Parent-Child Interaction

A white paper by Noldus Information Technology

PARENT-CHILD INTERACTION

The quality and quantity of parent-child interaction is one of the major predictors of a child's personality development. Children thrive in a positive environment, therefore hearing compliments, stating clear expectations for positive behaviors, and positively engaging with the child should enhance self-confidence, the development of communication, and healthy habits. When interacting with a parent, children learn social skills such as sharing, cooperating, and respecting others' belongings. In addition, young children also learn to communicate and develop motor skills.

The study of Montaño et al. consisted of observing parent-child interactions while carrying out various tasks, including free play and cleaning up, followed by meal preparation.

PCIT: PARENT-CHILD INTERACTION THERAPY

Parent-Child Interaction Therapy (PCIT) is an evidence-based treatment program for parents and their child with emotional and/or behavioral problems. The program aims to improve the quality of the parent-child relationship, and to change parent-child interaction patterns. As a result, both the child's behavioral problems, as well as the parents' stress level are reduced.

PCIT helps improve family dynamics by working to reduce negative behavior and interactions, while practicing new behaviors and ways of communicating that are more encouraging and reassuring. When practiced consistently, these new skills and techniques can instill more confidence, reduce anger and aggression, and encourage better individual and interactive behavior in both the parent and child.

CONDUCTING RESEARCH ON PARENT-CHILD INTERACTIONS

Early in life, children are not capable of filling out a questionnaire or talking to an interviewer. In that case, observing behavior can provide valuable information in combination with parental interviews.

There are many tools to assess parent-child interaction:

- (parent) self-report questionnaires
- observation checklists
- experimental procedures
- wearable audio recording devices
- video observation

STUDYING THE INTERACTION

PERFORM TESTS IN A LAB OR IN-HOME

An often-used method to investigate parent-child interaction is Ainsworth's Strange Situation Test (SST). This psychological test, in which the child interacts with a stranger and with a parent, is used to investigate the bond between parent and child. The responses of the child and the parent in the different episodes give insight in the type of attachment between parent and child. Different types of attachment (secure; avoidant; ambivalent; disorganized/disoriented) can help explain behavioral and emotional disorders.

Several of our customers have performed tests such as the SST, or other experiments in either a laboratory setting or a natural setting (e.g. a family home) to measure the behavior of the parents and their children. In both settings, the researchers recorded the interactions on video and coded behaviors in detail. By using video recordings, researchers did not lose any information and were able to replay the same scene as often as needed.

COLLECT DATA WITH VIDEO

Parent-child interaction can be recorded on video for detailed analysis. Video recording allows you to observe the subjects remotely, without the presence of an outside person in the room. Panning and zooming the camera brings particular aspects of behavior into focus. Multiple camera views create new perspectives on the same behavior. In the example of the SST, four cameras can be used: one to film the whole room and three to individually record the actions of child, parent, and stranger.

All the four videos can be played synchronous in The Observer XT, the software tool for data collection, analysis, and presentation of observational data. Moreover, behavior can be scored live and recorded to video files simultaneously to enable detailed logging at a later stage.

When comparing the interaction of siblings, experiments can't always take place in a single room. In these cases, a multi room lab may be required for the research. Viso – the multi video recording suite – is the best fit tool. The immediate available recordings of Viso can take a central place in the evaluation of an observation session - the video recordings can be replayed any number of times, which provides a high degree of reproducibility.

"In addition to its objectivity, behavioral coding also has the advantage of capturing patterns that would be missed using a checklist-style questionnaire as it is possible to identify the order of the behaviors, including how parents respond to a child's actions and vice versa."

EDELSON | NESTLE RESEARCH CENTER, SWITZERLAND

TIME TO THINK ABOUT A GOOD CODING SCHEME

DESIGN A CODING SCHEME

You can consult papers or with other researchers to produce the most suitable coding scheme for your research. A well-thought-over coding scheme will save you much time in the analysis.

Subject and modifiers

With The Observer XT, you can specify all subjects (e.g. mother, child, stranger), behaviors (e.g. approach, withdraw, cry, gaze), and modifiers in a coding scheme before or even during observing. Modifiers describe the behaviors in more detail, such as 'child is crying intensely' or 'mother approaches the child obviously'. Modifier can be nominal (text) or numerical (numbers). This is useful addition to the analysis, for example to get a good idea of the intensity.

Sampling

In The Observer XT you can use both instantaneous sampling and continuous sampling. Additionally, you can combine them in the same project. With instantaneous sampling, you record the behavior of one or more subjects at preselected moments in time. You obtain frequencies of the behaviors, not their durations. With continuous sampling, you record and identify every behavior of interest of one or more subjects as they occur.

If you have arranged your coding scheme according to your research questions, it will benefit the quality of your observational data.

QUICKLY CODE BEHAVIORS

If you have arranged your coding scheme according to your research questions, it will benefit the quality of your observational data. You can even code your observations by means of key codes, allowing you to keep your eyes on the scene, while coding at great speed. You can also add comments to qualitatively classify your results.

If you prefer to be mobile because you need to follow your subject, you can rely on our handheld observation system, Pocket Observer. With this solution, you can code behavior live on a tablet or smart phone, and analyze your data afterwards with The Observer XT.

