



VNOP Conference 2012

May 22nd – 23rd at Hof van Wageningen

On behalf of the board of VNOP I would like to welcome you at its 2012 conference. The meeting promises to be a highly stimulating scientific event. In contrast to previous VNOP conferences the current program committee opted for a bottom-up organization of the conference. The program testifies that this strategy worked out very well. This year's program is a rich blend of developmental issues ranging from fundamental to more applied aspects of development, from timely cognitive to social-affective questions, and from typical to a-typical varieties of development. The VNOP board is grateful to the organizing committee for doing such an excellent job, in particular Tessa Lansu en Yvonne van den Berg (Radboud University) who took the largest share in the organizational burden.

We are looking forward to meeting you at the 2012 VNOP conference.

Maurits van der Molen

Chairman VNOP Board

General Information

Opening

Kleine Veerzaal

Key Notes

Kleine Veerzaal

Symposia

- Locations:

Kleine Veerzaal

Peppelzaal

Van der Hoevenzaal

- Duration:

75 minutes (20 minutes per speaker and 15 minutes discussion at the end)

- Language:

English

- Role Discussant:

Give short introduction and lead discussion

Members Meeting

Kleine Veerzaal

Poster session

Wolfswaardzaal

Coffee & Tea

Lounge

Lunch

Terraszaal

Program May 22nd

09.30 – 10.30	Registration and coffee		
10.30 – 11.00	Kleine Veerzaal: Opening		
11.00 – 12.00	Kleine Veerzaal: Key note speaker John Lochman		
12.00 – 13.00	Terraszaal: Lunch		
13.00 – 14.15	Kleine Veerzaal <i>Experimental designs promoting positive feelings and cognitions</i>	Peppelzaal <i>The effects of prenatal and caregiving factors on early human development</i>	Van der Hoevenzaal <i>Peer experiences and internalizing symptoms</i>
	<u>Presenters:</u>	<u>Presenters:</u>	<u>Presenters:</u>
	Elske Salemink Eddie Brummelman Sander Thomaes	Marion van den Heuvel Eva Margarita Loomans Roseriet Beijers	Marieke Deutz Caroline Bokhorst Anne Miers
	<u>Discussant:</u>	<u>Discussant:</u>	<u>Discussant:</u>
	Bram Orobio de Castro	Bea van den Bergh	Toon Cillessen
14.15 – 14.45	Lounge: Coffee		
14.45 – 16.00	Kleine Veerzaal <i>Interventions to prevent or reduce externalizing behavior problems</i>	Peppelzaal <i>Emotion regulation and stress</i>	Van der Hoevenzaal <i>Learning mathematics</i>
	<u>Presenters:</u>	<u>Presenters:</u>	<u>Presenters:</u>
	Sabine Stoltz Isabela Granic Ankie Menting	Sanny Smeekens Daniëlle de Veld Esther van den Bos	Sanne van der Ven Brenda Jansen Mariët van der Molen
	<u>Discussant:</u>	<u>Discussant:</u>	<u>Discussant:</u>
	John Lochman	Michiel Westenberg	Maartje Raijmakers
16.00 – 17.00	Kleine Veerzaal: Members Meeting		
17.00 – 18.30	Wolfswaardzaal: Poster session with drinks		
19.00	Dinner		

Program May 23rd

09.00 – 09.30 Registration and coffee

09.30 – 10.45

Kleine Veerzaal

Peer influences on antisocial behavior in adolescence

Peppelzaal

Neurobiological risk factors for adolescent substance use

Van der Hoevenzaal

Prompting children's potential in science & reasoning

Presenters:

Gonneke van Rossum
Elke Schoneveld
Meike Slagt

Presenters:

Anja Huizink
Brittany Evans
Zeena Harakeh

Presenters:

Wilma Resing
Tessa van Schijndel
Claire Stevenson

Discussant:

Bram Orobio de Castro

Discussant:

Anneloes van Baar

Discussant:

Maartje Raijmakers

10.45 – 11.15 **Lounge:** Coffee

11.15 – 12.15 **Kleine Veerzaal:** Key note speaker **Tobias Grossman**

12.15 – 13.15 **Terraszaal:** Lunch

13.15 – 14.30

Kleine Veerzaal

Popularity in twofold: The effects of popularity in dyadic relationships

Peppelzaal

Measuring and promoting parenting of young children

Van der Hoevenzaal

Development of categorization and executive control

Presenters:

Jan Kornelis Dijkstra
Astrid Poorthuis
Tessa Lansu

Presenters:

Marjolein Verhoeven
Mirjana Majdandžić
Marjanneke de Jong

Presenters:

Ingmar Visser
Bianca van Bers
Tamara Schleepen

Discussant:

Tjeert Olthof

Discussant:

Anneloes van Baar

Discussant:

Lisa Jonkman

14.30 – 15.00	Lounge: Coffee		
15.00 – 16.15	Kleine Veerzaal <i>A neural perspective on reward and risk taking</i>	Peppelzaal <i>On the psychology of parenting: new perspectives on inquiry learning parental mindsets, investment, and control</i>	Van der Hoevenzaal <i>Scientific reasoning and</i>
	<u>Speakers:</u>	<u>Speakers:</u>	<u>Speakers:</u>
	Jiska Peper Reinout Wiers Barbara Braams	Bart Soenens Judith Semon Dubas Patty Leijten	Marcel Veenman Heidi Meindertsma Baukje Veenstra
	<u>Discussant:</u>	<u>Discussant:</u>	<u>Discussant:</u>
	Maurits van der Molen	Sander Thomaes	Marijn van Dijk
16.15	End of conference		

Keynote Speaker

May 22nd

Reactive and Proactive Aggression: Neurocognitive, Physiological, Social-Cognitive, Peer Relations and Neighborhood Characteristics, and Intervention Long-Term Follow-Up Outcomes

Prof. Lochman studies the development of disruptive behavior problems and the effectiveness of interventions aimed to prevent or treat these problems. His fundamental research focuses on the contributions of parenting and peer relations on social-cognitive processes, which in turn contribute to disruptive behavior problems. He is a main contributor to the discovery of atypical social information processing patterns in youth with disruptive behavior problems and their role as a maintaining factor in the development of these problems. He also plays a pivotal role in the discovery of effective treatments for children with severe disruptive behavior problems, such as oppositional defiant disorder, conduct disorder, juvenile delinquency, and associated problems of addiction. He has developed some of the most effective interventions existing to date (probably the most well-known being Coping Power) and set up a rigorous program of systematic evaluation of the effects of these interventions and the contextual factors that promote or hinder their effectiveness. His research on effectiveness of intervention programs has led to scientific discoveries that help us deliver more effective intervention to children and contribute to our understanding of child development.

11.00-12.00, Kleine Veerzaal

Prof. Dr. John Lochman



Current position

Professor and Doddridge Saxon Chairholder in Clinical Psychology at the Department of Psychology at University of Alabama.

Recent publication:

Lochman, J.E., Powell, N.P., Boxmeyer, C.L., & Jimenez-Camargo, L.A. (2011). Cognitive behavioral therapy for externalizing disorders in children and adolescents. *Psychiatric Clinics of North America*, 20, 305-318.

Website:

<http://psychology.ua.edu/people/faculty/jlochman/fac.html>

Keynote Speaker

May 23rd

Developing Social Minds: A Neuroscience Perspective

One major function of our brain is to enable us to recognize, manipulate, and behave with respect to socially relevant information. Much research on how the adult human brain processes the social world has shown that there is a network of specific brain areas, called the social brain, preferentially involved during social cognition and interaction. Studies on the adult social brain have provided important insights into the fully developed brain machinery that deals with our social world. However, we know very little about how the social brain develops during infancy. In order to fill this gap, I will present work that investigates the developmental emergence of brain processes that are critical for facial and vocal social interaction. Moreover, I will talk about work that looks at how certain gene variants impact social brain processes in infancy, specifically the responding to facial and vocal emotional expressions, and thereby give rise to individual differences in emotional sensitivity and temperament. This multi-method examination employing behavioral, neuroscientific (fNIRS and EEG), and genetic analyses paints an integrative and rich picture of the developing social mind in infancy.

11.15-12.15, Kleine Veerzaal

Dr. Tobias Grossmann



Current position

W2 Group Leader:

Research Group “Early Social Development”
at Max Planck Institute for Human Cognitive
and Brain Sciences, Leipzig, Germany

Recent publication:

Grossmann, T., et. al. (2011). Genetic and neural dissociation of individual responses to emotional expressions in human infants. *Developmental Cognitive Neuroscience: a Journal for Cognitive, Affective and Social Developmental Neuroscience*, 1(1), 57-66.

Website:

<http://www.cbs.mpg.de/groups/misc/esd>

Symposia

May 22nd

13.00-14.15

Kleine Veerzaal

Experimental designs promoting positive feelings and cognitions

Discussant: Bram Orobio de Castro

Looking at the bright side of life: Computerised training of positive interpretations in adolescents.

Elske Salemink

University of Amsterdam

Socially anxious feelings sharply increase during adolescence and such feelings have been associated with interpretive biases. Studies in adults have shown that interpretive biases can be modified using Cognitive Bias Modification procedures (CBM-I) and subsequent effects on anxiety have been observed. The current study was designed to examine whether the CBM-I procedure has similar effects in adolescents and what factors moderate the effectiveness of training (level of pre-training anxiety, interpretive bias and executive control). Unselected adolescents were randomly allocated to either a positive interpretation training ($n=88$) or a placebo-control condition ($n=82$). Results revealed that the training was successful in modifying interpretations. Adolescents who received the positive training interpreted new ambiguous social information more positively and less negatively than adolescents in the control condition. The interpretive bias effects were most pronounced in individuals with a threat-related interpretive bias at pre-test and in individuals with low executive control. No effects on state anxiety were observed. These first findings are promising with regard to the preventative and/or curative value of such computerized training paradigms, while further research is warranted regarding emotional effects.

On feeding those hungry for praise: Person praise backfires among children with low self-esteem

Eddie Brummelman

Utrecht University

Child-rearing experts have long believed that praise is an effective means to make children with low self-esteem feel better about themselves. But should one praise the child or the behavior? Study 1 ($N = 118$) showed that adults are inclined to give low self-esteem children person praise (i.e., praise for personal qualities), rather than process praise (i.e., praise for behavior). Study 2 ($N = 313$; $Mage = 10.4$ years) showed that person praise, but not process praise, predisposes children to feel ashamed following failure, especially low self-esteem children. Consistent with attribution theory, person praise makes children attribute failure to the self. Together, these findings suggest that adults, by giving person praise, may foster in low self-esteem children the very emotional vulnerability they are trying to prevent.

Arousing Gentle Passions in Young Adolescents: Sustained Experimental Effects of Value-Affirmations on Prosocial Feelings and Behaviors

Sander Thomaes

Utrecht University

When people reflect on their important values they may become more attuned to the needs of others. Two longitudinal field experiments examined whether a subtle value-affirmation manipulation can initiate relatively enduring increases in young adolescents' prosocial feelings (Study 1; Mage=12.9) and prosocial behaviors (Study 2; Mage=12.9). Participants completed a brief writing exercise that either affirmed the values they deemed most important (value-affirmation group) or unimportant (control group). As predicted, the value-affirmation, coupled with a booster affirmation 6 weeks later, caused increases in prosocial feelings and behaviors over the 3-month study period. Antisocial students who were value-affirmed showed especially strong increases in prosocial behavior. These results suggest that —gentle passions|| can be aroused in youth by cost- and time-efficient means. The practical utility of value-affirmations will need to be evaluated in future work.

May 22nd

13.00-14.15

Peppelzaal

The effects of prenatal and caregiving factors on early human development

Discussant: Bea van den Bergh

Is anxiety during pregnancy related to early sensory cognitive processes in two-month-old infants?

