateral preference was shown as they observed a model activate a beeper by selecting and pushing one of two disks that were identical and pushable (Experiment 1) even when the task consisted of a pushable disk and an unmovable disk but the demonstration provided clear information about their effectiveness. Experiments 3 and 4 showed that the ipsilateral tendency was detracted when there was only one effective disk (thus limiting the number of possible acts). However, this effect interacted with a further variable of distance. Under the above circumstances, reduction in the distance between the disk and midline promoted a tendency to use the contralateral hand. These findings suggest that the level of goal complexity involved in the imitation task influenced infants' flexible choice of manual strategy.

Social interaction and the development of joint attention in human and non-human primates

Timothy P Racine (University of Manitoba)

David A Leavens (University of Sussex)

Tyler Wereha (University of Manitoba)

Typically developing human infants engage in activities toward the end of their first year that require simultaneous visual attention on the part of both infant and caregiver. The clearest indication of infants' understanding of the mind seems to exist in interactions involving pointing gestures. And it is commonly held that a human infant points because of some insight into the workings of other minds. But this commonsense interpretation of pointing is challenged by the fact that chimpanzees and other apes in captivity spontaneously point without overt training. However, in the research literature on human joint attention, it has been demonstrated that pointing is mainly used instrumentally or else to share attention. The finding that chimpanzees do not point to share attention has provided a way to maintain a commonsense interpretation of pointing. That is, humans point because they understand other minds; great apes point to get things done. But human caregivers do more than provide appropriate responses. Human social interaction may be an engine of social development. We review theory and research to argue that the relative absence of human social interaction in non-human primates may partially explain the absence of particular social cognitive capabilities in the great apes.

Using eye gazing and facial expressions to interpret others' desires in 8-year-olds, young adults, and seniors

Li Qu (University of Toronto)

Shintula Wijeya (University of Toronto)

A computerized game, the "Who wants" game, modified from "Charlie's sweets test" (Baron-Cohen, 1995), was used to examine how the ability to use eye gaze and facial expressions to interpret others'

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desires develops across the life span. Preliminary results with 20 8-year-olds, 13 young adults, and 20 seniors showed: (1) 8-year-olds and elderly adults used eye gazing and facial expressions to interpret others' desires in a similar way as young adults, although there was a trend towards an inverted-U-shaped effect in the use of eye gazing. These results are consistent with the suggestion that use of eye gaze is still developing in 8-year-olds and is susceptible to decay in elders. (2) The participants relied on both a "gazing is wanting" rule and a "smiling is wanting" rule to interpret others' desires. However, when these two rules were conflicting with each other, the participants, tended to rely more on the "gazing is wanting" rule. (3) It took more time to compare eye gazes than to compare facial expressions for all age groups. Taken together results suggest that the ability to use eye gazing is unique and essential but undergoes development.

4:00-5:00 SY39 Symposium Session 39 St John II

Developing wisdom

Organizer: Michel Ferrari (OISE University of Toronto)

Discussant: Michael Bamberg (Clark University)

Wisdom has historically been considered the domain of philosophy and religious studies, and there viewed as important to optimizing personal well-being and lifespan development. Recently, several social sciences have begun to study wisdom empirically. In general, for purposes of scientific study, wisdom is considered a certain sort of knowledge (or integration of affect and knowledge), whose characteristics science can help determine and whose possession in exemplary people can be identified. A main line of research has been to identify implicit theories of wisdom. Another approach is to design psychometric instruments that have different factors (e.g., cognitive, affective, reflective) (Ardelt, 2005), or theoretically identify different aspects of wisdom performance, e.g., as identified by Baltes' Berlin Wisdom Paradigm (Baltes & Staudinger, 2000) and then and see if these are predictive of outcome measures that are commonly associated with wisdom: for example, problem-solving skill, affective well-being, coping or resilience. Some propose identifying people who are wise; some early theories—notably those of Hall and of Erikson—proposed that wisdom is found in the last stage of life, or among those who have achieved a remarkable degree of personal integration, such as Eastern sages. Finally, Neo-Piagetian theories of wisdom have typically focused on wisdom post-formal adult development, although there is increasing interest in how children develop the seeds of wisdom through character education.

Our symposium will consider this question through four papers that span a wide range of the themes addressed in previous studies, adding new insights to them. Bill Overton and Masami Takahashi provide an 'archeology' of Western and Eastern concepts of Wisdom, showing the different emphasis but overall convergence of theories of wisdom in the East and West. Kristin Neff will show how affective stance of individuals, in particular their self-compassion is an important marker of personal wisdom, as well as an important means to develop one's wisdom. Yasuji Kojima will present an in-depth narrative study of the Buddhist sage Shinran Shonin (1173-1263) to illustrate differences and commonalities between wisdom as understood in Japan and in the West. Finally, Ana Carvajal and Michel Ferrari will discuss the growing character education movement in North America and how this relates to programs like Sternberg's Balance Curriculum, specifically designed to teach for wisdom in public schools. They will also relate this review to their own study of a District-side effort to foster the seeds of wisdom in public schools in North Toronto called Character Matters!

An archeology of Western and Eastern concepts of wisdom

Willis Overton (Temple University)

Masami Takahashi (Northeastern Illinois University)

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Self-compassion as emotional wisdom

Kristin Neff (University of Texas at Austin)

Shinran Shonin (1173-1263): A case study illustrating differences and commonalities between Japanese and Western understandings of wisdom

Yasuji Kojima (Hokkai-Gakuen University)

Developing wisdom by educating for character

Ana Carvajal (OISE University of Toronto)

Michel Ferrari (OISE University of Toronto)

5:15-6:30 SY40 Symposium Session 40Foyer

Methodological aspects in the study of cognitive development

Organizer: Rebeca Puche Navarro (Universidad del Valle)

Discussant: Christiane Gillieron (Université de Geneve)

This symposium intends to open a space to reflect about methodological approaches of research in the cognitive development field. For some authors, (Valsiner, 2003 Fisher & Bidell, 2004, and van Geert, 2003, amongst others), the problems currently faced in studies about the development of the child are, in part, of a methodological nature. It is not a coincidence if certain "academic manifestos" which defend ideographic studies are supported (Molenaar, 2002), nor if certain qualitative viewpoints are re-evaluated. The simplification which appears to characterize recent studies in development seems paradoxical, as development is a phenomenon which all recognize as being of great complexity. Critiques of the smoothing methods which dominate literature on the subject are becoming increasingly more frequent. There exists a consensus from different tendencies (Courage & Howe, 2002; Valsiner & Damon, 2003) which accepts that development appears as a product of reorganization, and as a continuous process whose evolution can be demonstrated as irregular. At present, some of the attempts to search for new alternatives submit to recuperating perspectives such as microgenetics, utilization of non-linear mathematics, analysis of social networks and the use of Markov chains. Some of the tendencies which we would like to highlight can be identified within this context include:

1. The study of development as a system: methodological demands
2. The current critical polarities which dominate studies of object-subject mental functioning
3. Methodological problems in accounting for non-linearity in development.

This encounter will explore the different methodological approaches in cognitive development, with the purpose of examining all of them thoroughly.

Statistical data analysis as a tool in studies of the development of mind

Aaro Toomela (University of Tartu)

To see or to be seen? That is the question

Rebeca Puche Navarro (Universidad del Valle)

Blanca Cecilia Orozco Hormaza (Universidad del Valle)

Analyzing individual trajectories: Variability, transitions and interactions

Marijn van Dijk (Open University Netherland)

Non-linear analytical methods and the description of transcoding from verbal to Arabic numerals

Mariela Orozco Hormaza (Universidad del Valle)

A developmental approach to elucidating the construct of future thinking

Organizer: Cristina Atance (University of Ottawa)

Discussant: Chris Moore (Dalhousie University)

Future thinking is a broad concept that encompasses many aspects of cognitive functioning. For instance, skills such as planning, anticipation, and temporal sequencing are all arguably future-oriented, yet it is possible that these abilities are nevertheless somewhat distinct. The main goal of this symposium is to further elucidate the concept of future thinking by identifying various skills that reflect this ability, along with when these skills emerge and how they may be related. A series of four papers explores this issue from differing perspectives. In a first paper, the emergence and relation of delay of gratification, planning, anticipating future states, prospective memory, and the acquisition of knowledge are explored. The results of this paper suggest that only some of these abilities are inter-correlated (once language is controlled), yet all seem to show substantial development between ages 3 to 5. The second and third papers focus predominantly on planning. Whereas the first of the two highlights the importance of temporal causal inferences in planning for the future, the second underlines the importance of planning for future needs that are not currently experienced. The results of these papers extend upon the first by showing that certain aspects of planning for the future may be especially difficult for children. Indeed, whereas the results of the first paper suggest that many future-oriented skills are emerging and developing between 3 and 5, the second and third papers identify aspects of planning, in particular, that may not be mastered until 5 years of age and beyond. In a final paper, the role of uncertainty as it applies to the future is discussed and empirically explored. The results presented in this final paper show that children's thinking about the future gives them some advantages in handling uncertainty. This leads to the intriguing possibility that some aspects of cognition may be facilitated by placing them in a future context. In summary, we argue that future thinking is not one unitary construct but, rather, a complex skill that comprises many different components, with some of these components being more difficult to master than others. The papers in this symposium highlight this fact by identifying what some of these important components may be, along with their emergence and development. In so doing, we hope to create a more detailed picture of future thinking across the preschool years and beyond.

An exploration of the relation between different future-oriented processes

Cristina Atance (University of Ottawa)

Laura Jackson (University of Ottawa)

Searching and planning: Temporal-causal inferences about past and future event sequences.

Teresa McCormack (Queen's University)

Kerry McKolgan (Queen's University)

Future planning in children: Saving an item for tomorrow

Dean Alexis (Cambridge University)

James Russell (Cambridge University)

Nicola Clayton (Cambridge University)

Children's handling of uncertainty in the future

Sarah R Beck (University of Birmingham)

Elizabeth J Robinson (Warwick University)

Daniel J Carroll (University of Sheffield)

Ian A Apperly (University of Birmingham)

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5:15-6:30 IS07 Invited Session 7 St John II

The development of social rule use: Implications of work in neuroscience

Co-Chairs: Silvia Bunge (University of California, Berkeley) & Jennifer Beer (University of California, Davis)

As young children, our parents socialize us by teaching us rules that dictate how we should behave: “say hello to our guests”, “ask nicely whether you can borrow his toy”, “don’t talk with your mouth full”, etc. How do we acquire and implement these social rules, overriding our natural tendencies so that our behavior conforms to society’s expectations? Is the ability to follow social rules related to the ability to follow cognitive rules, or are these functions separable? To answer these and other related questions, it will be necessary to combine research from developmental psychology, social psychology, and neuroscience. In this symposium, we will hear from researchers who are crossing the boundaries between these disciplines to explore the factors that give rise to our ability to interact effectively with others.