CODING FROM VIDEO

The Observer XT facilitates coding video. You can play two or more video streams backward or forward simultaneously at multiple speeds. Suppose you take gaze direction as an indicator of attention direction and intensity. A child's attention-direction abilities may affect their regulation, specifically for interactions in social contexts and as such, is important in child development.

You can capture gaze direction on video and analyze it afterwards. Multiple speed video control is especially useful when coding a video of these eye movements, since they can be hard to follow unless viewed in slow-motion.

SELECT & ANALYZE DATA

Did you add external data, such as facial expressions, gaze, or heartrate? Then after coding your observations and importing external data, you can start to investigate your results and the relationship between codes and external data. Research questions can be answered fast & simple by using The Observer XT. For example, 'What was the mother's heartrate when the child did not respond to her in the SST?' or 'Where did the child look when the mother left the room in the SST?'.

VISUALIZE DATA

The Observer XT provides detailed visualizations, which help you to explore the data. Customized charts and statistics are accessible in a few mouse clicks and sample selection options give access to the video images you require. You can visualize multiple observations simultaneously.

"Noldus has saved me scores of time! I have cut my analysis of observations in half, I am able to immediately transfer raw data to statistical packages, and can review records with ease."

DR. R. RUDEK | AURORA UNIVERSITY, USA

SELECT DATA

Specify the relevant parts for analysis by filtering or make an interval selection of the appropriate independent variables, subjects, behaviors, and modifiers. For example, types of attachment can be related to certain amounts of withdrawal or approach.

EXPORT AND PRESENT YOUR DATA

At any moment, you can easily select which data to export, whether it be from the complete observation and/or analysis or anywhere between. Data from The Observer XT can be used in other analysis packages for further analysis. The Observer XT also offers a wide range of presentation options including pie charts, bar graphs, or line charts to facilitate communicating your results to others.

PARENT-CHILD RELATIONSHIP

The parent-child relationship is one of the most influential, important, and meaningful relationships in an individual's life. Parent-child communication fuels their bond and functions to socialize children, provide social support, show affection, make sense of life experiences, engage in conflict, manage information, and create an open-communication family environment.

Because this relationship is a vital resource for both parents and children throughout their lives, researchers will continue to seek and understand the complexities of this important family dyad. Noldus gladly supports you in this journey!

RESEARCH ARTICLES ILLUSTRATING THE USE OF THE OBSERVER XT FOR THE STUDY OF PARENT-CHILD INTERACTION

- Buil, A.; Carchon, I.; Apter, G.; Laborne, F.X.; Granier, M. & Devouche, E. (2016). Kangaroo supported diagonal flexion positioning: New insights into skin-to-skin contact for communication between mothers and very preterm infants. *Archives de Pédiatrie*, **23 (9)**, 913-920.
- Edelson, L.R.; Mokdad, C.; Martin, N. (2016). Prompts to eat novel and familiar fruits and vegetables in families with 1-3 year-old children: Relationships with food acceptance and intake. *Appetite*, **99**, 138-148.
- Lee, R.; Skinner, A.; Bornstein M.H.; Radford, A.N.; Campbell, A.; Graham, K.; Pearson, R.M. (2017). Through babies' eyes: Practical and theoretical considerations of using wearable technology to measure parent-infant behaviour from the mothers' and infants' view points. *Infant Behavior and Development*, **47**, 62-71.
- Muesbeck, J.; St. John, B.M.; Kant, S. & Ausderau, K.K. (2018). Use of Props During Mealtime for Children With Autism Spectrum Disorders: Self-Regulation and Reinforcement. *Occupational Therapy Journal of Research: Occupation, Participation and Health*, **38** (4), 254-260.
- Montaño, Z.; Smith, J.D.; Dishion, T.J.; Shaw, D.S. & Wilson, M.N. (2015). Longitudinal relations between observed parenting behaviors and dietary quality of meals from ages 2 to 5. *Appetite*, **87**, 324-29.

- Van keer, I.; Ceulemans, E.; Bodner, N.; Vandesande, S.; Van Leeuwen, K. & Maes, B. (2019). Parent-child interaction: A micro-level sequential approach in children with a significant cognitive and motor developmental delay. *Research in Developmental Disabilities*, **85**, 172-186.
- Walton, K.; Haycraft, E.; Jewell, K; Breen, A.; Simpson J.; Haines, J. (2019). The family mealtime observation study (FaMOS): exploring the role of family functioning in the association between mothers' and fathers' food parenting practices and children's nutrition risk. *Nutrients*, **11**, 630-643.

REFERENCES

- McLeod, S. A. (2018). Mary Ainsworth. Simply Psychology. https://www.simplypsychology.org/mary-ainsworth.html
- https://www.researchgate.net/publication/308021134_Parent-Child_Interaction

Feel free to contact us or one of our local representatives for more references, clients lists, or more detailed information about The Observer XT.

www.noldus.com

INTERNATIONAL HEADQUARTERS
Noldus Information Technology bv
Wageningen, The Netherlands
Phone: +31-317-473300
Fax: +31-317-424496
E-mail: info@noldus.nl

NORTH AMERICAN HEADQUARTERS
Noldus Information Technology Inc.
Leesburg, VA, USA
Phone: +1-703-771-0440
Toll-free: 1-800-355-9541
Fax: +1-703-771-0441
E-mail: info@noldus.com

REPRESENTATION
We are also represented by a worldwide network of distributors and regional offices. Visit our website for contact information.

WWW.NOLDUS.COM