Marion van den Heuvel

Tilburg University

Research into the effects of high levels of maternal anxiety during pregnancy found evidence for alterations in early postnatal neurocognitive development. The present study tested in 2-month-old infants whether pregnancy-related anxiety affects the processing of rapidly presented sounds, which is critical for analysing and segmenting spoken language. Methods: Maternal pregnancy-related anxiety (N = 71) was measured with the Pregnancy-Related Anxiety Questionnaire (PRAQ) between 8 and 15 weeks gestational age. The PRAQ consists of five scales measuring 'Concern for oneself', 'Fear of integrity', 'Fear for delivery', 'Fear of changes' and 'Fear for future relations'. Two months after birth, infants' Event-Related Potentials (ERPs) were recorded from 9 electrode positions (F3,Fz,F4,C3,Cz,C4,P3,Pz,P4) during a passive auditory task in which 1050 frequent standard complex tones (500Hz) were presented at a uniform 300ms inter-stimulus interval. During testing the infant's state of alertness was coded as either awake or asleep. Results: Five preliminary analyses were run, one for each PRAQ subscale, by means of repeated measures ANCOVAs with mean PRAQ subscale scores as continuous predictor variable, electrode positions Frontal-Central-Parietal x Left-Medial-Right as within-subjects factor, and the infants' sex and state of alertness (awake versus asleep) as between-subjects covariates. A main effect was found for 'Fear for future relations' ($F(1,66) = 8.822; p < .05$). Our preliminary data show that how the two-month-olds' brain processes rapidly presented sequences of sounds may be influenced by pregnancy-related anxiety the mother has experienced during the first trimester of pregnancy. Thus, sensory cognitive processes involved in preparing infants for understanding spoken language may be programmed differently for infants who early in utero have been exposed to high versus low levels of maternal pregnancy-related anxiety. Confirmation of these results in larger samples is needed before firm conclusions can be reached. Moreover, whether altered sensitivity and responsivity to rapidly presented sequences of tones plays a role in language acquisition and development needs to be examined in a follow-up study.

Maternal anxiety during pregnancy and children's cognitive and behavioural development at age five: results from the ABCD study

Eva Margarita Loomans

Tilburg University

Evidence for an association between prenatal maternal anxiety with behavioural problems and impairments in cognitive control in their offspring is accumulating. Methods/Results: Data of 952 mother-child pairs from the Amsterdam Born Children and their Development study did not strongly confirm our hypothesis that prenatal state-anxiety is related to children's cognitive functioning. However, results in a highly anxious subsample (STAI score > 90th percentile) showed that prenatal anxiety was independently related to alterations in children's cognitive functioning in an inhibitory control task. Boys also showed alterations in performance in simple task conditions. In the same cohort, 3777 mothers and 3520 teachers have evaluated children's problem behaviour with the Strengths and Difficulties Questionnaire. Weak associations between prenatal maternal anxiety and child behaviour

were found which were only apparent when child behaviour was evaluated by the mother. The child's gender moderated the relation between prenatal anxiety with hyperactivity/inattention and overall problem behaviour when evaluated by the mother with a heightened vulnerability in boys. Examination of a subsample of highly anxious women (STAI score > 90th percentile) did not reveal stronger independent effects of prenatal maternal anxiety on children's problem behaviour. Conclusions: To conclude, prenatal maternal anxiety is associated with alterations in cognitive functioning and to a lesser extent with problem behaviour at age five. Boys seemed to be more vulnerable to developmental programming effects of prenatal anxiety on cognitive control and problem behaviour than girls.

Cortisol regulation in 12-month-old infants: associations with the infants' early history of breastfeeding and co-sleeping

Roseriet Beijers

Radboud University Nijmegen

Early experiences are found to play a role in programming infants' HPA-axis functioning. Where stressful early experiences have been associated with dysregulated cortisol responses, positive early experiences, i.e. maternal caregiving quality, contribute to more optimal cortisol regulation. Although it is suggested that a number of components of typical parent-infant interactions have long-term regulatory effects on infant physiology, influences of other caregiving factors on infant cortisol regulation are less well documented. The goal of this study was to examine whether a history of breastfeeding and co-sleeping during the first six months of life was associated with cortisol regulation, i.e. cortisol reactivity and regulation, to a stressor at 12 months of age. Methods: Participants were 193 infants and their mothers. Information on breastfeeding and co-sleeping was collected using weekly and daily sleep diaries, respectively, for the first 6 months of life. At 12 months of age, infants were subjected to a psychological stressor (Strange Situation Procedure, Ainsworth et al., 1978). Salivary cortisol was obtained pre-stressor, and at 25 min, 40 min and 60 min post-stressor, to measure cortisol reactivity and recovery. Results: Regression analyses showed that after controlling for maternal sensitivity and many other confounders, more weeks of co-sleeping predicted lower infant cortisol reactivity to the Strange Situation Procedure (SSP), but only for children who also received breastfeeding for a relatively long period (six months). Also, more weeks of breastfeeding predicted quicker cortisol recovery. Conclusion: These results suggest that early breastfeeding and co-sleeping contribute positively to cortisol regulation in 12-month-old infants.

May 22nd

13.00-14.15

Van der Hoevenzaal

Peer experiences and internalizing symptoms

Discussant: Toon Cillessen

Ostracism in middle childhood: results from two experimental studies

Marieke Deutz

Radboud University Nijmegen

Peer rejection is related to several adverse outcomes for children. One form of peer rejection is ostracism; to be ignored and excluded. According to the need-threat model of Williams (2007), ostracism is thought to affect four fundamental needs; the need to belong, the need to maintain high self-esteem, the need for control and the need for meaningful existence. Studies have also shown that ostracism triggers reactions similar to those of physical pain and that the experience of ostracism literally feels cold. Nonetheless, people generally underestimate the social pain that results from ostracism. In two experimental studies, children's responses to ostracism were examined. Ostracism can be experimentally induced with a ball-tossing paradigm called Cyberball. Study 1 examined the effects of ostracism on fundamental needs and moods using an adapted version of Cyberball with 4 players. 175 children (aged 8-11) were randomized over two conditions, inclusion (participant received the ball 1/4th of the time) and ostracism (participant stopped receiving the ball after 12 trials). Multivariate analysis of variance (MANOVA) was conducted for all four needs together and for all four moods (anger, sadness, happiness, and anxiety) together. Results showed strong effects of ostracism for all four fundamental needs: belonging, control, self-esteem, and meaningful existence. Ostracism was also found to affect feelings of anger, sadness, and happiness, but not anxiety. No effects of gender or grade were found. In a second study, the same paradigm is used but the number of excluders is varied. Using the same ball-tossing paradigm Cyberball, five conditions were created varying from over-inclusion to full ostracism. It is expected that because ostracism immediately affects fundamental needs, the amount of excluders does not strongly affect the negative outcomes of ostracism. Results from both studies will be presented. The Cyberball-game could be used in prevention and intervention, to let children experience what it feels like to be ostracized.

The interaction between the DRD4 gene and perceived social support from peers on social anxiety

Caroline Bokhorst

Leiden University

Behavioral genetic studies have shown that social anxiety is partly heritable. Genetic studies on social anxiety, however, did not find clear-cut relations with specific genes. A possible explanation might be that these specific genes are not directly related to social anxiety levels, but only in interaction with environmental factors. In the present study the interaction between the DRD4 gene and perceived social support from parents and peers on the level of social anxiety was investigated. Using a cohort-sequential design, 248 adolescents aged 9-17 years were followed for 2 years. The level of social anxiety was measured with the Social Anxiety Scale for Adolescents and the level of perceived social support from peers and parents was measured with the Social Support Scale for Adolescents. DRD4 genotyping took place from DNA isolated from saliva. Following previous studies the two most frequent DRD4 genotypes were compared. Hierarchical multiple regression analyses demonstrated that there was no significant main effect for DRD4 group on social anxiety. The gene-environment interaction effect, however, was significant: Additional analyses demonstrated that the relation between support from peers and social anxiety was significantly stronger for DRD4

group 1 than for the DRD4 group 2. No significant gene-environment interaction effects were found when perceived social support from peers was replaced by support from parents or when social anxiety was replaced by depression.

Trajectories of social anxiety during adolescence and emerging adulthood and relations with cognition, social competence, and temperament

Anne Miers

Leiden University

Adolescence seems to be a key period in the developmental course of social anxiety. Social phobia generally has its onset in the early to mid teens (Rapee & Spence, 2004) and research with nonclinical samples shows an increase in the sensitivity toward negative social evaluation in mid to late adolescence (e.g., Westenberg et al., 2004). The adolescent period is likely a crucial phase for tracking social anxiety differences among individuals over time and investigating whether individuals can be grouped according to their particular developmental trajectory. This is important because with this information a richer analysis of potential factors that are associated with continuity or emergence of social anxiety during adolescence is possible. This cohort-sequential longitudinal study addressed two research questions: (1) is it possible to identify distinct longitudinal trajectories of social anxiety across the adolescent and emerging adulthood period? And (2) which cognition, social competence, and temperament variables discriminate between the social anxiety trajectories? Participants were drawn from the Social Anxiety and Normal Development (SAND; Westenberg et al., 2009) study that included 4 assessment waves. The first wave (W1) comprised 331 participants aged between 9 and 17 years ($M = 13.3$; 161 girls). The Social Anxiety Scale for Adolescents (SAS-A; LA Greca & Lopez, 1998) provided the measure of social anxiety at each assessment wave. Cognition, social competence, and temperament variables were collected from different sources at W1: participants, independent observers, parents, and teachers. Using Latent Class Growth Modeling (LCGM; Nagin, 2005) we identified three distinct social anxiety trajectory groups: i) high and changing; ii) moderate and decreasing; and iii) low and decreasing. Multinomial regression analyses showed that the cognition variables, negative interpretations of ambiguous social situations and self-focused attention, differentiated between all three trajectories. A lack of social skills and having social problems were specifically related to the chance of following the high trajectory versus the moderate trajectory. Neuroticism differentiated between the low and moderate trajectories. Findings indicate that adolescents at risk of belonging to a high social anxiety trajectory can be discriminated from peers belonging to a less anxious trajectory using both cognition and social competence variables.

May 22nd

14.45-16.00

Kleine Veerzaal

Interventions to prevent or reduce externalizing behavior problems

Discussant: John Lochman

Alles Kidzz: Effectiveness of an individual school-based intervention for children with aggressive behavior

Sabine Stoltz

Utrecht University

The aim of this RCT-study was to evaluate a school-based individual tailor-made intervention (Stay Cool Kids), designed to reduce aggressive behavior in selected children by enhancing cognitive behavioral skills. The sample consisted of 48 schools, with 264 fourth-grade children selected by their teachers because of elevated levels of externalizing behavior (TRF T-score > 60), randomly assigned to the intervention or no-intervention control condition. The intervention was found to be effective in reducing reactive and proactive aggressive behavior as reported by children, mothers, fathers or teachers, with effect sizes ranging from .11 to .32. Clinically relevant changes in teacher-rated externalizing behavior were found: The intervention reduced behavior problems to (sub) clinical levels for significantly more children than the control condition. Some aspects of problems in social cognitive functioning were reduced and children showed more positive self-perception. Ethnic background and gender moderated intervention effects on child and teacher reported aggression and child response generation. The results of this study demonstrate the effectiveness on outcome behavior and child cognitions of an individual tailor-made intervention across informants under real-world conditions.