Developmental science and social neuroscience: Integrative approaches

Melanie Killen (University of Maryland)

Nathan Fox (University of Maryland)

Neural mechanisms underlying executive function and social understanding

Stephanie M Carlson (University of Washington)

Orbitofrontal cortex and self-monitoring

Jennifer S Beer (University of California, Davis)

Crucial developmental role of prefrontal cortex in social rule learning

Paul J Eslinger (Penn State University)

5:15-6:30 PT02 Poster Session II Grand Ballroom

Poster Session II

1. Do women with schizophrenia lack empathy? An fMRI study

Adrianna Mendrek (Université de Montreal)

Adham Mancini-Marië (Université de Montreal)

Cherine Fahim (Université de Montreal)

José Alfredo Jiménez (Université de Montreal)

Emmanuel Stip (Université de Montreal)

2. Who did that? Action monitoring in children with and without autism

Suzanne Hala (University of Calgary)

Carly McMorris (University of Calgary)

3. The perception of biological and goal-directed motion in preschoolers with autism

Richard Griffin (Tufts University)

Simon Baron-Cohen (University of Cambridge)

4. Neural correlates of emotional perspective taking in healthy children and in children with autism

Ellen Greimel (University Hospital Aachen)

Martin Schulte-Rüther (Research Centre Jülich)

Gereon R Fink (Research Centre Jülich)

Beate Herpertz-Dahlmann (University Hospital Aachen)

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Kerstin Konrad (University Hospital Aachen)

5. *From spheres to virtual faces: Studying the development of social perception in autism*

Natacha Santos (University of Cologne)

Leonhard Schilbach (University of Cologne)

Nicole David (University of Cologne)

Ralf Tepest (University of Cologne)

Kai Vogeley (University of Cologne)

6. *Children's understanding of communicative intentions at the middle of the second year of life*

Tiziana Aureli (University of Chieti-Pescara)

Paola Perucchini (University of RomaTre)

Maria Genco (University of Chieti-Pescara)

7. *Emotional states and logical-mathematical reasoning: A problem resolution study*

Valeria Arantes (University of São Paulo)

8. *Project Globe: An international inquiry-based science education program*

Patrick B Johnson (Dowling College)

9. *Defining moral cognitive processes in explaining antisocial behavior in adolescence*

Floor van der Velden (Utrecht University)

Daniel Brugman (Utrecht University)

Willem Koops (Utrecht University)

10. *The relation between emotion recognition and social experience in early adolescence*

Nicola Yuill (University of Sussex)

Julie Coultas (University of Sussex)

11. *Examining the relationship between learning motivation, ethical attitudes and self-reported behavior in middle school*

Jenny Vaydich (University of Notre Dame)

Vladimir Khmelkov (University of Notre Dame)

12. *Conceptual change and creativity in science learning: Variations of categorization and semantic distances in conceptual tasks*

Hiroshi Maeda (Saitama Prefectural University)

13. *The development of categorical counting in young children*

Emmanuelle Delrieu (Université Paul Valéry)

Henri Lehalle (Université Paul Valéry)

François Jouen (EPHE Laboratoire Développement et Complexité)

14. *Individual differences in conceptual and procedural understanding of mathematics*

Darcy Hallett (University of Oxford)

Terezinha Nunes (University of Oxford)

Peter Bryant (University of Oxford)

Daniel Bell (University of Oxford)

Deborah Evans (University of Oxford)

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15. *The understanding of relevant transformational properties: Reasoning about sharpness in novel tools*
Tania Tzelnic (Queen's University)
Katherine Chow (Queen's University)
Marc D Hauser (Harvard University)
16. [withdrawn]
17. *Children distinguish between sarcasm and verbal irony according to concerns for the ridiculed*
Melanie Glenwright (University of Manitoba)
Penny M Pexman (University of Calgary)
18. *Is there a culture-universal onset age of early understanding of referential intent?*
Chung-Hsin Chiang (National Chung Cheng University)
Min-Hsiang Chang (National Chung Cheng University)
19. *Fast mapping of novel actions to novel objects in children and adults*
Kevin Riggs (London Metropolitan University)
20. *Mental, emotion and vision verbs: implicit causality and the development of folk psychological beliefs in preschoolers*
Fabia Franco (Middlesex University)
Linda Regber (Middlesex University)
21. *Infant sensitivity to variation in communicative intent at 3, 6 and 9 months*
Maria Legerstee (York University)
Gabriela Markova (York University)
22. *Young infants' eye movements and scanning of faces during face-to-face interaction*
Sabine Hunnius (University of Nijmegen)
Tessa C J de Wit (Radboud University Nijmegen)
Claes von Hofsten (Uppsala University)
23. *Preschoolers' sensitivity to another's perspective when making requests*
Elizabeth Nilsen (University of Calgary)
Susan Graham (University of Calgary)
24. *Mainland Chinese adolescents' judgments and reasoning about self-determination and nurturance rights*
Ayelet Lahat (University of Toronto)
Charles C Helwig (University of Toronto)
Shaogang Yang (Guangdong University of Foreign Studies)
Dingliang Tan (Nanjing Normal University)
Chunqiong Liu (Nanjing Normal University)
25. *The use of social norms by preschool children and their linguistic expression*
Pirko Tõugu (University of Tartu)
Tiia Tulviste (University of Tartu)
26. *Moral thought is inherently social: A sociocognitive approach to the conceptual relatedness of moral and social prototypes*
Nicholas Lynchard (University of Notre Dame)

Saturday—P.M.

27. *Functional and optimal levels in adolescents' moral judgment*
Laure Leon (Université Paul Valéry)
Henri Lehalle (Université Paul Valéry)
François Jouen (EPHE, Laboratoire Développement et Complexité)
28. *"My conscience hath a thousand several tongues" (Richard III, 5.3): Empathy and acting strategies*
Thalia R Goldstein (Boston College)
Ellen Winner (Boston College)
29. *Neural correlates for detecting information in biological motion during infancy*
Vincent Reid (Durham University)
Stefanie Hoel (University of Leipzig)
Jennifer Landt (University of Leipzig)
30. *The neural correlates of the development of self-recognition in the second year of life*
Margaret M Swingler (University of California, San Diego)
Leslie J Carver (University of California, San Diego)
31. *EEG correlates of featural information retention in infancy*
Victoria Southgate (Birkbeck College)
32. *Not all emotions are created equal: The negativity bias in early development*
Amrisha Vaish (Max Planck Institute for Evolutionary Anthropology)
Amanda Woodward (University of Maryland)
Tobias Grossmann (University of London)
33. *An evolving complimentary: Neurophysiological and behavioral correlates to error monitoring and student motivation*
Kelly Fisher (Temple University)
Ajantha Nanayakkara (Temple University)
Peter Marshall (Temple University)
34. *Brain regions mediating feedback processing across development: An fMRI study*
K Zanolie (Leiden University)
L van Leijenhorst (Leiden University)
E A Crone (Leiden University)
35. *Neural correlates of reward anticipation and outcome processing through adolescence*
L van Leijenhorst (Leiden University)
K Zanolie (Leiden University)
Michiel Westenberg (Leiden University)
Serge Rombouts (Leiden University)
36. *A democratic experience of constructing socially desirable values*
Ulisses F Araujo (University of Sao Paulo)
37. *Intensity of religion, transitional knowledge and the acquisition of compliance understanding*
Israel Gross (University of Chicago)
Ruth B Church (Northeastern Illinois University)

Saturday—P.M.

38. *Tradition and the street: Continuities in the developmental niche of Maya street working girls in Chiapas, Mexico*
Katrin Tovote (University of Hawai'i)
39. *An analysis of wisdom cognitive dimension using the Hierarchical Complexity Scoring System (HCSS)—first results*
Helena Marchand (University of Lisbon)
40. *The mental representation of televisual message through adolescents' drawing*
Cristina Cambra (Universitat Autònoma de Barcelona)
Aurora Leal (Universitat Autònoma de Barcelona)
Núria Silvestre (Universitat Autònoma de Barcelona)
41. *Development of empathy toward peers in the second year of life*
Margarita Svetlova (University of Pittsburgh)
Sara Nichols (University of Pittsburgh)
Celia A Brownell (University of Pittsburgh)
Hilarie Stern (University of Pittsburgh)
Stephanie Sivers (University of Pittsburgh)
Emily Yarrison (University of Pittsburgh)
42. *The assignment of moral status to animals: Children's use of three mental capacity criteria*
Tjeert Olthof (Vrije Universiteit Amsterdam)
Annemieke Postma (Vrije Universiteit Amsterdam)
Arjette Kasperts (Vrije Universiteit Amsterdam)
43. *Challenges and complexities in understanding and studying gender differences*
Ruth L Coupland (Simon Fraser University)
44. *The inability to deceive in children with autism*
J E A Stauder (Universiteit Maastricht)
D Hernandez (Universiteit Maastricht)
45. *Cultural research on respect: After Piaget*
Yeh Hsueh (University of Memphis)
Katherine Kitzmann (University of Memphis)
46. *Participation for young children's learning of media content*
Sandra L Calvert (Georgetown University)
47. *Stories of home: Otherness and identity in immigration narratives*
Seth Surgan (Worcester State College)
48. *Validity of preschool parent report measures of behavioral inhibition: Examining the relationship between the BIQ and BIS/BAS*
Christine M Yu (Simon Fraser University)
Dagmar Bernstein (Simon Fraser University)
49. *The relationship between social perspective taking abilities and children's antisocial and prosocial behaviour*
Tracy G Cassels (University of British Columbia)
Susan A J Birch (University of British Columbia)

Saturday—P.M.

50. *Ethnic and body size stigmatization in preschool Spanish children*
Irene Solbes (Universidad Complutense de Madrid)
Silvia Guerrero (Universidad de Castilla-La Mancha)
Laura Jiménez (Universidad Complutense de Madrid)
Carolina Callejas (Universidad Autónoma de Madrid)
Ileana Enesco (Universidad Complutense de Madrid)
51. *A comparison of parent-report, child self-report and behavioral measures of BIS and BAS: Do they differentially predict emotional functioning in children?*
Sherri L Frohlick (Simon Fraser University)
52. *Acculturation effects on modesty: Comparing Chinese-Canadian and Mainland Chinese children*
Cindy Lau (University of British Columbia)
Trudi S F Chan (University of British Columbia)
Genyue Fu (Zhejiang Normal University)
Fen Xu (Beijing Normal University)
Kang Lee (University of Toronto)
53. *Exploring the roles of end-state emulation, goal emulation and mimicry in infants' imitation of acts on objects*
Chi-Tai Huang (Tzu Chi University)
54. *False-belief understanding and social competence: a reciprocal association in early childhood*
Rachel A Razza (Teachers College, Columbia University)
55. *The relationship between emotion recognition and theory of mind abilities in middle childhood, and its relation to earlier measures of belief and emotion understanding*
Susan Sullivan (University of Sussex)
Nicola Yuill (University of Sussex)
Lance Slade (Roehampton University)
56. *Detecting intentionality in animated shapes: Developmental change and it's cerebral correlates*
Hei-Rhee Ghim (Chungbuk National University)
Seungbok Lee (Chungbuk National University)
Min Park (Chungbuk National University)
Hyo-Woon Yoon (Gachon University)
Kyung-Ja Cho (Chungbuk National University)
Jaisun Koo (Chungbuk National University)
Areum Kim (Chungbuk National University)
Jae-Yeon Cha, Si-Mi Yi, Woorim Jeong (Chungbuk National University)
57. *Relations between metacognitive vocabulary and false belief tasks in Portuguese 3 to 5 year old children*
Zilda Fidalgo (Instituto Superior de Psicologia Aplicada)
59. *Can't hardly wait! Delaying gratification as a function of symbol type*
Sophie Jacques (Dalhousie University)
Suzanne Killing (Wilfrid Laurier University)
Stephanie Collins (Dalhousie University)

Saturday—P.M.

