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SYNCC-IN

HORIZON2023

> IN THE DELICATE DANCE BETWEEN CAREGIVER AND CHILD LIES THE FOUNDATION OF HUMAN CONNECTION. BY UNDERSTANDING THEIR SYNCHRONY, WE UNLOCK THE KEYS TO HEALTHIER MINDS, STRONGER RELATIONSHIPS, AND BRIGHTER FUTURES.

AT A GLANCE	
	• How It All Started • Spotlight On Training and Workshops: SECORE • Upcoming Events • Role of Neurodiversity in Synchrony Research • Did You Know? *Synchrony in Early Stages of Life*

What's New in SYNCC-IN?

Curious how SYNCC-IN came to be? Let's take a look at the first steps and early successes of our collaboration!

How It All Started

The SYNCC-IN project is the result of a collaboration between researchers from the **University of Warsaw, the University of Copenhagen, the University of Milan, and Heidelberg University**, under the **4EU+ Alliance**.

Funded by the European Union

We started our international partnership in **2019**, forming a creative research group that aligns with the **4EU+ alliance vision**.

In the summer of **2021**, the team in **Heidelberg organized the first summer school,** which provided new research inspirations and strengthened our collaboration. During this time, the idea of applying for additional research grants emerged—this is how the SYNCC-IN project was born, which received EU funding three years later!

The **University of Trento joined the research team**, expanding the SYNCC-IN consortium to five institutions.

In **2021**, we received two mini-grants:

- **"Understanding and Supporting Caregiver-Child Interactions"** (funded under the 4EU+ Alliance),
- **"Caregiver-Child Interactions and Social-Cognitive Processing in Typical and Atypical Development"** (funded under the Excellence Initiative – Research University)

Thanks to these funds, we were able to develop our research and educational projects led by specialists from all partner universities, as well as seminars for students focusing on caregiver-child interactions.

We also began work on the research project ***"Self- and co-regulation in European caregiver-child dyads: Age-related changes and validity of the IMMA-SF questionnaire."*** during which we prepared a scientific publication for the journal European Psychologist.

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This collaboration led to **a successful Twinning EU grant application!**

Spotlight on our Training and Workshops: SECORE

We're excited to announce the launch of a **series of workshops** focused on the SECORE method of analyzing and understanding caregiver-child interactions at a detailed, microanalytical level. These workshops will run throughout the year, beginning in spring and continuing into the fall, providing opportunities to deepen our understanding of caregiver-child interactions.

The program includes:

- **Introduction to SECORE:** A foundational online training to familiarize participants with the coding scheme.
- **In-Person Workshops:** Hands-on sessions held in Warsaw and Heidelberg to practice coding and apply SECORE in real-world scenarios.
- **Advanced Online Training:** Follow-up sessions to refine skills and address advanced topics.

Closer look at SECORE

Q&A

1. What makes SECORE unique?

- SECORE uses microanalysis to evaluate parent-child interactions from a **bidirectional perspective**, exploring **self-regulation** (how individuals manage their internal states) and **co-regulation** (how they support each other's regulation).
- For instance, it has been shown that parents adapt their co-regulation strategies according to the age and developmental stage of the child, but also according to the situational context.
- It helps researchers **break down complex interactions** into subtle exchanges across different communication channels (**verbal and non-verbal**).

2. What motivated the development of SECORE? Why was SECORE developed?

- Over the last few decades, a wide range of paradigms and observational approaches have been introduced to explore the quality of caregiver-child interactions, but **traditional methods are often limited to narrow age ranges**.
- SECORE was **designed to be adaptable** across different ages and contexts, making it a versatile tool for studying cognitive, emotional, and motivational regulation.

3. What does a typical SECORE session look like?

- A parent and child engage in **naturalistic tasks** resembling everyday activities, such as solving puzzles or tidying up together.
- Tasks are designed to **elicit regulation**, such as showing interesting toys but not allowing immediate access.
- During all these tasks, parent and child remain together to evaluate strategies that parents might use to support their children at different ages, or how the children achieve regulation on their own.