Parent-child processes of change associated with effective treatment for aggressive children: new approaches to the study of change

Isabela Granic

Radboud University Nijmegen

Even the most successful treatment programs for aggressive youth and their families show moderate effect sizes and variability in outcomes. Understanding this variability might be enhanced by studying processes associated with treatment effectiveness (or lack thereof). This set of studies aimed to investigate fine-grained changes in parent-child processes that underlie treatment effectiveness. Two main hypotheses were examined: (1) power dynamics shift in characteristic ways for subgroups of clinically aggressive children when treatment works and (2) a destabilization of existing parent-child interaction patterns is a necessary condition for change. Participants were 214 children and their mothers and a subgroup of 42 dyads, all recruited from community-based agencies delivering a combined evidence-based cognitive-behavioral treatment and parent management training. Parents and children were videotaped at home or in the lab engaging in a problem-solving task. Videos were coded in real time for emotional behaviours. For the first study, changes in power dynamics (i.e., the extent to which mother or child "led" the interaction) from pre- to post-treatment were examined. Results showed characteristic patterns of change in these power dynamics corresponding to subtypes of aggressive children and whether or not children's externalizing behaviours improved (based on clinicians' reports). For the second study, videorecordings of problem-solving interactions were collected every two weeks over the course of treatment. The dyadic time-series were analyzed with recurrence analysis (RQA) to quantify moment-to-moment variability within each session. Variability indices from the RQA were analyzed using latent class growth curve analysis to identify characteristic growth profiles. Two distinct groups, one showing a peak in variability at the third measurement point (phase transition group) and a

second group without a peak in variability (stable group), emerged. Chi-square analyses revealed that significantly more improvers (based on clinician's reports of externalizing behaviour) experienced a peak in variability, indicating a period of reorganization. No such profile was found for nonimprovers. Overall, results suggest that treatment success requires old patterns of interactions to destabilize over the course of treatment for new ones to emerge. Distinct patterns of change in the emotional structure of parent-child interactions, and not the emotional content, were most strongly related to treatment effectiveness. We conclude that a focus on moment-to-moment relationship processes can enhance our understanding of treatment and developmental outcomes.

A randomized trial of parent training to prevent behavior problems in children of incarcerated mothers

Ankie Menting

Utrecht University

Children of incarcerated mothers are considered one of the most at risk populations for delinquency. Parenting may play a key role in this intergenerational transmission of delinquency. The present study aimed to evaluate the preventive effectiveness of an adaptation of the Incredible Years parent training for 2 to 10 year-old children of incarcerated mothers. Hundred-thirteen participants were randomly assigned to an intervention, which consisted of group sessions and individual home visits or to a no-intervention control group. Intervention yielded significant effects on parenting and child behavior. Intention-to-treat-analyses yielded highly similar results. These results suggest that a preventive approach is promising for the high-risk population of incarcerated mothers and their children.

May 22nd

14.45-16.00

Peppelzaal

Emotion regulation and stress

Discussant: Michiel Westenberg

What shapes emotion regulation in early adolescence? A longitudinal study

Sanny Smeekens

Radboud University Nijmegen

This study examined whether the use of the emotion regulation strategies cognitive reappraisal and expressive suppression was predicted by the quality of parenting at age 1 and the quality of peer relations (peer preference and friendship quality) at age 9. Initial temperamental differences between children were also taken into account and concurrent parenting was controlled for. Reappraisal is the cognitive restructuring of a situation to decrease its emotional impact. Suppression is the inhibition of ongoing emotion-expressive behavior. Longitudinal predictors of reappraisal and suppression have not been examined yet. We hypothesized that both higher quality parenting and more positive peer experiences would predict more adequate emotion regulation. Furthermore, we expected parenting in infancy to contribute to children's emotion regulation in early adolescence over and beyond concurrent parenting. Finally, we expected the effects of parenting to be stronger for children higher on temperamental negative emotionality. Participants were 111 children (52% boys) from the Nijmegen Longitudinal Study on Infant and Child Development. At age 1, parents completed a temperament questionnaire. Furthermore, videotaped parent-child interactions were rated on nine 7-point scales; factor analysis yielded two interaction factors: Guidance and Negativity. At age 9, sociometric data were collected in the children's classrooms to measure their social preference and the quality of the children's best friendship was rated from videotaped child-friend interactions. At age 12, reappraisal and suppression were assessed with a self-report questionnaire. Two hierarchical regression analyses were run, one with reappraisal and one with suppression as the dependent variable. Sex was entered in the first block; parenting at age 12 in the second block; child temperament and the age-1 parenting and age-9 peer measures in the third block; and the hypothesized two-way interactions in the fourth block. More use of reappraisal was predicted by better parental guidance and higher peer preference; more use of suppression was predicted by higher parental negativity and lower peer preference and friendship quality. Furthermore, the effects of early parenting were moderated by child temperament; highly negative emotional children were more vulnerable to negative parental behavior and benefitted less from parental guidance than less negative emotional children.

Emotion regulation strategies and physiological stress responses in middle childhood

Daniëlle de Veld

Radboud University Nijmegen

Humans respond to a stressor with activity of the autonomic nervous system (ANS) and the hypothalamic-pituitary-adrenocortical (HPA) axis. Great individual differences exist in the regulation of these physiological stress responses. As research has shown that adequate regulation of physiological stress responses is related to better physical and psychological health, it is important to investigate the origins of this interindividual variability. Therefore, the current study examined whether 10-year-old children's spontaneous use of the emotion regulation strategies reappraisal and suppression during a psychosocial stress task was related to their alpha-amylase and cortisol responses to the same task. Salivary cortisol and alpha-amylase responses to a psychosocial stress task were assessed in a sample of 158 children (age 9-11 years; 83 girls). A self-report questionnaire was administered to measure the use of

reappraisal and suppression during the task. There was an overall increase in cortisol and alpha-amylase in response to the stressor, with higher cortisol reactivity in girls than in boys. With regard to emotion regulation, more use of suppression was related to lower alpha-amylase reactivity and quicker alpha-amylase recovery in the whole sample, and to lower cortisol reactivity in girls. Reappraisal was not related to physiological responding. Our results indicate that 10-year-olds use reappraisal and suppression, and that this use can be measured. In this age group, suppression was related to lower physiological responses, while reappraisal appeared ineffective at down-regulating physiological responses. The sex difference for the relation between cortisol reactivity and suppression indicates the importance of including sex as a moderator variable in stress research within this age group.

Effects of pubertal development on the cortisol response to the Leiden Public Speaking Task: A two-wave longitudinal study

Esther van den Bos

Leiden University

Adolescence has been described as a period of increased stress sensitivity (e.g. Anderson & Teicher, 2008). As a result, adolescents are expected to show temporarily increased emotional responding, sometimes referred to as ‘normative affective changes’ (Dahl, 2004, p. 7). Several researchers (e.g. Dahl & Gunnar, 2009) attribute this change in stress sensitivity to puberty. Research on the development of stress sensitivity during adolescence is crucial, as an increase in general stress sensitivity might create vulnerability for psychopathology. Empirical evidence for an age-related increase in sensitivity to social evaluation stressors is accumulating (e.g. Gunnar et al., 2009; Stroud et al., 2009). However, all evidence to date is based on cross-sectional studies. The present longitudinal study aims to clarify the normal development of sensitivity to social evaluation and to better disentangle the effects of age and puberty. The current study builds upon the results from our previous cross-sectional study (Sumter et al., 2010). In that study, we distinguished between anticipation to the task of delivering a speech in front of an audience of age peers and the task itself. Because peers become more important (Nelson et al., 2004) and cognitive abilities increase during adolescence, we hypothesized that anticipation in particular would be sensitive to developmental changes. As expected, the anticipatory cortisol response increased with age and pubertal status. In the present study, we expected to replicate this finding within individuals. The current paper reports on a two-wave study on sensitivity to social evaluation among 9 to 17 year-olds (N = 222). Participants completed the Leiden Public Speaking Task, a prepared speech in front of a pre-recorded audience of age peers, at two assessments two years apart. Stress reactivity was measured with salivary cortisol. Pubertal status was assessed based on the Pubertal Development Scale (Petersen et al., 1988). The data were analyzed using a two-wave panel model. Preliminary results indicated that the development of the anticipatory cortisol response was affected by age and pubertal status. Clustered bootstrap regression analysis indicated that the anticipatory cortisol response depended on puberty, but not on age. The response was larger at post-puberty than at the previous stages.

May 22nd

14.45-16.00

Van der Hoevenzaal

Learning mathematics

Discussant: Maartje Raijmakers

Working memory and maths in the Math Garden

Sanne van der Ven

University of Amsterdam

In most empirical research in developmental psychology, resources to collect data are limited. This necessarily leads to small sample sizes and/or a limited number of measures. Even in longitudinal research, the number of measurements is restricted: measurements are often months apart or span a short time frame. In order to obtain high-frequency measures of children's cognitive development in a large sample, Maths Garden (www.mathsgarden.com, Dutch: www.rekentuin.nl) was developed. This is a web-based training and tracking tool that allows children to practice mathematics. As an adaptive system, children receive problems that are tailored to their abilities, which means that there are no ceiling or floor effects in the data. Approximately 45,000 children have a maths garden account, and together, these children solve over 250,000 problems per day in various domains. Every problem that is solved is logged, allowing detailed analyses of children's progress. Starting as a mathematics tool, Maths Garden is now expanding its boundaries to other domains. In the summer of 2011 a visuospatial working memory task was added. In this study, it is shown that visuospatial working memory as measured in Maths Garden yields reliable measures, even though the scores are obtained outside the laboratory setting and without the presence of a researcher. Moreover, the relation between visuospatial working memory abilities and maths performance is analyzed. Many studies investigating this relationship found strong, positive results. Most of these studies, however, investigated a limited age range and mathematics tasks that measured only one math domain or formed a general composite measure. Maths Garden allows for separate analyses for various maths skills, e.g., addition, subtraction, multiplication, divisions, fractions, and counting, in a wide age range. Both concurrent correlations and the predictive value of working memory ability for the development of later maths abilities are analyzed. Preliminary analyses look promising: there are strong correlations between working memory and the different maths domains. Further analyses will be presented at the conference.

Does pattern recognition explain children's exact enumeration of small numbers?

Brenda Jansen

University of Amsterdam

In a long-standing discussion, it is debated whether humans use a single or two different processes to enumerate small versus large numbers, referred to as subitizing (rapid, accurate) and counting (slower, more error-prone). The corresponding ranges in which the processes are used are referred to as the subitizing (1-3 elements) and the counting range (4-6 elements). The discussion is complicated because unambiguous statistical evidence is difficult to supply. In this study, we apply an alternative procedure (Trick, 2008). Trick argues that the claim of the existence of distinct processes is supported, when task manipulations have differential effects in the subitizing compared to the counting range. In Study 1, 64 4-6 year-olds enumerated visually presented dots (1-6) in a computer task. Task manipulations concerned configuration of elements (random, line and familiar configurations) and presentation time (limited or unlimited). In Study 2, problem difficulties, obtained with a computer adaptive program to practice math (www.mathsgarden.com, Dutch: www.rekentuin.nl) were analyzed. Configuration was manipulated as in Study 1. In Study 1, a Repeated Measures ANOVA with

between-subjects factor Configuration (levels: random, dice, line), within-subjects factors Time (levels: limited, unlimited) and Numerosity (levels: 2, 3, 4, 5 or 6 elements) and covariate Age was performed on error rates. In Study 2, a univariate ANOVA with factors Configuration and Numerosity and dependent variable Estimated problem difficulties was performed. Results indicated that task manipulations did not affect performance in the subitizing range, but did so in the counting range, which supports the claim that subitizing and counting are distinct processes. Performance for familiar configurations was significantly better compared to performance in random and line configurations, which suggests that subitizing involves pattern recognition.

Math practice and its influence on arithmetic skills and executive functions in children with mild intellectual disabilities

Mariët van der Molen

VU University

Basic math skills are important for daily life. However, children with mild intellectual disabilities (MID; IQ score 55-85) often complete their schooling without mastering these skills. Possibly, the limited emphasis in special education on academic skills, like math, partly explains the delay. The main focus of this study is to see whether additional math training improves math skills of children with MID. A weak working memory and inhibition ability is an alternative explanation for the MID-students' delay in math skills. Adolescents with mild to borderline intellectual disabilities are known to have substantial short term memory (STM) and working memory (WM) problems and have developmental delay in inhibition. The relationship between working memory and math skills is demonstrated repeatedly. The relationship between inhibition and math is ambiguous. It is shown that working memory and math are related in children with MID as well. Hence, our second question is if there is a positive relation between executive functions and math skills in children with MID. A sample of 58 adolescents with MID (mean age 13 years) was administered twice, before and after a math practice period, a comprehensive battery of several tasks assessing verbal and visuo-spatial STM and verbal and visual WM, inhibition and math skills. Participants were divided into experimental and control conditions (N = 29 in each condition). In the experimental condition, the participants practiced with a computer adaptive program: Math Garden during five weeks. Time (2 levels: pretest, posttest) x Training (2 levels: experimental and control group) Repeated Measures ANOVAS were performed for each domain. Results showed a positive effect of intensive math training on math skills. Furthermore, math skills were positively related to visuo-spatial short-term and working memory but not to inhibition.