60. *The relations between executive function and theory of mind in preschoolers*

Dana Liebermann (University of Victoria)

61. *Does counterfactual reasoning predict false belief inference in preschool children? Evidence from a longitudinal study*

Joseph Gentet (Universities Paris 5 & Caen)

Anne-Marie Melot (Universities Paris 5 & Caen)

Sylvain Moutier (Universities Paris 5 & Caen)

62. *Preschooler's borrowing of properties from familiar entities to categorize complex inanimates*

Mark Somanader (Vanderbilt University)

Megan Saylor (Vanderbilt University)

Daniel T Levin (Vanderbilt University)

63. *Parental engagement, language, and false belief understanding*

Noah Susswein & Jeremy I M Carpendale (Simon Fraser University)

6:30-7:30 REC2 Reception 2Grand Ballroom

Reception (Sponsored by Elsevier Science, Publishers)

Participant Directory

Mailing addresses for all presenters can be found on the JPS web site:

www.piaget.org/Symposium/2007/presenters/

| | | | |
|---|----------------------|---|-------------------------|
| Adolphs, Ralph radolphs@hss.caltech.edu | PS11.4 | Aureli, Tiziana aurelit@libero.it | PT02.06 |
| Agnoli, Franca franca.agnoli@unipd.it | PS01.3 | Ayman-Nolley, Saba S-Ayman-Nolley@neiu.edu | PT01.32; PS16.C; PS16.5 |
| Ainsworth, Leanne | PS18.1 | Azevedo, Giselle Nielsen gisellearteiro@globo.com | SY27.1 |
| Albert, Jeanne Geanne@netvision.net.il | PS07.4 | Baird, Abigail abbaird@vassar.edu | IS02 |
| Alexis, Dean dma32@cam.ac.uk | SY41.3 | Baird, Jodie A jodie.baird@villanova.edu | PS13.2 |
| Allen, James W jwallen@uvic.ca | SY13.2; SY13.3 | Baker, Jennifer E Jbay2@mac.com | PT01.32 |
| Allen, Jedediah WP jwa204@lehigh.edu | PS17.2 | Baker, Travis E teb@uvic.ca | PS11.5 |
| Alves, Candida candida.alves@gmail.com | PS12.1 | Bamberg, Michael mbamberg@clarku.edu | SY39.D; PS05.C |
| Alves, José Ferreira alves@iep.uminho.pt | SY28.2; SY28.3 | Banaji, Mahzarin R banaji@fas.harvard.edu | PT01.51 |
| Alward, Keith R keith@alwardconstruction.com | PS17.C; PS17.3 | Banerjee, Robin robinb@sussex.ac.uk | SY36.O; SY36.1 |
| Amiri, Shole s.amiri@edu.ac.ir | PS08.5; PS12.4 | Barchfeld, Petra barchfeld@psy.uni-muenchen.de | SY22.1 |
| Amsel, Eric eamsel@weber.edu | SY30.D; DS02; SY22.2 | Baring, João Bosco do Santos jardineiro_01@yahoo.com | PS14.4 |
| Anderson, Criag cdanderson@wisc.edu | SY18.4 | Baron-Cohen, Simon sb205@cam.ac.uk | PL03; PT02.03; SY11.D |
| Annaz, Dagmara d.annaz@ucl.ac.uk | PT01.09 | Batty, Martin J martin.batty@nottingham.ac.uk | SY16.4 |
| Apperly, Ian i.a.apperly@bham.ac.uk | IS03; SY20.2; SY41.4 | Bauer, Patricia patricia.bauer@duke.edu | PT01.23 |
| Arantes, Valeria varantes@usp.br | PT02.07 | Baumgartner, Emma emma.baumgartner@uniroma1.it | SY31.4; PS13.3 |
| Araujo, Ulisses F uliarau@usp.br | PT02.36 | Beck, Danielle M dmbeck@u.washington.edu | PT01.22 |
| Arner, Jen jarner@clarku.edu | SY22.O; SY22.3 | Beck, Sarah R s.r.beck@bham.ac.uk | SY41.4 |
| Arsenio, William warsenio@aecom.yu.edu | SY34.O; SY34.1 | Beer, Jennifer jsbeer@ucdavis.edu | IS07 |
| Arterberry, Martha E Martha.Arterberry@colby.edu | PT01.38 | Begeer, Sander S.Begeer@psy.vu.nl | SY36.4 |
| Asadi, Samaneh Assadi_s2001@yahoo.com | PS08.5; PS12.4 | Bekkering, Harold H.Bekkering@nici.ru.nl | IS01 |
| Aschersleben, Gisa aschersleben@mx.uni-saarland.de | PT01.20; SY12.3 | Bell, Daniel daniel.bell@edstud.ox.ac.uk | PT02.14 |
| Ashton, Cynda cynda_ashton@hotmail.com | SY20.4 | Bell, Kallista A kbellkar@sfu.ca | PT01.11; PS16.3 |
| Atance, Cristina atance@uottawa.ca | SY41.O; SY41.1 | Benga, Oana oanabenga@psychology.ro | SY24.O; SY24.3 |

Participant Directory

| | | | |
|--|------------------------|--|--------------------------|
| Bennett, Mark m.bennett@dundee.ac.uk | PS06.1 | Bosacki, Sandra Sandra.bosacki@brocku.ca | PS08.1; PS18.C; PS18.4 |
| Bernstein, Dagmar dagmar@sfu.ca | PT02.48; PS16.3 | Bouchet, Géraldine geraldine.bouchet@voila.fr | PT01.01 |
| Bernstein, Daniel M daniel.bernstein@kwantlen.ca | PS16.2 | Bourdet-Loubere, Sylvie bourdet@univ-tlse2.fr | PT01.01 |
| Bhering, Eliana eliana.bhering@terra.com.br | PT01.30 | Bourne, Victoria v.bourne@dundee.ac.uk | SY36.2 |
| Bibok, Maximilian B mbibok@sfu.ca | PS13.1; SY03.3 | Bouwmeester, Samantha bouwmeester@fsw.eur.nl | SY32.3 |
| Bickhard, Mark H mhb0@lehigh.edu | SY03.2; PS10.C; PS10.3 | Boyer, Isabelle Isabelle.boyer@ehess.fr | SY06.3 |
| Birch, Susan A J sbirch@psych.ubc.ca | PT02.49 | Branco, Ana Luiza analu_uab@hotmail.com | PS02.2 |
| Biro, Szilvia sbiro@fsw.LeidenUniv.nl | SY29.2; PT01.58 | Branco, Angela Uchoa ambranco@terra.com.br | PS02.2; PS12.1 |
| Blair, Clancy cbb11@psu.edu | PS06.2 | Brass, Marcel marcel.brass@ugent.be | SY20.1; PT01.45 |
| Blair, James BlairJ@intra.nimh.nih.gov | IS06 | Braun, Ingrid ibraun@oise.utoronto.ca | PS15.5 |
| Blake, Peter blakepe@gse.harvard.edu | SY18.3 | Bril, Blandine Blandine.Bril@ehess.fr | SY06.3 |
| Blaye, Agnès agnes.blaye@up.univ-aix.fr | PS14.1 | Brocki, Karin karin.brocki@psyk.uu.se | PS11.5 |
| Blicharski, Teresa teresa.blicharski@fse.ulaval.ca | SY31.2; PT01.01 | Brodeur, Darlene Darlene.brodeur@acadiau.ca | PT01.27 |
| Blidne, Aron ablidn@vdn.ca | SY13.4 | Brown, Alisha browam@ucalgary.ca | PT01.35 |
| Blikstein, Paulo paulo@northwestern.edu | PT01.28 | Brownell, Celia A brownell@pitt.edu | PT01.46; PT02.41 |
| Bloom, Paul paul.bloom@yale.edu | PS04.3 | Brugman, Daniel d.brugman@fss.uu.nl | PT02.09; PS21.2 |
| Blöte, Anke bloete@fsw.leidenuniv.nl | PT01.06 | Bruno, Sandra brunosandra@yahoo.com | PS10.5 |
| Blower, Hélide C Steenhagen helide@multiplaarquitetura.com.br | SY27.1 | Bryant, Peter pbryant@brookes.ac.uk | PT02.14 |
| Bogels, S sbogels@fmg.uva.nl | PS18.3 | Budwig, Nancy nbudwig@clarku.edu | PS05.2 |
| Bokhorst, Caroline bokhorst@fsw.leidenuniv.nl | PT01.06 | Bullock, Merry mbullock@apa.org | DS02; SY22.1 |
| Bombi, Anna Silvia annasilvia.bombi@uniroma1.it | SY31.4 | Bunge, Silvia sbunge@berkeley.edu | IS07 |
| Bon, Marie Laurence laurence.bon@hotmail.fr | PT01.48; SY31.2 | Buote, Denise | SY25.2 |
| Bonli, Rupal rupal.bonli@saskatoonhealthregion.ca | PS11.2 | Burack, Jake Jake.burack@mcgill.ca | PS11.C; SY13.4; PT01.27; |
| Bonthoux, Françoise francoise.bonthoux@upmf-grenoble.fr | PS14.1 | Burgess, Kim kburgess@pediatricpsychologycenter.org | PS18.4 |
| Boom, Jan J.Boom@fss.uu.nl | SY10.3; SY14.4 | Burnham, Priscilla pburnham@uwo.ca | PS15.3 |
| Bornstein, Marc H Marc.H.Bornstein@nih.gov | PT01.38 | Buttelmann, David buttelma@eva.mpg.de | PT01.21 |

Participant Directory

| | | | |
|---|------------------------|--|------------------|
| Byrne, Don don.byrne@anu.edu.au | PS12.2; PS15.2 | Chang, Min-Hsiang pocacat@alumni.ccu.edu.tw | PT02.18 |
| Calderwood Lesley Calderwood | PS18.1 | Chen, Edith echen@psych.ubc.ca | PS19.5 |
| Call, Josep call@eva.mpg.de | PT01.21; PT01.17 | Cheng, Ching-Ling clcheng@ntnu.edu.tw | PT01.05 |
| Callan, Daniel E | SY21.3 | Chiang, Chung-Hsin psychc@ccu.edu.tw | PT02.18 |
| Callejas, Carolina carolina.callejas@uam.es | SY05.2; PT02.50 | Chiao, Joan jchiao@northwestern.edu | IS04 |
| Calvert, Sandra L calverts@georgetown.edu | PT02.46 | Cho, Kyung-Ja chokj@yonsei.ac.kr | PT02.56 |
| Cambra, Cristina cristina.cambra@uab.es | PT02.40 | Chow, Katherine | PT02.15 |
| Cameron, C A acameron@psych.ubc.ca | DS01; SY01.3 | Church, R B rbchurch@neiu.edu | PS16.5; PT02.37 |
| Cameron, Leslie lcameron@carthage.edu | SY01.3 | Cividini, Catia ccividin@mtholyoke.edu | PS04.2 |
| Cameron, Lindsey L.Cameron@kent.ac.uk | SY05.O; SY05.4 | Clayton, Nicola nsc22@cam.ac.uk | SY41.3 |
| Campbell, Ruth R.Campbell@sheffield.ac.uk | PT01.09 | Cleveland, Allison cleveland@teva.mpg.de | PT01.16 |
| Canz, Thomas canz@mpib-berlin.mpg.de | SY09.1 | Climie, Emma eaclimie@ucalgary.ca | PT01.59 |
| Carlson, Stephanie M carlsons@u.washington.edu | IS07; SY33.O; PT01.22 | Coleman, Mike m.coleman@sheffield.ac.uk | PT01.09 |
| Carpendale, Jeremy jcarpend@sfu.ca | IS06; PS13.1; PT02.63 | Colinvaux, Dominique dominique.colinvaux@terra.com.br | SY27.3 |
| Carroll, Daniel J d.j.carroll@bham.ac.uk | SY41.4; PT01.37 | Collins, Stephanie collinss@dal.ca | PT02.59 |
| Carvajal, Ana acarvajal@oise.utoronto.ca | SY39.4 | Collot-d'Escury, A L a.l.collotdescury-koenigs@uva.nl | PS03.4 |
| Carver, Leslie J ljcarver@ucsd.edu | IS05; PT02.30 | Colonnesi, Cristina ccolonnesi@fmg.uva.nl | SY12.1 |
| Casler, Krista krista.casler@fandm.edu | PS17.1 | Commons, Michael Lamport commons@tiac.net | SY28.1; SY28.2 |
| Casperson, Courtney courtney.casperson@villanova.edu | PS13.2 | Cornish, Kim kim.cornish@mcgill.ca | SY11.1 |
| Cassels, Tracy G tracy@psych.ubc.ca | PT02.49 | Corriveau, Kathleen corrivka@gse.harvard.edu | PS04.1 |
| Castelli, Ilaria ilaria.castelli@unicatt.it | PS02.5 | Costall, Alan alan.costall@port.ac.uk | SY06.D; SY26.4 |
| Castro, Ronaldo Souza ronaldocastro30@hotmail.com | PT01.30 | Côté, Sylvana sylvana.cote@umontreal.ca | PT01.29 |
| Cha, Jae-Yean stjch@hanmail.net | PT01.53; PT02.56 | Coultas, Julie julie.coultas@gmail.com | PT02.10 |
| Chaiken, MarthaLeah MarthaLeah.Chaiken@hofstra.edu | PS10.4 | Coupland, Ruth L rcouplan@sfu.ca | PT01.08; PT02.43 |
| Chan, Trudi S F chantrudi@yahoo.ca | PT01.54; PT02.52 | Cox, Brian D brian.d.cox@hofstra.edu | PS10.4 |
| Chandler, Michael chandler@interchange.ubc.ca | PS12.C; PS12.5; SY13.D | Craig, Michelle J mjc05f@fsu.edu | PT01.55 |

Participant Directory

| | | | |
|--|-----------------------|---|------------------|
| Crone, Eveline ecrone@fsw.leidenuniv.nl | PT01.44; PT02.34 | Domingues, Jaqueline V F | PT01.30 |
| Csibra, Gergely t.farroni@bbk.ac.uk | IS01; PT01.41; SY29.1 | Donovan, Elizabeth edonovan@bu.edu | PS08.2 |
| Cunningham, William A cunningham.417@osu.edu | IS04; PS01.1 | Dunfield, Kristen 4kad@qlink.queensu.ca | PT01.24 |
| Curenton, Stephanie M scurenton@fsu.edu | PT01.55 | Dunham, Yarrow dunhamya@gse.harvard.edu | PT01.51 |
| D'Angiulli, Amedeo adangiulli@tru.ca | PS19.5 | Durham, Joy joyd@u.washington.edu | PS16.2 |
| Dahl, Ron dahlre@upmc.edu | PL02 | Duthu, Sylvie sylvieduthu@yahoo.fr | PT01.01 |
| Dalton, Kim M kmdalton@wisc.edu | SY11.2 | Dweck, Carol S dweck@psych.stanford.edu | PT01.51 |
| Damon, William wdamon@stanford.edu | PS03.C | Ebner, Daria d.ebner@gmail.com | SY19.3 |
| Dapretto, Mirella mirella@loni.ucla.edu | IS04; SY21.1; SY21.2 | Edele, Aileen edele@mpib-berlin.mpg.de | PT01.52 |
| Daum, Moritz M moritz.daum@cbs.mpg.de | PT01.20; PT01.62 | Eenshuistra, Rena eenshuis@fsw.leidenuniv.nl | PT01.61; SY20.3 |
| David, Nicole nicole.david@uk-koeln.de | PT02.05; PT01.14 | Eisenberg, Zena Winona zeisenberg_11103@yahoo.com | SY27.O; SY27.2 |
| Davidson, Richard J rjdavids@wisc.edu | SY11.2 | Elfers, Theo tea@sfu.ca | SY17.3; SY25.1 |
| Davis, Hrysoula | PS13.2 | Elsner, Birgit elsner@psychologie.uni-heidelberg.de | SY29.O; SY29.4 |
| Davis-Unger, Angela acd2@u.washington.edu | SY33.2 | Enesco, Ileana ienesco@psi.ucm.es | SY05.2; PT02.50 |
| Dawkins, Tamara tamara.dawkins@mail.mcgill.ca | PT01.27 | Ernst, Monique ErnstM@intra.nimh.nih.gov | IS02 |
| Dawson, Theo L theo@devtestservice.com | SY10.O; SY10.2 | Escobar, E Manolo Romero mromero@yorku.ca | SY14.3 |
| de Castro, Bram Orobio b.castro@fss.uu.nl | SY34.2; PS21.1 | Eslinger, Paul J peslinger@psu.edu | IS06 |
| de Wied, Minet m.dewied@fss.uu.nl | SY34.3 | Espy, Kimberly Andrews kespy2@unl.edu | PT01.37 |
| de Winter, Micha M.deWinter@fss.uu.nl | PS21.2 | Evans, Deborah deborah.evans@edstud.ox.ac.uk | PT02.14 |
| de Wit, Tessa C J T.deWit@psy.umcn.nl | PT02.22 | Evans, Jennifer W jw.evans@utoronto.ca | PS20.1 |
| Delrieu, Emmanuelle kandisky@wanadoo.fr | PT02.13 | Fahim, Cherine cherine.fahim@umontreal.ca | PT02.01 |
| Delval, Juan jdelval@psi.uned.es | PS01.2 | Farroni, Teresa t.farroni@bbk.ac.uk | PT01.18; PT01.41 |
| Demetriou, Andreas adem@ucy.ac.cy | SY14.2 | Feddes, Allard Rienk a.r.feddes@uni-jena.de | SY05.3 |
| Di Norcia, Anna anna.dinorcia@uniroma1.it | SY31.4 | Fein, Deborah deborah.fein@uconn.edu | PS11.3 |
| Diamond, Adele adele.diamond@ubc.ca | SY20.O; SY20.4 | Feldman, David Henry DavidHenry.Feldman@tufts.edu | SY37.2 |
| Doherty-Sneddon, Gwyneth gds1@stir.ac.uk | PS18.1 | Fernandez, Guillen guillen.fernandez@fcdonders.ru.nl | PT01.39 |

Participant Directory

| | | | |
|--|------------------------|--|----------------------|
| Fernandez-Duque, Diego diego.fernandezduque@villanova.edu | PS13.2 | Gawronski, Bertram bgawrons@uwo.ca | PS15.3 |
| Ferrari, Michel mferrari@oise.utoronto.ca | PS15.C; PS15.5; SY39.4 | Geangu, Elena elenageangu@psychology.ro | SY24.O; SY24.1 |
| Ferrier, Laurent laurent_ferrier@laposte.net | PS10.2 | Genco, Maria maria_genco@yahoo.it | PT02.06 |
| Fictorie, Valerie val_fictorie@hotmail.com | PS03.4 | Gentet, Joseph joseph.gentet@noos.fr | PT02.61 |
| Fidalgo, Zilda zfidalgo@ispa.pt | PT02.57 | Geoffroy, Marie-Claude mc.geoffroy@umontreal.ca | PT01.29 |
| Fink, Gereon R g.r.fink@fz-juelich.de | PT02.04 | Geurts, Hilde M h.m.geurts@uva.nl | SY16.2; SY16.3 |
| Finlayson, Odilla odilla.finlayson@spd.dcu.ie | PS19.3 | Ghim, Hei-Rhee hrghim@chungbuk.ac.kr | PT01.53; PT02.56 |
| Fisher, Kelly kelly.fisher@temple.edu | PT01.34; PT02.33 | Gillen, Julia j.gillen@open.ac.uk | DS01; SY01.1; SY01.3 |
| Fitch, Tamara | SY13.4 | Gillespie, Alex alex.gillespie@stir.ac.uk | SY17.2 |
| Fitneva, Stanka A fitneva@post.queensu.ca | PT01.24 | Gillieron, Christiane Christiane.Gillieron@pse.unige.ch | SY40.D |
| Flanagan, Tara tara.flanagan@excite.com | SY13.4; PT01.27 | Glenwright, Melanie glenwrig@cc.umanitoba.ca | PT02.17 |
| Flores, Heidi heidi_flores83@hotmail.com | SY13.4 | Glick, Joseph jglick@gc.cuny.edu | SY27.D |
| Fox, Nathan fox@umd.edu | IS07 | Gliga, Teodora t.gliga@bbk.ac.uk | PS20.2 |
| Franco, Fabia f.franco@mdx.ac.uk | PT02.20 | Goksun, Tilbe tgoksun@temple.edu | PS04.5 |
| Friedman, Ori friedman@uwaterloo.ca | SY18.O; SY18.2 | Golbeck, Susan L golbeck@rci.rutgers.edu | SY30.O; SY30.1 |
| Frohlick, Sherri L sfrohlic@sfu.ca | PS02.3; PT02.51 | Gold, Jason jasungold@comcast.net | SY34.4 |
| Frye, Douglas dfrye@gse.upenn.edu | SY33.D; SY33.1 | Goldstein, Thalia R goldstet@bc.edu | PT02.28 |
| Frye, Lindsey Smithln8@gwm.sc.edu | PT01.60 | Golinkoff, Roberta Michnick roberta@udel.edu | PS04.5 |
| Fu, Genyue fugy@zjnu.cn | PT02.52 | Goodall, Amy C lpyvacg@nottingham.ac.uk | SY16.4 |
| Gallagher, Jeanette McCarthy Jinpia@verizon.net | PS10.4 | Graham, Susan grahams@ucalgary.ca | PT02.23 |
| Gallese, Vittorio vittorio.gallese@unipr.it | PL01 | Granott, Nira ngranott@aol.com | SY37.2; SY37.3 |
| Gamannossi, Beatrice Accorti beatrice.accorti@unifi.it | SY01.2 | Greimel, Ellen egreimel@ukaachen.de | PT02.04 |
| Garcia, GNA gna.garcia@uconn.edu | SY25.3 | Griffin, Richard Richard.Griffin@tufts.edu | PT02.03 |
| Garcia-Mila, Mercè mgarciamila@ub.edu | SY04.3 | Groom, Madeleine J maddie.groom@nottingham.ac.uk | SY16.4 |
| Gash, H hugh.gash@spd.dcu.ie | PS19.3 | Gross, Israel moses@uchicago.edu | PT02.37 |
| Gawronski, Astrid astridgawronski@gmx.de | PT01.14 | Grossman, Ruth ruthberg@bu.edu | SY11.3 |