May 23rd

09.30-10.45

Kleine Veerzaal

Peer influences on antisocial behavior in adolescence

Discussant: Bram Orobio de Castro

Transitions to adulthood and the development of criminal behavior: The TRANSitions to adulthood in Amsterdam (TRANSAM) study

Gonneke van Rossum

NSCR

At the NSCR (Netherlands Institute for the Study of Crime and Law Enforcement) we are conducting a new study since 2010: The TransAM study. This large-scale longitudinal study (N=1200) addresses the relation between criminal behavior and important life-course transitions (e.g., moving out, transition from school to work, romantic relationships, becoming a parent) during the emerging adulthood period (age 18-28).

Emerging adulthood marks the transition from adolescence to adulthood. In this period, a lot of young adults stop with their criminal and delinquent behavior, but there is a subgroup of young adults whose criminal career persists. Simultaneously, in the emerging adulthood period, young adults start taking on new adult roles, such as employee, partner, or parent. For young adults who, perhaps because of their criminal behavior, fail to successfully take on these new adult roles, there is the risk of falling behind with their peers. These emerging adults might develop a persistent pattern of criminal behavior.

In the TransAM study, special attention is given to causal mechanisms that can explain the reciprocal relation between crime and life-course transitions. Moreover, this study addresses whether or not these underlying mechanisms are similar for men and women, and for young adults with a Dutch, Moroccan, or Antillean background in an elevated risk sample of emerging adults living in Amsterdam.

In this presentation, we will introduce the TransAM study, discuss the background of the study, the research design, and the measurements that we use. Results will be presented on response patterns, in combination with the first results on the relation between crime and work.

Does the importance of popularity mediate or moderate the link between popularity and adolescents' aggressive behaviours?

Elke Schoneveld

Radboud University Nijmegen

Perceived popularity describes an adolescent's visibility and social prestige within the peer group. While popularity has been linked to leadership skills and prosocial behaviours, this measure of social status has been more consistently linked to measures of physical and relational aggression. Evidence suggests that adolescents engage in aggressive behaviours to obtain popularity, but also that popular adolescents continue to act aggressively in order to maintain their social status. However, the processes that explain how popularity leads to aggression and the universality of the link between popularity and aggression remain unclear. The present study examines the importance of popularity (defined as the degree to which adolescents are motivated to be popular) as a possible mediator and moderator of the link between popularity and aggression. Two main research questions were addressed. Does importance of popularity mediate or moderate the link between popularity and aggression? Based on the results of a recent study, we expect the importance of popularity to moderate the link between popularity and aggression, but importance of popularity is not anticipated to mediate the link between popularity and aggression. Do associations involving importance of popularity differ as a function of gender and ethnic group? We expect the link between

popularity and aggression to be more robust for males than females, and for ethnic minorities than Anglo Americans. The sample for the current study was derived from a large longitudinal study, and includes 598 adolescents (311 males, 287 females) initially attending 7th grade classrooms ($M = 13.5$ years). The sample consisted of 66% Anglo Americans, 20% African Americans, 12% Hispanic Americans and 2% Asian Americans. Perceived popularity was assessed with two sociometric items and importance of popularity described by eight self-reported items. Physical and relational aggression were measured using self-, peer, and parent reports. Preliminary results provided some evidence that importance of popularity operates as a mediator and moderator of the link between popularity and aggressive behaviours, particularly physical aggression. Additional analyses will test whether the mediating and moderating role of importance of popularity differs for males and females and for adolescents from different ethnic backgrounds.

Peer influences on adolescent antisocial behavior depend on adolescent personality: Variation in susceptibility and vulnerability?

Meike Slagt

Utrecht University

A growing body of evidence suggests that adolescent antisocial behavior is strongly associated with antisocial behavior of friends. Yet not all adolescents with antisocial friends come to display antisocial behavior. Individual characteristics that might magnify or mitigate peer socialization effects have rarely been examined. According to the differential susceptibility hypothesis people vary in their susceptibility to socialization effects, both negative and positive. Personality traits have been suggested as markers for differences in susceptibility. We examine which personality traits render some adolescents more susceptible to peer influences than others, both to the detrimental effects of peers' antisocial behavior and to the protective effects of a supportive peer relationship. We distinguish between two aspects of antisocial behavior, namely aggression and delinquency. Finally, we compare susceptibility to friends' perceived antisocial behavior and friends' self-reported antisocial behavior. Participants were 288 two-parent Dutch families with an adolescent child and the child's best friend. The adolescents (144 boys, 144 girls) were between 12.4 and 17.0 years ($M = 15.5$ years). Families participated in two annual measurement waves. Adolescents reported on their own aggression and delinquency, as well as on their friend's aggression, delinquency, and emotional support. Best friends ($N = 176$) also provided information about their aggression and delinquency. Parents evaluated their child's personality (Big Five). Data were analyzed using hierarchical regression analyses in SPSS 18. Friends' delinquency at Time1 predicted higher levels of adolescent delinquency at Time2, especially among adolescents low on conscientiousness. Emotional support from friends at Time1 predicted lower levels of adolescent delinquency at Time2, but only among highly conscientious adolescents. Further, while adolescent delinquency was predicted by friends' behavior (alone and in interaction with adolescents' personality), adolescent aggression was mainly predicted by prior levels of aggression. Delinquency may result from peer socialization effects in adolescence, amplified or attenuated by stable individual characteristics, whereas aggression may develop earlier and be less amenable to socialization influences during adolescence. Differences in susceptibility based on conscientiousness were not found when friends reported on their own antisocial behavior, suggesting that adolescents differ mainly in susceptibility to perceived norms and behaviors in their peer group.

May 23rd

09.30-10.45

Peppelzaal

Neurobiological risk factors for adolescent substance use

Discussant: Anneloes van Baar

Stress and substance use among adolescents: indications for hypoarousal

Anja Huizink

VU University

In adults, numerous studies have shown that Hypothalamic-Pituitary-Adrenal (HPA) axis functioning is dysregulated in substance dependent individuals. We investigated the relationship of life-time and repeated cannabis use with HPA axis reactivity to social stress in a general population sample of adolescents. Methods Participants of a large prospective population study of Dutch adolescents, the TRacking Adolescents' Individual Lives Survey (TRAILS) study (www.trails.nl), who reported life-time or repeated cannabis or tobacco use, or never use of either substance were compared with respect to their HPA axis reactivity during the Groningen Social Stress Task (GSST), based on the Trier Social Stress Task. The GSST was conducted during the third data-wave of TRAILS at age 14-17 years. Data were available of N= 591 adolescents (51% male), for whom HPA axis reactivity was indexed by four cortisol samples collected before, during and after the GSST. Additionally, all adolescents in our study completed self-reported questionnaires on their substance use. Models were adjusted for sex, recent alcohol use, socio-economic status, mood and time of the experimental session. Results Life-time cannabis users had significantly lower stress-reactivity levels when compared to abstainers (odds ratio (OR) = 0.68, confidence interval (CI) = 0.55-0.85, $P < 0.01$) and life-time tobacco users (OR = 0.79, CI = 0.64-0.98, $P < 0.05$). Repeated cannabis users also exhibited lower stress-reactivity levels when compared to life-time ever users of either tobacco or cannabis (OR = 0.74, CI = 0.53-0.98, $P < 0.05$). These findings are in line with our previous findings, showing that early onset cannabis use, assessed at the first data-wave assessment of TRAILS, was related to lower HPA activity at baseline. Conclusion Lower hypothalamic-pituitary-adrenal-axis stress-reactivity in adolescents is related specifically to life-time and repeated cannabis use. Hypoarousal of the HPA axis may be a biomarker of risk for substance use disorders in youth.

Heart rate reactivity to psychosocial stress in adolescent children of parents with a substance use disorder

Brittany Evans

VU University

Due to genetic and environmental influences, children of parents with a substance use disorder (CPSUD) are at increased risk for developing various forms of psychopathology, including substance use disorders later in life. Therefore, these children are expected to manifest markers that may indicate a vulnerability to substance use disorders at a higher prevalence than children from the general population. Better understanding of such endophenotypes could help illuminate the developmental pathway between genetics and the phenotype of substance use disorder. This study aimed to examine heart rate reactivity as a potential endophenotype during a psychosocial stress procedure in CPSUDs and non-CPSUDs. Method: Participants were all adolescents between 12 and 20 years. 81 CPSUDs with at least one parent who had been diagnosed with a substance use disorder were included. 81 non-CPSUDs from a larger general population study were included and matched as closely as possible to the CPSUDs on the basis of age, gender and socioeconomic status. Heart rate was measured continuously during a psychosocial stress procedure. Results: A repeated measures analysis of variance was performed across the periods of the social stress procedure

(within-subjects factor) with group (CPSUD, non-CPSUD) as between-subjects factor. Preliminary results showed CPSUDs to portray a lower heart rate during the stress procedure, as well as blunted heart rate reactivity to the stressful tasks. Relations with adolescent internalizing and externalizing symptoms were further examined and will be discussed.

The association between neurocognitive functioning and smoking in adolescence: the TRAILS Study

Zeena Harakeh

Utrecht University

Most studies have examined substance use as a predictor of inabilities and impairments in neurocognitive functions. A relatively neglected but equally important perspective is whether neurocognitive functions may act as precursors for smoking during adolescence. The few existing studies are characterized by clinical and high risk populations, little is known with respect to the predictive association of neurocognitive functioning on adolescent tobacco smoking in population-based samples. This study examines the association between neurocognitive functioning and tobacco smoking (i.e. smoking initiation and smoking intensity) in adolescence. Method: Data from three measurements of the longitudinal Tracking Adolescents' Individual Lives Survey (TRAILS), a large regional population-based cohort study of Dutch adolescents, were used. A total of 1,995 adolescents participated. The first measurement took place in 2001-2002 when participants were 11 years old, with two follow-up measurements (2003-2004 and 2005-2007). Adolescents performed at Time 1 a selection of tasks from the Amsterdam Neuropsychological Tasks program in order to assess the main aspects of neurocognitive functioning. Smoking was assessed with a self-report questionnaire on Time 1, Time 2 and Time T3. Results: Multinomial logistic regression analyses controlling for gender, age, socio-economic status (SES) and baseline speed showed that a poor working memory increased the likelihood to initiate daily smoking at Time 2 compared to never-smokers (reference group). Furthermore, a low inhibition increased the likelihood that the adolescents would initiate with experimentation of smoking at Time 2 and at Time 3 compared to the never-smokers. A poor sustained attention increased the likelihood to initiate daily smoking at Time 3 compared to never-smokers (reference group). With regard to smoking intensity, linear regression analyses showed that poor sustained attention was positively related with adolescents' total number of cigarettes smoked a day at Time 2 and at Time 3, controlling for gender, age, SES and baseline speed. In sum, poor sustained attention, low inhibition and a poor working memory are predictors of adolescent smoking.