Participant Directory

| | | | |
|--|------------------|--|------------------|
| Grossmann, Tobias t.grossmann@bbk.ac.uk | PT01.41; PT02.32 | Helwig, Charles helwig@psych.utoronto.ca | PT01.52; PT02.24 |
| Grunau, Ruth rgrunau@cw.bc.ca | PS19.5 | Herdman, Anthony atherdma@sfu.ca | PS19.5 |
| Gryfe, Shelly Glick shelly.glick@fisher-price.com | PT01.34 | Hernandez, D d.hernandez@student.unimaas.nl | PT02.44 |
| Guberman, Ainat ainatg@013.net | PS07.4 | Hernandez-Ulloa, Abel Ruben abelruben@gmail.com | PS07.5 |
| Guerrero, Silvia silguerrero@gmail.com | SY05.2; PT02.50 | Herpertz-Dahlmann, Beate bherpertz-dahlmann@ukaachen.de | PT02.04 |
| Gummerum, Michaela michaela.gummerum@plymouth.ac.uk | SY09.2; SY09.4 | Hertzman, Clyde clyde.hertzman@ubc.ca | PS19.5 |
| Güroglu, Berna b.guroglu@psych.ru.nl | PT01.39 | Hirsh-Pasek, Kathy khirshpa@temple.edu | PT01.34; PS04.5 |
| Hala, Suzanne hala@ucalgary.ca | PT01.35; PT02.02 | Hobson, R Peter r.hobson@ich.ucl.ac.uk | SY17.1; SY23.1 |
| Hallett, Darcy darcy.hallett@edstud.ox.ac.uk | PT02.14; PS07.2 | Hodgson, Eleanor S0458648@sms.ed.ac.uk | PS04.3 |
| Hammond, Stuart shammond@sfu.ca | SY25.1; SY03.3 | Hoehl, Stefanie hoehl@cbs.mpg.de | PT01.36; PT02.29 |
| Hancock, Roger w.r.hancock@open.ac.uk | DS01; SY01.1 | Hohenberger, Annette hohenberger@ii.metu.edu.tr | SY12.3 |
| Hanoch, Yaniv yaniv.hanoch@plymouth.ac.uk | SY09.4 | Hollenstein, Tom tom.hollenstein@queensu.ca | PS12.3 |
| Hao, Heping nanjinghao@hotmail.com | SY37.2 | Hollis, Chris chris.hollis@nottingham.ac.uk | SY16.4 |
| Happé, Francesca francesca.happe@iop.kcl.ac.uk | PS11.4 | Holroyd, Clay B holroyd@uvic.ca | PS11.5 |
| Haraemiv, Sônia Maria Chaves sharacemiv@ufpr.br | PS14.3 | Homer, Bruce D bruce.homer@nyu.edu | SY30.4 |
| Harris, Paul L paul_harris@gse.harvard.edu | PS04.1; SY18.3 | Hommel, Bernhard hommel@fsw.leidenuniv.nl | PT01.61; SY20.3 |
| Hart, Daniel daniel.hart@rutgers.edu | SY25.4 | Horsley, T M tm.horsley@psy.vu.nl | PS21.1 |
| Hartstra, Egbert e.hartstra@inter.nl.net | PT01.45 | Hsueh, Yeh yehhsueh@memphis.edu | PS14.C; PT02.45 |
| Hasegawa, Toshikazu thase@darwin.c.u-tokyo.ac.jp | PT01.13 | Hu, Juan juhu@clarku.edu | PS05.2 |
| Haselager, Gerbert J T g.haselager@psych.ru.nl | PT01.39 | Huang, Chi-Tai ucjtchu@mail.tcu.edu.tw | PS22.1; PT02.53 |
| Hauf, Petra phauf@stfx.ca | SY29.3 | Hubbard, Amy L ahubbard@humnet.ucla.edu | SY21.3 |
| Hauser, Marc D mdh@wjh.harvard.edu | PT02.15 | Hue, Sofia sofiahue@free.fr | PS13.4 |
| Hautamäki, Jarkko jarkko.hautamaki@helsinki.fi | SY07.3 | Huerta-Kralj, Snjezana sbkralj@sfu.ca | SY25.1 |
| Hay, Dale F haydf@cardiff.ac.uk | SY18.1 | Huizenga, Hilde M h.m.huizenga@uva.nl | SY32.2 |
| Hay, Deborah deb.hay@saskatoonhealthregion.ca | PS11.2 | Humphreys, Glyn g.w.humphreys@bham.ac.uk | SY20.2 |
| Heinrichs, Karin heinrichs@bwl.uni-muenchen.de | PS08.3 | Hunnius, Sabine s.hunnius@uvt.nl | PT02.22; IS01.3 |

Participant Directory

| | | | |
|--|------------------|---|------------------|
| Hutto, Daniel phlqddh@herts.ac.uk | SY26.2 | Kanner, Bonnie G bkanner@worchester.edu | PS20.4 |
| Huynh, Dieu-Huong dhuynh27@u.washington.edu | PS16.2 | Karmiloff-Smith, Annette a.karmiloff-smith@bbk.ac.uk | SY11.1 |
| Iacoboni, Marco iacoboni@loni.ucla.edu | SY21.2; SY21.4 | Kasachkoff, Tziporah tkasachkoff@yahoo.com | PS03.2 |
| Ilgaz, Hande hai205@lehigh.edu | PT01.33 | Kasperts, Arjette | PT02.42 |
| Ingram, Gordon P D gingram02@qub.ac.uk | PS16.1 | Kazemek, Francis fekazemek@stcloudstate.edu | PS14.2 |
| Ivšac, Jasmina jivsac@erf.hr | SY24.4 | Kelemen, Deborah dkelemen@bu.edu | PS17.1 |
| Jackson, Laura imagination52@yahoo.ca | SY41.1 | Keller, Monika keller@mpib-berlin.mpg.de | SY09.1; SY09.2 |
| Jacques, Sophie sophie.jacques@dal.ca | PT02.59 | Kelley, Elizabeth kelleyb@post.queensu.ca | PS11.3 |
| Jansen, Brenda R J b.r.j.jansen@uva.nl | SY38.O; SY32.1 | Kelly, Spencer skelly@mail.colgate.edu | PS16.5 |
| Jaramillo, Angela angelaj@interchange.ubc.ca | SY25.2 | Kemner, Chantal c.kemner@umcutrecht.nl | PS15.4 |
| Jeong, Woorim wrzzang@hotmail.com | PT02.56 | Kempes, Maaike m.kempes@fss.uu.nl | SY34.2 |
| Jiang, Shin-Ru shinru@mail.tcu.edu.tw | PS22.1 | Kerns, Kimberly A kkerns@uvic.ca | PS11.5 |
| Jiménez, José Alfredo jimenezjosea@yahoo.ca | PT02.01 | Kesek, Amanda amanda.kesek@utoronto.ca | PS01.1 |
| Jiménez, Laura laura.jimenez@psi.ucm.es | PT02.50 | Ketelaar, Lizet lketelaar@fsw.leidenuniv.nl | SY36.3 |
| Johnson, Helen L hmljohnson@gmail.com | PS05.1 | Khmelkov, Vladimir vkhmelko@nd.edu | PT02.11 |
| Johnson, Janice M janicej@yorku.ca | SY14.3 | Kikuchi, Yukiko yukko@darwin.c.u-tokyo.ac.jp | PT01.13 |
| Johnson, Mark H mark.johnson@psyc.bbk.ac.uk | PT01.18; PT01.25 | Kikuno, Haruo kikuno.haruo@osaka-shoin.ac.jp | SY13.5 |
| Johnson, Patrick B johnsonp@dowling.edu | PT02.08 | Killen, Melanie mkillen@umd.edu | IS07; SY05.1 |
| Jolley, Richard P r.jolley@staffs.ac.uk | SY35.1 | Killing, Suzanne kill9900@wlu.ca | PT02.59 |
| Jones, Lara L laraj@uga.edu | PS19.4 | Kim, Areum aremguri@hanmail.net | PT01.53; PT02.56 |
| Joseph, Robert M rmjoseph@bu.edu | SY11.3 | Kim, Sunae kim2@wisc.edu | SY18.4 |
| Jouen, François fjephe@aol.com | PT02.13; PT02.27 | Kindler, Anna M anna.kindler@ubc.ca | SY35.D |
| Junior, Djalma B C | PT01.30 | Kitzmann, Katherine kkitzmann@mail.psyc.memphis.edu | PT02.45 |
| Kalénine, Solene solene.kalenine@upmf-grenoble.fr | PS14.1 | Klein, Annette M klein@cbs.mpg.de | SY29.3 |
| Kalish, Charles W cwkalish@wisc.edu | SY18.4 | Kobiela, Marta marta.kobelia@vanderbilt.edu | SY30.3 |
| Kallen, Victor vkallen@fsw.leidenuniv.nl | PT01.06 | Kohen, Raquel rkohen@psi.uned.es | PS01.2 |

Participant Directory

| | | | |
|--|------------------|--|------------------------------|
| Kojima, Yasuji kojima@elsa.hokkai-s-u.ac.jp | PS13.C; SY39.3 | Leman, Patrick Patrick.Leman@rhul.ac.uk | SY09.2 |
| Konrad, Kerstin kkonrad@ukaachen.de | PT02.04 | Lemerise, Elizabeth elizabeth.lemerise@wku.edu | SY34.O; SY34.D |
| Koo, Jaisun susanna9@hanmail.net | PT02.56 | Leon, Laure lor.leon@free.fr | PT02.27 |
| Koops, Willem w.koops@fss.uu.nl | SY12.1; PT02.09 | Lerner, Rogerio rogerlerner@uol.com.br | PS14.4 |
| Koyasu, Masuo HGB03675@nifty.com | PS06.3 | Leudar, Ivan ivan.leudar@manchester.ac.uk | SY26.1 |
| Krause, Lisa lisafnb@juno.com | PT01.32 | Levenson, Michael rick.levenson@oregonstate.edu | SY28.2 |
| Kuhlmeier, Valerie A vk4@post.queensu.ca | SY12.2; PT01.43 | Levin, Daniel T daniel.t.levin@vanderbilt.edu | PT02.62 |
| Kunnen, E Saskia e.s.kunnen@rug.nl | SY10.1 | Lewis, Charlie c.lewis@lancaster.ac.uk | SY03.3 |
| Lagatta, Pedro Paulo Fernandes pedro_lagatta@yahoo.com.br | PS14.4 | Lewis, Marc mlewis@oise.utoronto.ca | IS05; PS09.4; PS20.C; PS20.1 |
| Lagatutta, Kristin khlaga@ucdavis.edu | PS08.1 | Lewis, Michael lewis@umdnj.edu | SY34.4 |
| Lahat, Ayelet a.lahat@utoronto.ca | PT02.24 | Leyva, Diana dleyva@clarku.edu | PS04.4 |
| Lalonde, Christopher E lalonde@uvic.ca | SY13.1; SY13.2 | Li, Jin jin_li@brown.edu | SY33.3 |
| Lamm, Connie clamm@oise.utoronto.ca | PS09.4 | Liben, Lynn S liben@psu.edu | SY30.2; SY35.2 |
| Landry, Oriane onl@psychology.nottingham.ac.uk | PT01.27 | Liddle, Elizabeth F elizabeth.liddle@nottingham.ac.uk | SY16.4 |
| Landt, Jennifer landt@uni-leipzig.de | PT02.29 | Liddle, Peter F peter.liddle@nottingham.ac.uk | SY16.4 |
| Lapsley, Daniel K danlapsley@nd.edu | SY08.3 | Lieberman, Matt lieber@ucla.edu | IS04 |
| Lau, Cindy cindycyl@telus.net | PT01.54; PT02.52 | Liebermann, Dana dl@uvic.ca | PT02.60 |
| Leal, Aurora aurora.leal@uab.es | PT02.40 | Lightfoot, Cynthia cgl3@psu.edu | SY02.O |
| Leavens, David A davidl@sussex.ac.uk | PS22.2 | Lima, Margarida Pedroso mplima@fpce.uc.pt | SY28.2 |
| LeCorre, Mathieu tieuorre@gmail.com | SY15.O; SY15.1 | Linke, Lance Hartmut linke@hawaii.edu | PS03.5; SY19.1 |
| Lee, Hyeonjin hjlee@yu.ac.kr | PT01.53 | Lins, Maria Judith Sucupira da Costa mariasucupiralins@terra.com.br | PT01.56 |
| Lee, Kang kang.lee@utoronto.ca | PT01.54; PT02.52 | Liotti, Mario mliotti@fsu.ca | SY16.4 |
| Lee, Seungbok lsbok@chungbuk.ac.kr | PT02.56 | Liu, Chunqiong chunqiongliu@163.com | PT02.24 |
| Legerstee, Maria legerste@yorku.ca | PT02.21 | Liu, David davidliu@u.washington.edu | IS03 |
| Lehalle, Henri henri.lehalle@wanadoo.fr | PT02.13; PT02.27 | Ljubešić, Marta mljubes@public.srce.hr | SY24.4 |
| Lehrer, Richard rich.leherer@vanderbilt.edu | SY30.3 | Lopez-Duran, Sarah sarahdz@umich.edu | PS11.1 |

Participant Directory

| | | | |
|--|-----------------|--|------------------------|
| Losh, Molly losh@med.unc.edu | PS11.4 | Mayer, Jessica jessica.meyer@ucl.ac.uk | SY23.1 |
| Louisell, Robert rlouisell@stcloudstate.edu | PS14.2 | Mayer, Susan Jean sjmayer@post.harvard.edu | PS17.5 |
| Luman, Marjolein m.luman@psy.vu.nl | SY16.2; SY16.3 | Maynard, Ashley E amaynard@hawaii.edu | PS21.3; SY19.D; SY33.4 |
| Lunenburg, Patty P.Lunenburg@psy.vu.nl | SY36.4 | McCloughlin, T J J tom.mccloughlin@spd.dcu.ie | PS19.3 |
| Luning, Rebecca rluning@hawaii.edu | SY19.2 | McCormack, Teresa t.mccormack@qub.ac.uk | SY41.2 |
| Lynchard, Nicholas nlynchard@yahoo.com | PT02.26 | McHenry, Stacey sam320@mail.usask.ca | PT01.40 |
| Lyra, Maria CDP marialyra2005@yahoo.com.br | SY02.O SY02.2 | McKenzie, Stephanie A steph.mc@telus.net | PS08.4 |
| MacMichael, Carl bmattan@nd.edu | PT01.47 | McKogan, Kerry kerrylm@lineone.net | SY41.2 |
| Maeda, Hiroshi korosuke@mx.mesh.ne.jp | PT02.12 | McLaughlin, Julie 3jm27@qlink.queensu.ca | PT01.24 |
| Maeda, Makiko makimaki_mm@hotmail.com | PT01.13 | McMorris, Carly camcmorr@ucalgary.ca | PT01.59; PT02.02 |
| Maleeh, Reza smaleeh@uos.de | PT01.57 | McNealy, Kristin Stamm kristin.mcnealy@ucla.edu | SY21.1 |
| Malerstein, A J ajmalerstein@earthlink.net | PS10.1 | Mcquaid, Nancy nmcquaid@sfu.ca | PT01.19 |
| Malti, Tina malti@jacobscenter.unizh.ch | SY09.3 | Meerum Terwogt, Mark m.meerum.terwogt@psy.vu.nl | SY36.3; SY36.4 |
| Mancini-Marië, Adham adham.mancini-marie@umontreal.ca | PT02.01 | Meijnen, Marieke m.meijnen@fss.uu.nl | PS21.2 |
| Mandujano, Mario mariomandujano@gmail.com | PS01.4 | Mélançon, Julie lelec@fse.ulaval.ca | PS02.4 |
| Marchand, Helena helenamarchand@hotmail.com | PT02.39; SY28.1 | Melot, Anne-Marie anne-marie.melot@paris5.sorbonne.fr | PT02.61 |
| Marchetti, Antonella antonella.marchetti@unicatt.it | PS02.5 | Meltzoff, Andrew N meltzoff@u.washington.edu | PS16.2 |
| Mareschal, Denis d.mareschal@bbk.ac.uk | SY38.1 | Mendes, Monique A O | PT01.30 |
| Markova, Gabriela markova@yorku.ca | PT02.21 | Mendrek, Adrianna adrianna.mendrek@umontreal.ca | PS18.2; PT02.01 |
| Marshall, Peter peter.marshall@temple.edu | PT02.33 | Meneres, Sofia mcabralm@sfu.ca | PT01.42 |
| Martí, Eduard emarti@ub.edu | SY04.3 | Menon, Enrica enrica.menon@unipd.it | PT01.18 |
| Martin, Jack Jack_Martin@sfu.ca | SY17.O; SY17.3 | Mercer, Neil nmm31@cam.ac.uk | SY07.2 |
| Martinez, Nicola Marae nicola.martinez@esc.edu | PS20.3 | Miers, Anne acmiers@fsw.leidenuniv.nl | PT01.06 |
| Mata, Jutta jmata@mpib-berlin.mpg.de | 512.2 | Milbrath, Constance constance.milbrath@ubc.ca | SY35.O; SY35.4 |
| Matsuba, M Kyle matsubak@unbc.ca | SY08.O; SY25.4 | Miller, Gregory gemiller@psych.ubc.ca | PS19.5 |
| Mattan, Bradley bmattan@nd.edu | PT01.47 | Miller, Michael mrm@uvic.ca | PS16.4 |

Participant Directory

| | | | |
|---|------------------------|--|----------------|
| Miller, Patrice Marie patricemariemiller@comcast.net | SY28.1; SY28.3 | Nucci, Larry lnucci@uic.edu | PS08.C; PS08.1 |
| Miller, Patricia H phmiller@uga.edu | PS19.C; PS19.4 | Nunes, Terezinha terezinha.nunes@edstud.ox.ac.uk | PT02.14 |
| Milne, Elizabeth e.milne@sheffield.ac.uk | PT01.09 | Nunez, Maria m.nunez@gcal.ac.uk | PS06.4 |
| Mitchell, Peter peter.mitchell@nottingham.ac.uk | PS06.C; PS06.1; SY13.5 | O'Kearney, Richard richard.okearney@anu.edu.au | PS12.2 |
| Miyata, Edson Seiti esmiyata@yahoo.com.br | PT01.56 | O'Leary, Jennifer jolubc@nbnnet.nb.ca | PT01.54 |
| Molnar-Szakacs, Istvan imolnar@ucla.edu | SY21.4 | O'Reilly, Sinéad sksp@spd.dcu.ie | PS19.3 |
| Monteiro, Ligia ligia_monteiro@ispa.pt | PT01.04; PT01.07 | Oberlander, Tim toberlander@cw.bc.ca | PS19.5 |
| Moore, Chris moorec@dal.ca | PL04; SY23.2; SY41.D | Ochsner, Kevin ochsner@psych.columbia.edu | IS05 |
| Morgan, Gary g.morgan@city.ac.uk | PS05.5 | Okamoto-Barth, Sanae s.barth@psychology.unimaas.nl | PT01.17 |
| Morgante, James D jmorgant@psych.umass.edu | PT01.31 | Oldenburg, Jonne jonneoldenburg@wanadoo.nl | PT01.45 |
| Morton, J Bruce bmorton3@uwo.ca | PS15.3 | Olineck, Kara M olineck@alcor.concordia.ca | SY12.4 |
| Moutier, Sylvain sylvain.moutier@paris5.sorbonne.fr | PT02.61 | Oliveira, Carla coliveira@ispa.pt | PT01.04 |
| Müller, Ulrich umueller@uvic.ca | IS06; SY03.1 | Olson, Kristina R krolson@wjh.harvard.edu | PT01.51 |
| Muñoz-Ledo, Patricia patmura@hotmail.com | PS01.4 | Olthof, Tjeert t.olthof@psy.vu.nl | PT02.42 |
| Nahman, Carolyn mcszpr@gwmail.nottingham.ac.uk | SY16.4 | Ono, Kaya kono@clarku.edu | PS05.2 |
| Naigles, Letitia letitia.naigles@uconn.edu | PS11.3 | Oosterwegel, Annerieke j.h.oosterwegel@fss.uu.nl | SY10.O; SY10.3 |
| Nanayakkara, Ajantha aj.nanayakkara@temple.edu | PT02.33 | Orozco-Hormaza, Blanca Cecilia blanceci@univalle.edu.co | SY40.2 |
| Narvaez, Darcia dnarvaez@nd.edu | SY08.1; PT01.4 | Orozco-Hormaza, Mariela morozco@univalle.edu.co | SY04.4; SY40.4 |
| Nascimento, Cynthia Paiva cypaiva@bol.com.br | SY31.3 | Osanai, Hiroo | PT01.13 |
| Neff, Kristin kristin.neff@mail.utexas.edu | PS09.C; PS09.1; SY39.2 | Overton, Willis overton@temple.edu | SY39.1 |
| Nelson, Chuck charles.nelson@childrens.harvard.edu | PS04.1 | Palacios, Pedro palaciosalayas@yahoo.com.mx | SY04.2 |
| Newen, Albert albert.newen@uni-tuebingen.de | PT01.14 | Parada, Priscila priscilaparada@yahoo.com.br | PS12.1 |
| Nichols, Sara srn1@pitt.edu | PT01.46; PT02.41 | Pardal, Maria Vittoria de Carvalho mvittoria@terra.com.br | SY27.3 |
| Nicolopoulou, Ageliki agn3@lehigh.edu | PT01.33 | Parent, Sophie sophie.parent@umontreal.ca | PT01.29 |
| Nilsen, Elizabeth esnilsen@ucalgary.ca | PT02.23 | Parise, Eugenio eugenioparise@fiscali.it | PT01.16 |
| Noack, Peter peter.noack@uni-jena.de | SY05.3 | Parish-Morris, Julia jparish@temple.edu | PS04.5 |