May 23rd

09.30-10.45

Van der Hoevenzaal

Prompting children's potential in science & reasoning

Discussant: Maartje Raijmakers

Dynamic testing with tangible electronics: Measuring strategy change while solving visual-spatial series completion tasks

Wilma Resing

Leiden University

In the recent past various dynamic testing procedures have been developed from the perspective that cognitive/educational testing should not be exclusively focused on the end result of previous learning, but mostly on the ability to learn or learning as it occurs. Electronic tools, utilizing testing designs underpinned by graduated prompting, are assumed to offer opportunities to get insight in how learning processes occur and vary within and between individuals. Interfaces using concrete materials, combined with light- and speech-technology and based on fine-grained cognitive task analyses, have much potential. These can both be used to provide adaptive prompting during learning and to measure details relating to children's problem-solving. The objective of our current research programme was to explore whether dynamic testing, incorporating a series of structured hints/prompts can provide insights into both the learning processes and the potential of children. A total of 72 second grade children were given series completion tasks. The study employed a pretest-post-test control group design with randomized blocking, with two training sessions between pre-and post-test. Half of the children were allocated to the experimental, the other half to the control condition. Experimental-group children were involved in the study on four occasions; those in the control group were seen twice (they did not receive the two training sessions). Special attention will be paid at the dynamic testing procedure with electronic tangibles, including the graduated prompts training procedure. The first analyses show that, as a consequence of training, children significantly outperformed controls on the series completion tasks. Significant individual differences were noted in terms of the children's response to assistance. The question whether dynamic testing would increase analytical, and reduce trial-and-error, strategic behaviour can be answered positively. While a significant proportion of the children after training employed strategies that had earlier been defined as optimal, a sizeable minority demonstrated rather more idiosyncratic approaches. Comparisons will be made between findings from dynamic and static testing in children. In more detail, changes in individual solving- and learning strategies will be presented.

Effects of parent guidance on preschoolers' exploratory behavior in a science center

Tessa van Schijndel

University of Amsterdam

Exploration is considered to be at the core of young children's science learning: preschool science programs emphasize the learning of skills that comprise exploration (e.g. French, 2004; Gelman & Brenneman, 2004), and science museums see meaningful, "minds-on" interactive behavior as indispensable to visitors' experience (Allen, 2002, 2004). This presentation focuses on a line of studies investigating effects of adult guidance on preschoolers' exploratory behavior in a science center. Crowley et al. (2001) found adult presence to affect children's exploration at exhibits: four- to eight-year-olds engaging with an exhibit with their parents explored longer, broader, and on a deeper level than children exploring with peers or by themselves. However, as parents are known to take on qualitatively different roles in interacting with their children in science museums (Brown, 1995; Siegel, Esterly, Callanan, Wright & Navarro, 2007), an important question is what aspects of parent

guidance contribute to children's optimal exploration of exhibits. In a first study, which was performed during closing hours of science center NEMO, we compared effects of different adult coaching styles on preschoolers' exploratory behavior. Children played at two exhibits while a trained test leader performed one of three coaching styles: the scaffolding style, the explaining style, or the minimal style. We developed the Exploratory Behavior Scale (EBS) to quantify children's exploration. In a follow-up experiment, which was performed during opening hours of the science center, we investigated whether informing parents about an effective way of coaching influenced children's exploration. Half the parents were shown the seven-minute video "How to stimulate your preschooler to exploratory behavior in NEMO" and children's exploration at two exhibits was assessed by means of the EBS. In a second study, we focused on parent explanation. Fender and Crowley (2007) did not find an effect of one type of explanation, causal explanations, on young children's exploration. We investigated relations between children's exploration and different types of parent explanation. Parents' explanations at one exhibit were recorded and scored into different categories, such as causal explanations, evidence descriptions, and content-related directions. Children's exploration was quantified by means of the EBS.

Dynamic testing of analogical reasoning, working memory and school performance

Claire Stevenson

Leiden University

Dynamic testing is a diagnostic method used to assess developing abilities by incorporating training into the assessment procedure. In this study we use dynamic testing to assess children's learning of analogical reasoning. Previous research shows that working memory capacity and age are related to children's ability to solve analogies. Yet, large individual differences are present both in children's initial ability, instructional-needs and performance change. The aims of this experiment were (1) to investigate whether working memory capacity, age or training-type were sources of individual differences in children's instructional-needs during training and performance change on a dynamic test of analogical reasoning and (2) which variables best predicted the children's performance at school. School children ($M=7$ years, $SD=11$ months) were dynamically tested using a pretest-training-posttest design and administered verbal and visuo-spatial working memory measures. The children were randomly blocked into a training condition: graduated-prompts ($N=127$) or feedback ($N=123$). All children solved the figural analogies pretest without help or feedback. The children then received either graduated-prompts or feedback training on the analogy task, followed by the figural analogies posttest. Explanatory item response theory models showed that working memory and school-year were related to initial ability and that training-type influenced instructional-needs and performance change from pretest to posttest, with greater improvement in the graduated-prompts condition. Initial ability also influenced instructional-needs and performance change, where children with lower initial ability improved more. Working memory capacity was related to instructional-needs yet did not explain individual differences in performance change. Furthermore, the dynamic measures of instructional-needs and performance change formed unique predictors of school achievement scores in math, reading and spelling for both conditions. The prediction of school achievement was not moderated by working memory scores. Working memory and reasoning ability are well-established constructs in psycho-educational assessment. The dynamic measures of instructional-needs and performance change may form a separate constructs important in the assessment of learning.

May 23rd

13.15-14.30

Kleine Veerzaal

Popularity in twofold: The effects of popularity in dyadic relationships

Discussant: Tjeert Olthof

Popularity and adolescent friendship networks: Selection and influence dynamics

Jan Kornelis Dijkstra

University of Groningen

The status of a peer is a highly salient determinant of attraction and avoidance in adolescent peer relations. Sensitivity to status is high at this age and peer groups become organized along dimensions of status (Corsaro & Eder, 1990). Specifically, adolescents often affiliate with peers who are similar in status to themselves (Dishion, 1990). Although we know much about this end state of status similarity, we know much less about its emergence. What underlying processes are responsible for status similarity? Two mechanisms can explain how adolescents become similar to the peers they affiliate with. Selection is the mechanism by which adolescents select friends who are similar to themselves. Influence is the mechanism by which adolescents adopt the characteristics of their friends. Unraveling selection and influence in the emergence of status similarity in adolescent peer groups requires longitudinal data on the co-occurring changes of individual status and friendship affiliations over time (Veenstra & Dijkstra, 2011). This study examined selection and influence dynamics of status (popularity) in adolescent friendship networks across three years in middle school (N=480). We expect that lower status adolescents strive to enhance their status through befriending higher status adolescents, whereas higher status adolescents strive to maintain their status by keeping lower status adolescents at a distance. Method Data were analyzed by longitudinal social network modeling (SIENA). SIENA is an actor-based model for the co-evolution of social networks and individual traits over time (Ripley, Snijders, & Preciado, 2011). Dependent variables are changes in network ties (the beginning of new friendships or the ending of existing ones) and in individual traits (e.g., popularity). Changes in network ties indicate selection effects; changes in individual traits related to network friends indicate influence effects. Results The results largely supported these expectations. Selection partially accounted for similarity in popularity among friends; adolescents preferred to affiliate with similar-status or higher status peers, reinforcing the attractiveness of popular adolescents, and explaining stability of popularity at the individual level. Influence processes also accounted for similarity in popularity over time, showing that peers increase in popularity and become more similar to their friends.

Prosocial tendencies predict friendship quality, but not for popular children

Astrid Poorthuis

Utrecht University

Is prosocial behavior a prerequisite for good-quality friendships? According to classical equity theory (Adams, 1965) people seek to maintain equity—a just balance in provisions—in their relationships. Because prosocial children have much to offer to their friend in terms of social provisions (e.g., emotional support), they will probably obtain many provisions in return, which should result in high levels of friendship quality. Yet there is more for children to value in their friendships than their friend's prosocial behavior alone. Children also attach great importance to being popular, especially so in adolescence, and therefore they typically prefer to associate with children high in popularity. Popular children are powerful and tend to have fun and exciting social lives. Furthermore, mere association with a popular peer raises a child's status (Marks, Cillessen, & Crick, 2011). It may have so many benefits for children to

befriend popular peers, that they will require little in return from such friendships in terms of prosocial behavior. Thus, popular children may attain good-quality friendships even when showing relatively low levels of prosocial behavior. In contrast, because non-popular children have less to offer in terms of “popularity-by-association”, they may need to rely on showing prosocial behavior to attain good-quality friendship. Method To examine whether the relation between children’s prosocial tendencies and their perceived friendship quality is dependent upon children’s level of popularity, we conducted a multimethod study among 477 sixth graders (53% girls ; M age=12.2; SD=0.5). Participants’ prosocial tendencies were assessed both as observed behavior in a standardized setting and as a self-reported predisposition to act in prosocial ways. Perceived friendship quality was measured using the NRI (Furman & Buhrmester, 1985). Popularity was measured using peer ratings. Results Across both measures of prosocial tendencies, regression analyses showed that prosocial tendencies are associated with higher perceived friendship quality among non-popular children, but not among popular children. Thus, even if they fail to show prosocial behavior, popular children are still able to hold good-quality friendships. These results suggest that popular children have compensating characteristics, such as popularity-by-association, that make them attractive for peers to be friends with.

Effects of popularity on dyadic influence and behavior

Tessa Lansu

Radboud University Nijmegen

Numerous studies have shown that popularity is associated with peer reports of prosocial and antisocial behaviors. However, few studies have directly observed the social behaviors of popular youth. The first goal of the current study was to examine whether classroom popularity predicted early adolescents’ behavior in a dyad. The second goal was to examine whether an adolescents’ popularity also significantly impacted the behavior of their interaction partner. Participants were 218 early adolescents (108 boys; 110 girls; M age = 11.0 years) from nine classrooms. Popularity was assessed in the classroom through sociometric nominations of most and least popular classmates. Subsequently, 109 same-sex dyads (54 male, 55 female) were randomly composed from these classrooms to participate in a discussion task in which they planned a party for their classroom. From digital recordings of the sessions, three coders independently rated each participant’s influence, involvement, skillful leadership, dominance, submissiveness, positivity, and negativity. The data were analyzed with the Actor-Partner Interdependence Model (APIM) for interchangeable dyads (Olsen & Kenny, 2006). This model estimated two effects. The actor effect is the effect of participant’s popularity on her/his own behavior. The partner effect is the effect of a participant’s popularity on the behavior of her/his interaction partner. The model was run separately for each behavior. To examine gender differences, the APIM was run as a 2-group model with gender as the grouping variable. In this study, popularity had both actor and partner effects in a dyadic context. Among girls, but not boys, popularity predicted influence on the interaction. The behavioral effects suggest that this influence was gained through involved and skilled leadership, not through negative behavior or dominance. For both genders, popularity predicted less negative behavior and less dominance in their interaction partners. Among girls, it also predicted less influence, more submissiveness, and more positivity in the peer. Popularity thus has impact in a dyadic context. In this age group, this impact was more extensive for girls than for boys.

May 23rd

13.15-14.30

Peppelzaal

Measuring and promoting parenting of young children

Discussant: Anneloes van Baar

Comprehensive early childhood parenting questionnaire: the development of a multi-domain parenting questionnaire for parents of toddlers and preschoolers

Marjolein Verhoeven

Utrecht University

Parenting is a multifaceted task and the way in which parents fulfill this task plays a significant role in the development of their children, especially in early childhood. It is therefore important to have measurement instruments to assess the behaviors that parents display across a variety of parenting domains, including support, control, structure, and stimulation. However, existing instruments are often domain specific, giving insight in only one aspect of parenting. We therefore developed a multi-domain parenting questionnaire for parents of toddlers and preschoolers that is relevant to professionals across research and applied settings. Based on existing literature, a 7-domain model of parenting was developed: (i) Warmth: behavior that makes the child feel comfortable, accepted and loved, (ii) Stimulation: behavior that exposes the child to a stimulating environment, (iii) Structure: behavior that creates an organized and structured environment, (iv) Control: behavior aiming to let the child behave in by the parent desired ways, four domains are being distinguished: (iv) Level of control: the extent to which parents set rules and limits, (v) Positive discipline: praising and inductive reasoning, (vi) Negative discipline: harsh verbal and physical punishment, (vii) Psychological control: control through guilt induction and love withdrawal. Each parenting domain is assessed by 15 items, derived from existing self-report and observational measures of parenting. Mothers and fathers of 532 two parent families with children aged 12- to 48-months completed the parenting questionnaire. Mothers completed the CBCL 1 ½ -5 to assess the child's externalizing behavior. The preliminary results regarding the newly developed multi-domain parenting questionnaire are promising, as the questionnaire seems able to reliably assess 7 distinct domains of parenting and to differentiate between mothers and fathers. Moreover, the parenting domains are meaningfully related to child development (child age and externalizing behaviors), suggesting that the multi-domain model of parenting taps into aspects of parenting that are relevant during early childhood.