Participant Directory

| | | | |
|---|------------------|---|------------------|
| Park, Min navyair@chollian.net | PT02.56 | Racine, Timothy P racine@cc.umanitoba.ca | PS22.2; SY23.D |
| Pascual-Leone, Juan juanpl@yorku.ca | SY14.3 | Raijmakers, Maartje E J m.e.j.raijmakers@uva.nl | SY38.2 |
| Pathman, Thanujeni thanujeni.pathman@duke.edu | PT01.23 | Ramani, Geetha ramani@cmu.edu | PT01.46 |
| Paynter, Jessica jpaynter@psy.uq.edu.au | PT01.15 | Rauterberg, Gabriel gabriel.rauterberg@yale.edu | PT01.52 |
| Pelphrey, Kevin kevin.pelphrey@duke.edu | IS03; PT01.23 | Ray, Lillian S lray1@swarthmore.edu | 508.1 |
| Perovano, Dalton Gean dgperovano@yahoo.com.br | PS14.3 | Razza, Rachel A razza@tc.edu | PS06.2; PT02.54 |
| Perucchini, Paola p.perucchini@uniroma3.it | PT02.06; SY12.1 | Reddy, Vasudevi vasu.reddy@port.ac.uk | SY26.O; SY26.4 |
| Petanjek, Zdravko zpetanjek@net.hr | PS19.2 | Regber, Linda linda2803@yahoo.co.uk | PT02.20 |
| Peterson, Candida candi@psy.uq.edu.au | PT01.15 | Reid, Vincent reid@cbs.mpg.de | PS19.1; PT02.29 |
| Pexman, Penny M pexman@ucalgary.ca | PT02.17 | Reimer, Kevin kreimer@apu.edu | SY08.2 |
| Pfeifer, Jennifer H jpfeifer@ucla.edu | IS04; SY21.2 | Remington, Anna a.remington@ucl.ac.uk | PT01.09 |
| Pinto, Giuliana pinto@psico.unifi.it | DS01; SY01.2 | Renninger, K Ann krennin1@swarthmore.edu | DS02; SY37.1 |
| Piras, Rita rita.piras@uniroma1.it | PS09.2 | Riby, Debbie | PS18.1 |
| Pistorio, Bianca bianca.pistorio@uniroma1.it | PS13.3 | Richardson, Anna S anna.s.richardson@dartmouth.edu | PS04.5 |
| Piven, Joe joe_piven@med.unc.edu | PS11.4 | Rieffe, Carolien crieffe@fsw.leidenuniv.nl | SY12.1; SY36.3 |
| Plass, Jan L jan.plass@nyu.edu | SY30.4 | Rigato, Silvia fairysivi@yahoo.it | PT01.18 |
| Poe, Michele poe@mail.fpg.unc.edu | PS11.4 | Riggs, Kevin k.riggs@londonmet.ac.uk | PT02.19 |
| Polman, Hanneke j.d.m.polman@fss.uu.nl | SY34.2 | Rijpkema, Mark mark.rijpkema@fcdonders.ru.nl | PT01.39 |
| Postma, Annemieke | PT02.42 | Rinberg, Yuliya yrinberg@andrew.cmu.edu | PT01.46 |
| Poulin-Dubois, Diane diane.pouлиндubois@concordia.ca | SY12.O; SY12.4 | Roberts, Larry E roberts@mcmaster.ca | PT01.11 |
| Preissler, Melissa Allen melissa.preissler@ed.ac.uk | PS04.3 | Robinson, Elizabeth J e.j.robinson@warwick.ac.uk | SY41.4 |
| Prencipe, Angela angela@psych.utoronto.ca | PS20.5 | Robles, Francisco roblesbodan@gmail.com | SY21.4 |
| Prinz, Wolfgang prinz@cbs.mpg.de | PT01.20; PT01.62 | Rodríguez, Cintia cintia.rodriguez@uam.es | SY04.O; SY04.2 |
| Proulx, Travis tproulx@interchange.ubc.ca | PS12.5 | Rodriguez, Manuel manuel.rodriguez@uam.es | PS01.2 |
| Puche Navarro, Rebeca rpuche@univalle.edu.co | SY04.D; SY40.2 | Rombouts, Serge s.a.r.b.rombouts@lumc.nl | PT01.45; PT02.35 |
| Qu, Li liqu@psych.utoronto.ca | PS22.3 | Rose-Krasnor, Linda linda.rose-krasnor@brocku.ca | PS18.4 |

Participant Directory

| | | | |
|--|----------------------|--|----------------|
| Rosset, Evelyn erosset@bu.edu | PS17.1 | Saylor, Megan m.saylor@vanderbilt.edu | PT02.62 |
| Rousse, Judith judithrousse@yahoo.fr | PT01.49 | Scerif, Gaia gaia.scerif@psy.ox.ac.uk | SY11.1 |
| Rubin, Kenneth H krubin@umd.edu | PS18.4 | Scheeren, A M a.scheeren@alumni.unimaas.nl | PT01.10 |
| Rubman, Heloisa Beatriz Alice | PT01.30 | Schilbach, Leonhard leonhard.schilbach@gmx.de | PT02.05 |
| Rudolph, Lee lrudolph@black.clarku.edu | SY02.3 | Schmittmann, Verena D v.d.schmittmann@uva.nl | SY32.4 |
| Rueda, M Rosario rorueda@ugr.es | SY24.2 | Schofield, Laura lschofie@umd.edu | PT01.02 |
| Ruffman, Ted tedr@psy.otago.ac.nz | PS15.1 | Schonert-Reichl, Kimberly kimberly.schonert-reichl@ubc.ca | PS19.5; SY25.2 |
| Russell, James jr111@hermes.cam.ac.uk | SY41.3 | Schulte-Rüther, Martin m.schulte@fz-juelich.de | PT02.04 |
| Rust, Katrin rust@mpib-berlin.mpg.de | SY09.4 | Scott, Ashley A ascott2@ucla.edu | SY21.1 |
| Rutland, Adam a.rutland@kent.ac.uk | IS04; SY05.3; SY05.4 | Seeratan, Kavita L kavita_seeratan@berkeley.edu | PS05.4 |
| Sabbagh, Mark A sabbagh@post.queensu.ca | IS03; PT01.43 | Segalowitz, Sidney sid.segalowitz@brocku.ca | PS11.5 |
| Sallemi, Chiara | PS01.3 | Séguin, Jean R jean.seguin@umontreal.ca | PT01.29 |
| Saltzstein, Herbert D hsaltzstein@gc.cuny.edu | PS03.2 | Selman, Robert L robert_selman@gse.harvard.edu | IS02 |
| Salvador, Luc-Laurent salvador@ext.jussieu.fr | PS10.2 | Senju, Atsushi senju@mrg.biglobe.ne.jp | PT01.13 |
| Sampaio, Wany | SY02.1 | Shaw, Julia Penn julie.shaw@esc.edu | PS07.3; PS22.C |
| Samson, Dana d.samson@bham.ac.uk | SY20.2 | Shimazu, Keiko B kshimazu@hawaii.edu | PS21.3 |
| San Juan, Valerie vdsanjua@ucalgary.ca | PT01.35 | Shimmon, Karen k.shimmon@lancaster.ac.uk | SY03.3 |
| Sánchez, Carmen mariom@att.net.mx | PS01.4 | Shinskey, Jeanne jeanne.shinskey@rhul.ac.uk | PT01.60 |
| Sanfey, Alan G asanfey@u.arizona.edu | PS02.5 | Shultz, Thomas R thomas.shultz@mcgill.ca | SY14.1 |
| Santana, Raquel R | PT01.30 | Shuster, Tara 4ts1@qlink.queensu.ca | PT01.24 |
| Santos, António J asantos@ispa.pt | PT01.04; PT01.07 | Silva, Thatyana Machado | PT01.30 |
| Santos, Natacha S natacha.santos@uk-koeln.de | PT01.14; PT02.05 | Silvestre, Núria nuria.silvestre@uab.es | PT02.40 |
| Santos, Orlando C osantos@ispa.pt | PT01.07 | Šimleša, Sanja simikup@yahoo.com | SY24.4 |
| Santos, Pedro Lopes plsantos@fpce.up.pt | SY28.2 | Simon, Ellin e.simon@dmkep.unimaas.nl | PS18.3 |
| Sargeson, Kim kimsargeson@yahoo.ca | PS18.4 | Sinha, Chris chris.sinha@port.ac.uk | SY02.1 |
| Sarnecka, Barbara W sarnecka@uci.edu | SY15.2 | Sinha, Vera da Silva vera.dasilva@port.ac.uk | SY02.1 |
| Saxe, Rebecca saxe@mit.edu | IS01 | | |

Participant Directory

| | | | |
|---|----------------------|---|------------------|
| Sivers, Stephanie siverss@duq.edu | PT02.41 | Straatemeier, Marthe m.straatemeier@uva.nl | SY38.3 |
| Skwerer, Daniela Plesa dplesas@bu.edu | SY11.O; SY11.4 | Strauss, Sidney sidst@post.tau.ac.il | SY33.3 |
| Slade, Lance l.slade@roehampton.ac.uk | PT02.55 | Strayer, F Francis strayer@u-bordeaux2.fr | PS13.3; PT01.50 |
| Smith, Leslie l.smith@lancaster.ac.uk | SY07.O; SY07.1 | Striano, Tricia striano@cbs.mpg.de | PS19.1; SY24.1 |
| Smith, Veronica vs2@ualberta.ca | SY25.2 | Sullivan, Susan susansu@biols.susx.ac.uk | PT02.55 |
| Sobel, David M sobel@cog.brown.edu | PS07.1 | Sumter, Sindy ssumter@fsw.leidenuniv.nl | PT01.06 |
| Sodian, Beate sodian@psy.uni-muenchen.de | SY22.1; SY12.D | Surgan, Seth ssurgan@worcester.edu | PT02.47 |
| Sokol, Bryan bryan_sokol@sfu.ca | ISO6; SY17.3; SY25.1 | Surian, Luca luca.surian@unipd.it | PT01.26 |
| Solbes, Irene irenesolbes@psi.ucm.es | SY05.2; PT02.50 | Susswein, Noah noah_susswein@sfu.ca | PT01.42; PT02.63 |
| Somanader, Mark marksomanader@gmail.com | PT02.62 | Svetlova, Margarita mas53@pitt.edu | PT01.46; PT02.41 |
| Sommerville, Jessica A sommej@u.washington.edu | ISO1; PS07.1; PS16.2 | Swettenham, John j.swettenham@ucl.ac.uk | PT01.09 |
| Sonmez, Doga dsonmez@clarku.edu | SY15.3 | Swingler, Margaret M mmcox@ucsd.edu | PT02.30 |
| Sonuga-Barke, Edmund ejb3@soton.ac.uk | SY16.1 | Szpunar, Marlena mszpunar@sfu.ca | PS09.3; PT01.03 |
| Southgate, Victoria v.southgate@bbk.ac.uk | SY29.1; PT02.31 | Tager Flusberg, Helen htagerf@bu.edu | SY11.3; SY11.4 |
| Spelke, Elizabeth S spelke@wjh.harvard.edu | PT01.51 | Takahashi, Masami m-takahashi@neiu.edu | SY39.1 |
| Sperb, Tânia sperbt@terra.com.br | SY31.1 | Takashima, Atsuko atsuko.takashima@fcdonders.ru.nl | PT01.39 |
| Stadler Elmer, Stefanie stefanie.stadler@access.unizh.ch | PS01.5 | Talay-Ongan, Ayshe ayshe.talay-ongan@mq.edu.au | SY01.4 |
| Staffelbach, Monika staffelbach@jacobscenter.unizh.ch | SY09.3 | Tan, Dingliang dltan@public1.ptt.js.cn | PT02.24 |
| Stapells, David stapells@audiospeech.ubc.ca | PS19.5 | Tapanya, Sombat stapanya@mail.med.cmu.ac.th | SY01.4 |
| Stauder, J E A h.stauder@psychology.unimaas.nl | PT01.10; PT02.44 | Taylor, Margot J margot.taylor@sickkids.ca | PS20.1 |
| Steenbeek, Henderien h.w.steenbeek@rug.nl | SY10.4; SY37.4 | Tepest, Ralf ralf.tepest@uk-koeln.de | PT02.05 |
| Stephens, Jason M jason.stephens@uconn.edu | SY25.3 | Tessari, Tommaso | PS01.3 |
| Stern, Hilarie hls18@pitt.edu | PT02.41 | Teubal, Eva teubalster@gmail.com | PS07.4 |
| Stewart, Jeremy G jeremy.stewart14@gmail.com | PT01.43 | Teucher, Ulrich ulrich.teucher@usask.ca | PT01.40; SY13.5 |
| Stewart, Maria-Christina marias@hawaii.edu | SY19.O | Thiel, Thomas tthiel@rz.uni-potsdam.de | PS17.4 |
| Stip, Emmanuel emmanuel.stip@umontreal.ca | PT02.01 | Thompson, Evan evan.thompson@utoronto.ca | PL05 |