The challenging parenting behavior questionnaire: Stability, measurement convergence and differences in challenging parenting behavior between fathers and mothers of young children

Mirjana Majdandžić

University of Amsterdam

Understanding what factors influence the development of anxiety in childhood may shed light on the causes of excessive anxiety. Besides dispositional factors certain parenting dimensions, particularly overinvolvement, have been found to relate to child social anxiety (Bruggen, Bögels & Stams, 2008). However, studies on this relation have almost exclusively focused on mothers and on parent-child interactions in middle childhood. Research indicates that mothers are more involved in caretaking and comforting, whereas fathers engage more in physical play and stimulation of risk taking (Paquette, 2004). It has been suggested that this 'challenging' role makes fathers particularly influential in the (prevention of the) development of anxiety in children (Bögels & Phares, 2008). In this study, a questionnaire was developed to assess parents' challenging parenting behavior and overinvolvement. We addressed

stability of challenging parenting behavior and overinvolvement from infancy into toddlerhood, convergence with observational measures, similarity between fathers and mothers, and differences in mean levels of these parenting dimensions between fathers and mothers. Methods: A sample of 125 fathers and mothers with their first born child was assessed longitudinally when the child was 4 months, 12 months and 2.5 years. We developed the Challenging Parenting Behaviour Questionnaire with different age-appropriate versions to assess (early manifestations of) challenging parenting behavior (e.g., teasing, rough-and-tumble play, social daring), in parents of children of these ages. We also developed age-appropriate overinvolvement scales (e.g., caution, control), based on existing questionnaires supplemented with age-appropriate items. Parents' challenging behavior and overinvolvement was also observed, both in structured laboratory tasks and during play and daily routines at home. Results: Preliminary analyses suggest that the scales of challenging parenting behavior and overinvolvement were reliable, showed moderate to high stability across infancy and into toddlerhood, and showed modest but significant convergence with observations. Furthermore, fathers' and mothers' parenting behavior on these dimensions was moderately correlated. Fathers and mothers showed an equal level of overinvolvement towards their child at all ages. Only when their child was 2.5 years, fathers showed more challenging behavior than mothers. The implications of these findings for fathers' role in the development of anxiety will be discussed.

Stimulation at home and child development in moderately preterm and term born 12-month-old children

Marjanneke de Jong

Utrecht University

The cognitive stimulation parents provide in the home environment is important for child development and may contribute to resilience in children at risk. It is however unclear whether preterm children benefit from this parenting behavior, as they seem to be less responsive and are easily overstimulated. Knowledge on the associations between parental stimulation and developmental outcomes in preterm children is much needed, but measurement tools to assess parental stimulation generally concern observational systems or structural interviews which are expensive and time consuming. For our study, we adapted two subscales of the StimQ (Dreyer et al., 1996), a structural interview developed to assess parental stimulation, for use as a questionnaire: Parental Involvement in Developmental Advance (i.e. amount of interactional activities promoting cognitive development), and Parental Verbal Responsiveness (i.e. amount of verbal interactions). Psychometrics of this Questionnaire on Stimulation of Toddlers (QST) are being examined. In addition, differences in stimulation between mothers of moderately preterm and term born children and their relations with child developmental outcome will be studied. Mothers of 105 moderately preterm and 61 full term filled out questionnaires when their child was 12 months old. The groups differ in maternal educational level, with lower educated mothers in the preterm group. Next to the QST, mothers filled out the Ages and Stages Questionnaire (ASQ) and a subscale of the Infant Behavior Checklist – Revised (IBQ-r) as a measure of attention capacities. Preliminary results show acceptable reliability on both the Involvement and Verbal Responsiveness scale. Mothers of preterm children scored slightly higher on Involvement than mothers of term born children, even when corrected for maternal educational level. No difference was found for Verbal Responsiveness. Both Involvement and Verbal Responsiveness were related to child developmental outcomes, but these associations differed for moderately preterm and term born children. These differences in associations might indicate that preterm children are influenced differently by maternal stimulation than term born children.

May 23rd

13.15-14.30

Van der Hoevenzaal

Development of categorization and executive control

Discussant: Lisa Jonkman

Developing representations of compound stimuli

Ingmar Visser

University of Amsterdam

Classification based on multiple dimensions of stimuli is usually associated with similarity-based representations, whereas uni-dimensional classifications are associated with rule-based representations. This paper studies classification of stimuli and category representations in school-aged children and adults when learning to categorize compound, multidimensional stimuli. Stimuli were such that both similarity-based and rule-based representations would lead to correct classification. This allows testing whether children have a bias for formation of similarity-based representations. The results are at odds with this expectation. Children use both uni-dimensional and multidimensional classification, and the use of both strategies increases with age. Multidimensional classification is best characterized as resulting from an analytic strategy rather than from procedural processing of overall-similarity. The conclusion is that children are capable of using complex rule-based categorization strategies that involve the use of multiple features of the stimuli.

Do preschoolers form abstract or stimulus specific representations of sorting rules in the Dimensional Change Card Sorting (DCCS) task?

Bianca van Bers

University of Amsterdam

Do preschoolers form abstract or stimulus specific representations of sorting rules in the Dimensional Change Card Sorting (DCCS) task? The Dimensional Change Card Sorting (DCCS) task reveals that 3-year old children are inflexible in sorting cards to different dimensions (e.g. Zelazo, 2006). It is unclear, however, which information 3-year-olds attend to and get stuck on. Is the representation of the sorting rules they form at the level of dimensions (e.g., color or shape), at the level of the values of dimensions (e.g., blue or rabbit), or at the level of individual pictures (e.g., blue rabbit or red frog)? Results of earlier studies point in different directions. (Zelazo et al., 2003; Hanania, 2010). According to Kharitonova, et al. (2009) children who successfully switch have a more abstract representation of the sorting rules than children who perseverate. Children (77 3-year and 90 4-year old children) categorized according to a rule and subsequently tried to generalize the sorting rules to new stimuli. Children were randomly assigned to one of three conditions. In the relevant change condition the values of the relevant dimension change. In the irrelevant change condition the values of the irrelevant dimension change, and in the total change condition the values of both dimensions change. In addition they performed a DCCS task. Almost all children show high performance, which suggests that the representation of the pre-switch sorting rules in the DCCS task is at the level of dimensions. Model-based analyses (van Bers, et al. (2011), show that there is a significant difference between the three conditions. Performance in the relevant change condition is better than performance in the other two conditions. Analyses of the Reaction Time (RT) scores confirm these results. Results on the generalization task show that the representation of the sorting rules in the DCCS task is at the level of dimensions. A small group of children, however, appears to be distracted by changes in the irrelevant dimension. A possible explanation of this result is that weaker selective attention helps to make a switch of sorting rules in the switch task but makes it harder to keep sorting according to the same rules when irrelevant information changes.

Working memory capacity mediates successful semantic strategy use in 6-12 year-old children

Tamara Schleepen

Maastricht University

Grouping to-be-remembered information in memory (e.g. on semantic category) can be very helpful to remember a large amount of material so that it can be easily recalled. During childhood, such grouping strategies are very important, as they aid children in learning a variety of academic skills. The ability to apply these semantic grouping strategies has in adults been shown to depend on working memory capacity (WMC) (Rosen & Engle, 1997). Method. To investigate semantic strategy use-WMC relations in children, two sort-recall tasks (one without and one with a grouping prompt) were administered to 6-12 year-old-children. Based on prior research these children were divided in three age groups of 6-7, 8-9 and 10-12-year-old children (Bjorklund & de Marchena, 1984). The use and effectiveness of semantic grouping strategies in both conditions was investigated across age and the role of WMC herein was examined. Results. The role of WM was investigated by 1) performing a mediation analysis that examined whether WMC is a significant mediating factor in the relation between semantic strategy use and recall and 2) testing whether children who successfully used the semantic grouping strategy had higher WMC compared to children who did not use this strategy. Regarding development, only 8-9 and 10-12 year-old children were able to successfully use the semantic grouping strategy (the former only after prompting), while strategy use was absent in 6-7 year-olds. Importantly, both the mediation and strategy subgroup analyses showed that also in children the ability to successfully encode and retrieve information on semantic category depends on WMC.

May 23rd

15.00-16.15

Kleine Veerzaal

A neural perspective on reward and risk taking

Discussant: Marcel van der Molen

Delay of gratification: The influence of frontostriatal white matter and sex steroid hormones

Jiska Peper

Leiden University

Impulsive choice behavior has been proposed to involve the prefrontal cortex and the dopamine driven striatum. However, the neuroanatomical basis of frontostriatal connectivity that could explain impulsive behavior has not yet been demonstrated. In addition, sex steroids may influence the anatomy of dopaminergic pathways. Here, tract-based Diffusion Tensor Imaging and Magnetization Transfer Imaging was used to measure microstructural properties of frontostriatal (FS) fiber tracts in 40 healthy young adults (18-25 years). Impulsive choice behavior was measured using a delay-discounting paradigm. Additionally, we explored whether endogenous sex hormone levels modulate a possible association between FS-tracts and delay-discounting behavior. Fractional anisotropy (FA), mean diffusivity (MD), longitudinal diffusivity (LD), radial diffusivity (RD), and magnetization transfer ratio (MTR), a putative measure of myelination, for the FS-tract were quantified. Results showed that lower integrity within the FS-tract (lower FA, higher MD and RD), predicted faster discounting in both sexes. MTR was unrelated to delay-discounting performance. Moreover, higher testosterone levels in males were associated with a lower integrity (higher RD) within the FS-tract. Our study for the first time shows that enhanced structural integrity of white matter fiber bundles between prefrontal and striatal brain areas is associated with relatively less impulsive decision-making.

The exciting first beers: The longitudinal influence of impulsivity and risk-taking on alcohol use in adolescents

Reinout Wiers

University of Amsterdam

We conducted a survey amongst nationally representative of adolescent children of ages 12 to 16. Data from this longitudinal online survey will be presented which shed light on the relation between reward sensitivity, as measured with amongst others, the SURPS questionnaire, the Delay Discounting task, the Balloon Analogue Risk Task and the Passive Avoidance Learning Paradigm. These will be employed to predict alcohol use phase transitions between time periods in a three occasion, two state Markov model with poisson output. The two output measures specify predictions of initiation of alcohol use and exacerbation of existing alcohol use separately using three time waves of data for the outcome variable (alcohol use initiation/exacerbation). These data should shed light on predictors of early alcohol use and the measurement of these predictors. For this at the time of recruitment, it is found that only risk personalities related to 'positive' cognitions (risk taking and impulsivity) are predictive, while 'negative' risk personalities (hopelessness, anxiety sensitivity) are not. Test-retest reliability scores are provided for the SURPS and all other behavioral measures, showing that most but not all of the aforementioned tasks show acceptable reliability.

Reward-related neural responses are dependent on the beneficiary

Barbara Braams

Leiden University

Rewards are primary reinforcers for human behavior. The involvement of the striatum in reward processing has been well established and shown in different studies, using different reinforcers such as money or food (Delgado, 2007). Most previous studies focused solely on neural responses associated with winning for the participant himself. In this study we investigated neural responses during a gambling task in which participants (N=34; 18 females) could win or lose money for themselves, their best friend or a disliked other person. Results indicate that the striatum shows a different pattern of activation for these three people. Winnings for yourself and best friend resulted in activation of the striatum, whereas winnings for a disliked other did not result in an elevated striatum response. Furthermore, the outcomes for best friend and disliked other (both winning and losing) resulted in activation in medial prefrontal cortex (PFC) and the temporal parietal junction (TPJ), regions known to be part of the social brain network. Together, the results show that: (1) striatum activation to winning depends on the receiver of gain, and (2) medial PFC/TPJ activation is most pronounced for friends and others. Delgado, M.R. (2007). Reward-related responses in the human striatum.

May 23rd

15.00-16.15

Peppelzaal

On the psychology of parenting: New perspectives on parental mindsets, investment, and control

Discussant: Sander Thomaes

**Are physical punishment and verbal hostility elements of parental behavioral control?
The relevance of a distinction between structure and pressure**

Bart Soenens

University Ghent

The distinction between behavioral control (i.e., control over the child's behavior) and psychological control (i.e., control over the child's feelings and thoughts) is widely accepted in current research on parenting. However, there remain important conceptual problems with this distinction. For instance, it is unclear whether harsh parental behaviors such as physical punishment and verbal hostility should be considered instantiations of behavioral control. Some scholars have argued that those harsh parental behaviors represent manifestations of excessive (i.e., very high) levels of behavioral control. However, because these harsh behaviors have similar developmental outcomes as psychological control, the boundaries between behavioral and psychological control seem blurred. Herein, we argue on the basis of self-determination theory that a more fruitful conceptual distinction is one between structure (i.e., communication of clear guidelines and competence-relevant feedback) and pressure (i.e., the use of tactics that pressure children to act, think, or feel in particular ways). We hypothesize that physical punishment and verbal hostility are orthogonal to the communication of clear guidelines for behavior (i.e., a core element of structure), yet are strongly related to parental psychological control (i.e., a key example of parental pressure). **Method.** In a sample of 403 early adolescents and their mothers we administered validated questionnaires tapping into physical punishment, verbal hostility, psychological control, and communication of guidelines for behavior. **Results.** We found that, whereas physical punishment and verbal hostility were unrelated to communication of guidelines for behavior, they were strongly positively related to psychological control. To examine whether these harsh strategies represent excessively high levels of 'behavioral control', we tested for curvilinear associations between these strategies and communication of guidelines for behavior. These curvilinear associations were not significant. Further, using cluster analysis, we found that the communication of guidelines for behavior can occur with or without the use of physical punishment and verbal hostility. In contrast, in most of the clusters obtained, these harsh strategies covaried with parental use of psychological control. Together, the findings suggest that physical punishment and verbal hostility are orthogonal to parental provision of structure and, along with psychological control, can better be conceived of as elements of parental pressure.

Understanding differences between adoptive and biological families using an evolutionary perspective

Judith Semon Dubas

Utrecht University

One hallmark of the human species is the protracted period of immaturity rendering offspring dependent on parents well past the typical age at weaning. Using an evolutionary framework we assume that investment in children is contingent on two factors: a child's reproductive value (which signals to parents that the child is likely to successfully reproduce) and phenotypic resemblance to the investor (which signals that the child possesses the caregiver's genes). The latter factor is especially salient for fathers given their parental uncertainty. The

current presentation reviews several results from our lab that have investigated these relationships among two samples of Dutch school-age children (4-11 years) and their (purported) biological parents and also presents new data from an ongoing study of adoptive families. Adoptive families provide a critical case for evaluating the importance of oft-assumed biological ties between parents and children (Hamilton, Cheng, & Powell, 2007). Specifically, this presentation will focus on: measures of child attractiveness (reproductive value) and physical and personality similarity (signals of kin recognition). The investigation of similarity characteristics in adoptive families is a strong test of whether the mechanism of kin recognition (phenotype matching) is one that overrides the cognitive knowledge that adoptive parents have concerning their non (biological) parental certainty. Preliminary results from the adoptive families indicate that parent-child emotional closeness is linked with child attractiveness for both mothers and fathers (similar to our previous findings on our biological families) and with father-child personality similarity (which is in contrast to our results on biological families where physical similarity mattered for fathers and personality similarity mattered for mothers). These results will be discussed in terms of how an evolutionary perspective can be useful for understanding why adoptive families have been found to show less warmth and more conflict compared to biological families (Rueter, Keyes, Iacono, & McGue, 2009).

Fragile, handle with care: Parental orientations towards children's strengths and vulnerabilities

Patty Leijten

Utrecht University

Western parents are mistakenly fixated on tending to their children's fragile psyches, in consequence wreaking more havoc than they avoid — Amy Chua, *Battle Hymn of the Tiger Mom* (2011) In her controversial memoirs about the upbringing of her daughters, Amy Chua illustrates the differences in parenting styles between Western and Asian parents (e.g. Wu, 2002). Most striking, however, is Chua's suggestion that these differences in child rearing are caused by differences in how parents see their children: as either strong and resilient, or as fragile and vulnerable. This raises the question whether parents indeed meaningfully differ from each other in perceiving their children as either strong or vulnerable. More importantly, if parents do meaningfully differ from each other in their orientation towards children's strengths, then how does this orientation influence parental practices, and ultimately child development? In Study 1, we validated a short questionnaire to measure parental orientation towards children's strengths or vulnerabilities in a community sample and clinical samples (e.g., parents of asthmatic children; age ranges 4-12). In Study 2, we experimentally primed parents with an orientation towards children strengths, and examined its causal influences on parenting practices. In this presentation, results of both studies will be presented, as well as challenges and opportunities that lay ahead for this new line of parenting research.

May 23rd

15.00-16.15

Van der Hoevenzaal

Scientific reasoning and inquiry learning

Discussant: Marijn van Dijk

Development of metacognitive skillfulness in moderately gifted students

Marcel Veenman

Leiden University

Metacognitive skills concern monitoring and controlling of one's cognitive activities. Metacognitive skillfulness is a profound predictor of learning outcomes. Earlier research has shown that metacognitive skills show a steep linear growth in children and adolescents from 9 years up to 22 years (Veenman, Wilhelm, & Beishuizen, 2004). Existing methods for assessing metacognitive skillfulness (thinking aloud and observation) are labor intensive. Recently, an alternative method of assessment was developed in a research project on giftedness. While students perform a computerized task, metacognitive activities are registered in logfiles. The present study investigated whether this computerized assessment method was capable of detecting developmental differences in gifted students. Older students were expected to exhibit higher levels of metacognitive skillfulness and learning outcome, relative to younger students. Participants were 52 students (13 yrs.) and 112 students (17 yrs.) from pre-university secondary schools in a cross-sectional design. Participants performed a computerized Otter task, which required them to discover (combined) effects of five independent variables on the otter population growth. Variables were habitat, environmental pollution, public entrance, setting out new otters, and feeding fish in wintertime. By performing experiments, participants could identify main and interaction effects of the variables on the population growth. Activities of participants were recorded in a logfile, which was automatically analyzed on five indicators of metacognitive skillfulness (total number of experiments, number of unique experiments, thinking time in between experiments, scrolling back to earlier results, and systematically varying variables), which were validated before with thinking-aloud measures. Afterwards, participants completed a posttest with 20 MC and 11 open-ended questions about effects of variables on the population growth ($\alpha=.90$). Results show that 17-year old participants outperformed 13-year olds on the five indicators of metacognitive skillfulness, and on learning outcomes (all $p < .001$). A collapsed measure of metacognitive skillfulness correlated .69 with learning outcomes (accounting for 47.9% of variance). These results show that such a computerized assessment instrument is well suited for detecting developmental differences in students of different age. This instrument may also be an adequate diagnostic tool for increasing metacognitive skills over the years as a marker of giftedness, next to intelligence (Veenman, 2008).

Assessing preschooler's scientific reasoning during interaction with an adult: what is the optimal context?

Heidi Meindertsma

University of Groningen

In educational settings, continuous assessment of the child's level of understanding is necessary to effectively utilize the principles of scaffolding to create contexts that can advance the understanding of the child. Contexts are created by adult, task and child. The present research studies the influence of context on preschoolers' levels of scientific reasoning. Preschoolers were interviewed about four scientific tasks using one out of four protocols (test protocol, adaptive protocol, lesson plan protocol and free protocol). In the first study, different tasks resulted in different performance levels. The second study indicated that the test protocol elicited the highest maximum level of reasoning in children. The third study

showed differences between the protocols in adult's verbal behavior. Adaptation by the adult did not result in higher performance level by the children, whereas task structure did. Combined, the studies emphasize the importance of context, which has implications for assessment and teaching situations.

Stimulating inquiry learning in gifted and non-gifted children in elementary education

Baukje Veenstra

University of Groningen

Science education programs should consist of characteristics that support student's scientific reasoning, such as the inquiry circle or empirical cycle (De Groot, 1969; White et al., 1998), instead of teaching facts. The cycle consists of five steps: question, hypotheses, experiment, conclusion and evaluation. It is assumed that following this cycle improves the meta-strategic knowledge, motivation, and problem solving in children (Dejonckheere, et al., 2010).

However, children who are engaged in inquiry learning only benefit in an environment that supports and scaffolds them (Van Joolingen et al., 2007). However, teachers in elementary education often feel unconfident with regard to science and feel often quite reluctant to teach science, especially for gifted children. In order to help teachers overcome the difficulties they experience in organizing science lessons that are focused on teaching inquiry learning in gifted children, the Lesson Cycle has been developed (Oldersma & De Vries, 2011). The aim of the Lesson Cycle is to teach gifted children of the higher grades in elementary education how to conduct research, according to the inquiry cycle. In this study, 14 gifted children and 14 non-gifted children have worked with the Lesson Cycle during five weeks. During the lessons, real-time interactions between teacher and students were videotaped. We expected that gifted children would show a higher prior level and greater increase in scientific reasoning and deployment of the inquiry cycle than non-gifted children. Preliminary results indicate that the Lesson Cycle is effective in supporting the inquiry cycle and scientific reasoning, for gifted as well as for non-gifted children. Classroom observation revealed that gifted children showed quicker understanding of concepts used in the inquiry cycle and communicated at higher levels than non-gifted children. However, post-tests showed that the level of reasoning and deployment of the inquiry cycle was not significantly higher in gifted children. We assume that this might be caused by the fact that teachers were still regularly focused on teaching facts, instead of teaching critical thinking. Therefore, teachers' questioning behaviour should be improved in order to help non-gifted and gifted children to articulate their ideas and stimulate critical thinking (Oliveira, 2010).

Poster session

Poster	Auteur	Titel
1	Linda Essers	Non-symbolic number representations form a basis for understanding arithmetic but are unrelated to symbolic representations
2	Naomi de Ruiter	Time serial structure of parent-adolescent conflict interactions.
3	Reine van der Wal	It takes two to forgive. The interactive role of closeness and executive control.
4	Erik de Water	The cognitive-affective neuroscience of popularity in adolescents: design of an fMRI study
5	Roseriet Beijers	Early non-parental care and toddler behavior problems: Links with temperamental negative affectivity and inhibitory control
6	Marjanneke de Jong	Temperament and developmental outcomes in 12-month-old moderately preterm children
7	Maartje Zijlmans	New laboratory stress test for 5- and 6-year-olds: the Children's Reaction to Evaluation Stress Test (CREST).
8	Eva Margarita Loomans	Caffeine intake during pregnancy and risk of problem behavior in 5-6 year old children.
9	Nienke Boomstra	Parent reading beliefs of Antillean and Dutch mothers.
10	Annemie Wetzels	Teaching science and technology to young children: A video feedback coaching program for teachers
11	Anika Bexkens	Inhibition deficits in individuals with intellectual disabilities: A meta-analytic review
12	Anika Bexkens	Interference control in adolescents with mild intellectual disabilities
13	Laura Dekkers	The electro-cordical dynamics of processing social rejection feedback: Insights from the FRN-P3 complex
14	Leonie Steenis	Assessing child development: Who knows best? Parent or Professional?
15	Astrid Poorthuis	Do grades shape students' school engagement? An analysis of affective reactions to grades after the secondary school transition
16	Brenda Jansen	The influence of experiencing success in math on math anxiety, perceived math competence, and math performance