Participant Directory

| | | | |
|--|------------------|---|------------------------|
| Tincas, Ioana ioanatincas@psychology.ro | SY24.3 | van Geert, Paul p.l.c.van.geert@rug.nl | SY10.4; SY37.4 |
| Todd, Rebecca M rtodd@oise.utoronto.ca | PS20.1 | van Leijenhorst, L lleijenhorst@fsw.leidenuniv.nl | PT02.34; PT02.35 |
| Tojo, Yoshikuni tojo@mx.ibaraki.ac.jp | PT01.13 | van Lieshout, Cornelis F M c.vanlieshout@psych.ru.nl | PT01.39 |
| Tomalski, Przemyslaw p.tomalski@bbk.ac.uk | PT01.25 | van Lieshout, E C D M ecdm.van.lieshout@psy.vu.nl | PS21.1 |
| Tomasello, Michael tomas@eva.mpg.de | PT01.21; PS03.3 | van Meel, Katrien S csmeel@fsw.leidenuniv.nl | SY16.D; SY16.2; SY16.3 |
| Toomela, Aaro aaro.toomela@ut.ee | SY04.1; SY40.1 | vanderVeer, Rene veer@fsw.leidenuniv.nl | SY02.D |
| Töugu, Pirko pirko@ut.ee | PT02.25 | Vasconcellos, Vera M R vera.vasconcellos@pesquisador.cnpq.br | SY27.1; SY31.3; PS01.C |
| Tovote, Katrin ktovote@hawaii.edu | PT02.38; SY19.4 | Vaydich, Jenny jvaydich@nd.edu | PT02.11 |
| Trapala, Ivonne Solis i.solis-trapala@lancaster.ac.uk | SY03.3 | Vedeler, Dankert dankert@svt.ntnu.no | SY06.O; SY06.1 |
| Trautner, Hanns M trautner@uni-wuppertal.de | SY35.O; SY35.3 | Veríssimo, Manuela mveriss@ispa.pt | PT01.04; PT01.07 |
| Tremblay, Richard E grip@umontreal.ca | PT01.29 | Verschoor, Stephan sverschoor@fsw.leidenuniv.nl | PT01.61; PT01.58 |
| Tsai, Mei-Jun solemn@mail.tcu.edu.tw | PS22.1 | Visser, Ingmar i.visser@uva.nl | SY32.O; SY38.4 |
| Tucker, Don dtucker@uoregon.edu | IS05 | Visu-Petra, Laura laurapetra@psychology.ro | SY24.3 |
| Tulviste, Tiia tiia.tulviste@ut.ee | PT02.25 | Vlamings, Petra p.vlamings@psychology.unimaas.nl | PS15.4 |
| Turiel, Elliot turiel@berkeley.edu | IS06 | Vogeley, Kai kai.vogeley@uk-koeln.de | PT01.14; PT02.05 |
| Tzelnic, Tania tzelnic@gmail.com | PT01.43; PT02.15 | von Hofsten, Claes claes.von_hofsten@psyk.uu.se | PT02.22 |
| Uylings, Harry B M hbm.uylings@vmc.nl | PS19.2 | Vonèche, Jacques J warneken@eva.mpg.de | SY07.4 PS03.3 |
| Vaish, Amrisha vaish@eva.mpg.de | PT02.32; PT01.02 | Watling, Dawn dawn.watling@rhul.ac.uk | SY36.1; SY36.2 |
| Valdez, Marianna Fischer mfischer@hawaii.edu | SY19.5 | Weidema, Maaike weidema@fsw.leidenuniv.nl | SY20.3 |
| Valle, Araceli avalle@mtholyoke.edu | PS04.2 | Weinberg, Joanne jweinberg@exchange.ubc.ca | PS19.5 |
| van den Bos, Wouter wbos@fsw.leidenuniv.nl | PS21.2; PT01.44 | Weinberg, Paul paul.j.weinberg@vanderbilt.edu | SY30.3 |
| van der Maas, Han h.l.j.vandermaas@uva.nl | SY38.3 | Weinstock, Michael micwein@bgu.ac.il | PS21.C |
| van der Schoot, M m.van.der.schoot@psy.vu.nl | PS21.1 | Wellik, Jerry jwellik@stcloudstate.edu | PS14.2 |
| van der Velden, Floor f.vandervelden@fss.uu.nl | PT02.09 | Wereha, Tyler umwereha@cc.umanitoba.ca | PS22.2 |
| van Dijk, Eric dijk@fsw.leidenuniv.nl | PT01.44 | Wesseling, Gerda gerda.wesseling@anu.edu.au | PS12.2; PS15.2 |
| van Dijk, Marijn marijn.vandijk@ou.nl | SY40.3 | | |

Participant Directory

| | | | |
|---|--------------------------------|---|------------------|
| Westenberg, Michiel westenberg@fsw.leidenuniv.nl | IS02; PT01.06; PT02.35 | Yu, When Chi when.chi.yu@ehess.fr | SY06.3 |
| Wiebe, Sandra A swiebe2@unl.edu | PT01.37 | Yuill, Nicola nicolay@sussex.ac.uk | PT02.10; PT02.55 |
| Wiese, Heike heike.wiese@uni-potsdam.de | SY15.D; SY15.2 | Zanolie, K kzanolie@fsw.leidenuniv.nl | PT02.34; PT02.35 |
| Wijeya, Shintula shintula_csc@yahoo.ca | PS22.3 | Zelazo, Philip David zelazo@psych.utoronto.ca | PS01.1; PS20.5 |
| Wilensky, Uri uri@northwestern.edu | PT01.28 | Zerwas, Stephanie stz1@pitt.edu | PT01.46 |
| Williams, Julie | PS13.2 | Ziaei, Maryam maryam_ziaei2002@yahoo.com | PS08.5; PS12.4 |
| Wilson, Clare clare.wilson@port.ac.uk | SY26.3 | Ziarko, Hélène helene.ziarko@fse.ulaval.ca | PS02.4 |
| Wilson, Stephen M s.m.wilson@uci.edu | SY21.3 | Ziegler, Fenja fvz@psychology.nottingham.ac.uk | PS06.1 |
| Windsor, Tim tim.windsor@anu.edu.au | PS12.2; PS15.2 | Zinken, Jörg joerg.zinken@port.ac.uk | SY02.1 |
| Winner, Ellen winner@bc.edu | PT02.28 | Ziv, Margalit mziv@post.tau.ac.il | SY33.1 |
| Wiser, Marianne mwiser@clarku.edu | PS04.4; SY15.O; SY22.D; PS04.C | Zlatev, Jordan jordan.zlatev@ling.lu.se | SY23.O; SY23.3 |
| Woodward, Amanda awoodward@psyc.umd.edu | IS01; PT02.32; PT01.02 | Zmyj, Norbert zmyj@cbs.mpg.de | PT01.62 |
| Woźniak-Prus, Małgorzata goga@engram.psych.uw.edu.pl | PT01.12 | Zukow-Goldring, Patricia zukow@ucla.edu, zukow@usc.edu | SY06.O; SY06.2 |
| Wu, Allan allanwu@mednet.ucla.edu | SY21.4 | | |
| Xu, Fen fenxu@bnu.edu.cn | PT02.52 | | |
| Yamaguchi, Mariko mariko.yamaguchi@jhu.edu | SY12.2 | | |
| Yang, Shaogang ysgrime@163.com | PT02.24 | | |
| Yanjie, Su yjsu@pku.du.cn | PS02.1 | | |
| Yarrison, Emily ecy1@pitt.edu | PT02.41 | | |
| Yates, Robin A yatesr@uvic.ca | SY13.2; SY13.3 | | |
| Yi, Su-Mi graceysm@hanmail.net | PT01.53; PT02.56 | | |
| Yifang, Wang wangyifang6275@gmail.com | PS02.1 | | |
| Yoon, Hyo-Woon hwoon@gachon.ac.kr | PT02.56 | | |
| Young, Arlene aryoung@sfu.ca | PS09.3; PT01.11; PS02.C | | |
| Young, Susan susan.young@exeter.ac.uk | SY01.4 | | |
| Yu, Christine M cmyu@alumni.sfu.ca | PT02.48; PS16.3 | | |

Acknowledgments

The JPS thanks the following individuals for their valued contributions to the success of our annual meeting:

Program Reviewers:

Keith R Alward, Saba Ayman-Nolley, Michael Bamberg, Sandra Bosacki, Jake Burack, Robert L Campbell, Stephanie M Carlson, Brian D Cox, Colette Daiute, Mary Gauvain, Susan L Golbeck, Roberta M Golinkoff, Nira Granott, Charles C Helwig, Suzanne Hidi, Carolyn Hildebrandt, Yeh Hsueh, Yasuji Kojima, David Kritt, Maria J S Da Costa Lins, Blake Te'Neil Llyod, Robert W Mitchell, Michael F Moscolo, David Moshman, Ulrich Mueller, Michael Nakkula, Kevin A Pelphrey, K Ann Renninger, Todd Rose, Mark A Sabbagh, Julia Penn Shaw, Leigh Shaw, Bryan Sokol, Mark Tappan, Thomas Thiel, Vera Maria Ramos de Vasconcellos

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Christopher E Lalonde, Eric Amsel, Jan Boom

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Adolescent development: Processes of coordination and change

Organizers: Eric Amsel and Judi Smetana

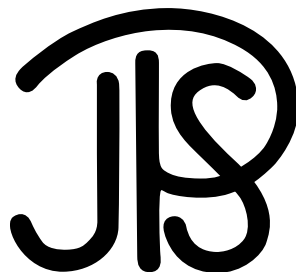
Our understanding of adolescent biological, cognitive, moral, and social development has been significantly revised over the past decade. The view of adolescence as the culmination of progressive, qualitative, and developmental changes has given way to the view that adolescence is a period of vulnerability and instability entailing developmental continuity from childhood and to adulthood. However, the current views may obscure what makes adolescence a unique period in the life cycle. One of the major goals of the JPS meeting in 2008 is to explore the distinctiveness of adolescence from a constructivist and developmental perspective. The JPS meeting will address adolescence as a unique time of opportunity and vulnerability, as adolescents actively coordinate capacities, skills, and understandings within and across domains. The symposium will examine these issues from neurological, cognitive, self-system, moral, and social perspectives. Interrelationships across these areas will be considered, and associations between these developmental processes and adolescents' vulnerabilities to psychosocial problems and difficulties will be examined.

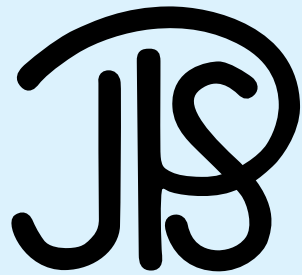
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*38th Annual Meeting of
The Jean Piaget Society
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6-8 June, 2008*

Adolescent Development



Program Organizers: Eric Amsel and Judith Smetana
(see page 128 for for information)