Poster	Auteur	Titel
17	Ivy Defoe	Siblings versus parents and friends: Unique effects of sibling externalizing problems and negative interactions on adolescent externalizing problems
18	Sietske Kleibeuker	
19	Carlijn van den Boomen	Visual texture segregation in children: Similar developmental trajectories of behaviour and neurocognitive measurements
20	Heidi Meindertsma	Cultural differences in explaining floating and sinking by preschoolers
21	Geert-Jan Will	Acting on social exclusion from a third-party perspective: Developmental trends in fairness, altruistic punishment and compensation
22	Monique Delforterie	Functioning of cannabis abuse and dependence criteria in a Dutch and a U. S. sample.
23	Evi de Cock	The stability of the maternal bond from pregnancy to toddlerhood
24	Malou Menting	Stress, temperament and early sensory-cognitive development
25	Melle van der Molen	Auditory change detection in fragile X syndrome males: A mismatch negativity study
26	Berna Güroğlu	"Trust all, love a few: Neural correlates of social interactions with personally familiar others
27	Renée Otten	"The mismatch response in 2 to 4 month olds: Evidence for developmental changes
28	Wieke Dalenberg	"Lief Dagboek" Een brede definitie van seksuele ontwikkeling.
29	Franca Leeuwis	Discrepancies between implicit and explicit self-esteem and psychopathological symptoms in children over the elementary school period
30	Hinke Endedijk	The role of temperament and social environment in the development of social competence: A cross-sectional study
31	Elisa Küpers	Co-regulation of student autonomy in individual music lessons
32	Nena Hageman	Let's talk about sex? Different ethnic groups talking about sexuality: A broad definition of sexual development
33	Mandy van der Gaag	Short term vocational identity development

Poster	Auteur	Titel
34	Tessa Lansu	Explicit and implicit peer evaluation: Associations with aggression, bullying, and prosocial behavior in early adolescence
35	Marijke Braeken	Mindfulness during pregnancy, a positive relation with heart rate variability
36	Tirza van Noorden	Dehumanization: The missing link between bullying and empathy?
37	Ingmar Visser	Developing models of categorization

Participant list

Name	Affiliation	Email
Aken, Marcel van	Universiteit Utrecht	m.a.g.vanaken@uu.nl
Akker, Alithe, van den	Universiteit Utrecht	a.l.vandenakker@uu.nl
Baar, Anneloes	Universiteit Utrecht	a.l.vanbaar@uu.nl
Beek, Yolanda van	Universiteit Utrecht	y.vanbeek@uu.nl
Beijers, Roseriet	Radboud Universiteit Nijmegen	r.beijers@psych.ru.nl
Bergh, Bea van den	Universiteit van Tilburg	bea.vdnbergh@uvt.nl
Bers, Bianca van	Universiteit van Amsterdam	b.m.c.w.vanbers@uva.nl
Bexkens, Anika	Universiteit van Amsterdam	a.bexkens@uva.nl
Bokhorst, Caroline	Universiteit Leiden	bokhorst@fsw.leidenuniv.nl
Boom, Jan	Universiteit Utrecht	J.Boom@uu.nl
Boomen, Carlijn van den	Universiteit Utrecht	C.vandenboomen@uu.nl
Boomstra, Nienke	Rijksuniversiteit Groningen & Fryske Akademy	n.w.boomstra@rug.nl
Bos, Esther van den	Universiteit Leiden	bosejvanden@fsw.leidenuniv.nl
Braams, Barbara	Universiteit Leiden	B.R.Braams@fsw.leidenuniv.nl
Braeken, Marijke Braeken	Universiteit van Tilburg	M.Braeken@uvt.nl
Broekhuizen, Martine	Universiteit Utrecht	m.l.broekhuizen@uu.nl
Brummelman, Eddie	Universiteit Utrecht	e.brummelman@uu.nl
Chhangur, Rabia	Universiteit Utrecht	r.r.chhangur@uu.nl
Cillessen, Toon	Radboud Universiteit Nijmegen	a.cillessen@psych.ru.nl
Cock, Evi de	Universiteit van Tilburg	e.s.a.decock@tilburguniversity.edu
Dalenberg, Wieke	Rijksuniversiteit Groningen	w.g.dalenberg@rug.nl
Defoe, Ivy	Universiteit Utrecht	i.n.defoe@uu.nl
Dekovic, Maja	Universiteit Utrecht	m.dekovic@uu.nl
Delforterie, Monique	Vrije Universiteit Amsterdam	M.J.Delforterie@vu.nl
Deutz, Marike	Radboud Universiteit Nijmegen	m.deutz@psych.ru.nl
Dijk, Marijn van	Rijksuniversiteit Groningen	m.w.g.van.dijk@rug.nl
Dijkstra, Jan Kornelis	Rijksuniversiteit Groningen	jan.dijkstr@rug.nl
Dubas, Judith Semon	Universiteit Utrecht	j.j.s.dubas@uu.nl
Endedijk, Hinke	Radboud Universiteit Nijmegen	h.endedijk@psych.ru.nl
Evans, Brittany	Vrije Universiteit Amsterdam	b.evans@erasmusmc.nl
Gaag, Mandy van der	Rijksuniversiteit Groningen	m.a.e.van.der.gaag@rug.nl
Geveke, Carla	Rijksuniversiteit Groningen	c.h.geveke@pl.hanze.nl
Granic, Isabela	Radboud Universiteit Nijmegen	i.granic@pwo.ru.nl
Grossmann, Tobias	Max Planck Institute	grossmann@cbs.mpg.de
Güroğlu, Berna	Universiteit Leiden	bguroglu@fsw.leidenuniv.nl
Hageman, Nena	Rijksuniversiteit Groningen	n.hageman@rug.nl
Harakeh, Zeena	Universiteit Utrecht	z.harakeh@uu.nl
Haselager, Gerbert	Radboud Universiteit Nijmegen	g.haselager@psych.ru.nl
Heuvel, Marion van den	Universiteit Utrecht	m.vdnheuvel@gmail.com
Huizink, Anja	Vrije Universiteit Amsterdam	a.c.huizink@vu.nl
Jansen, Brenda	Universiteit van Amsterdam	b.r.j.jansen@uva.nl
Janssen, Tim	Universiteit van Amsterdam	t.janssen@uva.nl
Jong, Marjanneke de	Universiteit Utrecht	M.deJong1@uu.nl
Jonkman, Lisa	Universiteit Maastricht	l.jonkman@maastrichtuniversity.nl
Kleibeuker, Sietske	Universiteit Leiden	kleibeukersw@fsw.leidenuniv.nl
Kunnen, Saskia	Rijksuniversiteit Groningen	e.s.kunnen@rug.nl
Kupers, Elisa	Rijksuniversiteit Groningen	w.e.kupers@rug.nl
Laarhoven, Elly van	Universiteit Utrecht	c.m.a.vanlaarhoven@uu.nl
Lansu, Tessa	Radboud Universiteit Nijmegen	t.lansu@psych.ru.nl

Name	Affiliation	Email
Leeuwis, Franca	Vrije Universiteit Amsterdam	F.H.Leeuwis@vu.nl
Leijten, Patty	Universiteit Utrecht	p.h.o.leijten@uu.nl
Lieshout, Kees van	Radboud Universiteit Nijmegen	cornelis.vanlieshout@gmail.com
Lochman, John	University of Alabama	jlochman@as.ua.edu
Londen, Monique van	Universiteit Utrecht	m.vanlonden@uu.nl
Loomans, Eva Margarita	Universiteit van Tilburg	e.m.loomans@uvt.nl
Loosbroek, Erik van	Universiteit Maastricht	e.vanloosbroek@maastrichtuniversity.nl
Majdandžić, Mirjana	Universiteit van Amsterdam	M.Majdandzic@uva.nl
Manders, Willeke	Universiteit Utrecht	w.a.manders@uu.nl
Meindertsma, Heidi	Rijksuniversiteit Groningen	h.meindertsma@rug.nl
Menting, Ankie	Universiteit Utrecht	A.T.A.Menting@uu.nl
Miers, Anne	Universiteit Leiden	acmiers@fsw.leidenuniv.nl
Molen, Mariët van der	Vrije Universiteit Amsterdam	M.J.vander.Molen@vu.nl
Molen, Maurits van der	Universiteit van Amsterdam	m.w.vandermolen@gmail.com
Molen, Melle van der	Universiteit Leiden	m.j.w.vandermolen@gmail.com
Noorden, Tirza van	Radboud Universiteit Nijmegen	t.vannoorden@psych.ru.nl
Olthof, Tjeert	Vrije Universiteit Amsterdam	t.olthof@vu.nl
Oosterwegel, Annerieke	Universiteit Utrecht	A.Oosterwegel@uu.nl
Orobio de Castro, Bram	Universiteit Utrecht	b.castro@fss.uu.nl
Otten, Renée	Universiteit van Tilburg	r.a.otte@uvt.nl
Overgaauw, Sandy	Universiteit Leiden	s.overgaauw.2@fsw.leidenuniv.nl
Peper, Jiska	Universiteit Leiden	j.s.peper@fsw.leidenuniv.nl
Poorthuis, Astrid	Universiteit Utrecht	a.poorthuis@uu.nl
Prinzie, Peter	Universiteit Utrecht	p.prinzie@uu.nl
Raijmakers, Maartje	Universiteit van Amsterdam	m.e.j.raijmakers@uva.nl
Reijntjes, Albert	Universiteit Utrecht	a.h.a.reijntjes@uu.nl
Resing, Wilma	Universiteit Leiden	resing@fsw.leidenuniv.nl
Riksen-Walraven, Marianne	Radboud Universiteit Nijmegen	m.riksen@psych.ru.nl
Rossum, Gonneke van	NSCR	gvanrossum@nscr.nl
Ruiter, Naomi de	Rijksuniversiteit Groningen	n.m.p.de.ruiter@ru.nl
Salemink, Elske	Universiteit van Amsterdam	E.Salemink@uva.nl
Schel, Margot	Universiteit Leiden	mschel@fsw.leidenuniv.nl
Schijndel, Tessa van	Universiteit van Amsterdam	t.j.p.vanschijndel@uva.nl
Schleepen, Tamara	Universiteit Maastricht	tamara.schleepen@maastrichtuniversity.nl
Schoneveld, Elke	Radboud Universiteit Nijmegen	e.schoneveld@psych.ru.nl
Schuiringa, Hilde	Universiteit Utrecht	H.Schuiringa@uu.nl
Slagt, Meike	Universiteit Utrecht	M.I.Slagt@uu.nl
Smeekens, Sanny	Radboud Universiteit Nijmegen	s.smeekens@psych.ru.nl
Soenens, Bart	Universiteit Gent	Bart.Soenens@ugent.be
Stauder, Hans	Universiteit Maastricht	h.stauder@maastrichtuniversity.nl
Steenis, Leonie	Universiteit Utrecht	l.j.p.steenis@uu.nl
Stevenson, Claire	Universiteit Leiden	cstevenson@fsw.leidenuniv.nl
Stoltz, Sabine	Universiteit Utrecht	s.e.m.j.stoltz@uu.nl
Thomaes, Sander	Universiteit Utrecht	s.thomaes@uu.nl
Veenman, Marcel	Universiteit Leiden	veenman@fsw.leidenuniv.nl
Veenstra, Baukje	Rijksuniversiteit Groningen	B.Veenstra@rug.nl
Veld, Daniëlle de	Radboud Universiteit Nijmegen	D.deVeld@psych.ru.nl
Ven, Sanne van der	Universiteit van Amsterdam	s.h.g.vandervan@uva.nl
Verhoeven, Marjolein	Universiteit Utrecht	J.C.T.Verhoeven@uu.nl
Visser, Ingmar	Universiteit van Amsterdam	i.visser@uva.nl
Wal, Reine van der	Radboud Universiteit Nijmegen	r.vanderwal@psych.ru.nl
Water, Erik de	Radboud Universiteit Nijmegen	e.dewater@psych.ru.nl
Weerth, Carolina de	Radboud Universiteit Nijmegen	C.deWeerth@psych.ru.nl

Name	Affiliation	Email
Westenberg, Michiel	Universiteit Leiden	westenberg@fsw.leidenuniv.nl
Wetzels, Annemie	Rijksuniversiteit Groningen	a.f.m.wetzels@rug.nl
Wiers, Reinout	Universiteit van Amsterdam	r.wiers@uva.nl
Zevalkink, Jolien	Radboud Universiteit Nijmegen	j.zevalkink@psych.ru.nl
Zijlmans, Maartje	Radboud Universiteit Nijmegen	m.zijlmans@psych.ru.nl

Notes

Notes