4. How is SECORE adapted for different age groups and developmental profiles?

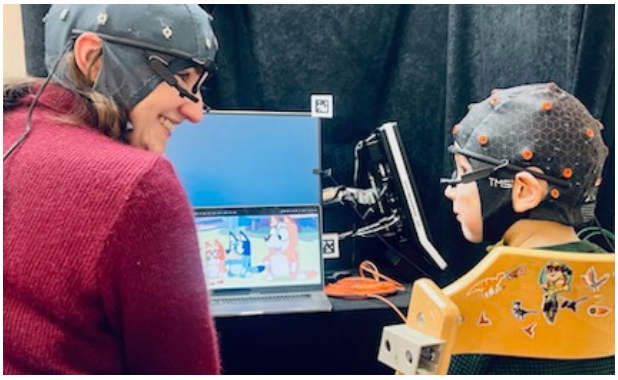
- A detailed and previously validated coding scheme has been established for typically developing children aged from 2 to 6 years.
- In our SYNCC-IN project, we will explore how this coding scheme applies to **preterm children** and children **with autism**, examining whether adaptations are needed to accurately capture their unique interaction patterns.

5. How the findings from studies using SECORE can be used to support caregivers in fostering emotional and cognitive development in children?

- Microanalysis helps identify interaction patterns that can be missed with broader scales, making it **useful for clinical interventions and video feedback sessions** to support caregivers in fostering emotional and cognitive development in children.

Upcoming Events

In the coming months, the SYNCC-IN team will engage in a series of events and activities to advance our research. Here are some exciting events that we're looking forward:



Training Sessions:

In March, our team members — comprising both experienced researchers and students — will take part in workshops aimed at enhancing their skills in behavioral and psychophysiological research methods, contributing to the achievement of the project's objectives.

- **Administrative Staff Training at University of Trento, Rovereto and Trento, Italy**

  The Administrative Staff Training will take place from 26 to 28 May 2025 at UniTN. The program will focus on funding acquisition, project management, and international collaboration, providing practical insights and skills. Key sessions will also cover research grants administration and will provide networking opportunities with peers and experts.

- **Seminar with Workshops, Warsaw, Poland**

  From May 5–7, 2025, Warsaw will host the **Advancing Understanding of Bio-Behavioral Synchrony: From Theory to Practice with SYNCC-IN workshops**, bringing together researchers and practitioners to explore behavioral and physiological synchrony in social interactions. Seminar will feature hands-on workshops on:

  - SECORE coding – a microanalytic approach to studying caregiver-child interactions.
  - fNIRS technology – from experimental design to data collection and analysis.
  - Computational methods for interpersonal synchrony – metrics, processing, and analytical frameworks.

  Alongside the workshops, participants will gain insights from expert lectures on synchrony in autism and preterm infants as well as real-world applications of hyperscanning.

Find the full program here and register for our lectures and workshops!

- **Engaging in Global Science: 22nd World Congress of Psychophysiology in Krakow, Poland**

  From 8 to 11 July 2025, members of UNIWARSAW's team will join the 21st World Congress of Psychophysiology. This prestigious event brings together experts worldwide to exchange knowledge on the latest research, innovative methodologies, and advancements in the field of psychophysiology.

Role of Neurodiversity in Synchrony Research

Neurodiversity refers to the natural variation in how people's brains function, encompassing differences such as autism, ADHD, and other developmental profiles, including those seen in preterm children.

These differences are not viewed as deficits but as unique ways of experiencing and processing the world.

At SYNCC-IN, we recognize the importance of neurodiversity in understanding caregiver-child interactions and behavioral synchrony.

Our goals:

- **Broaden Our Understanding of Synchrony:** Explore how caregiver-child interactions vary across neurodevelopmental profiles, revealing both challenges and strengths in building connections.
- **Highlight the Value of Individual Differences:** Recognizing and celebrating the adaptive strategies that neurodiverse children and their caregivers use to create meaningful bonds.
- **Promote Inclusive Development:** Using insights from neurodiversity to enhance emotional and social bonding.

Through our research, we aim to deepen the understanding of neurodiversity in caregiver-child interactions, providing insights that can inform educational programs, support parents, and inspire clinical practices.

Did You Know?

Behavioral Synchrony in the Early Stages of Life

Interpersonal synchrony—alignment of biological rhythms, actions, and emotions between caregiver and child—begins even before birth.

Behavioral Synchrony Begins in the Womb

Did you know that the foundations of behavioral synchrony—the way a parent and child's actions and emotions align—begins after birth? Even in the womb, a developing fetus responds to the rhythms of their mother's movements and sounds.

Maternal stress, anxiety, and emotional states can influence these early synchronizations, laying the groundwork for future parent-infant bonding and communication. So, the connection between mother and baby isn't just emotional; it's deeply physiological and behavioral, built long before the first cradle or lullaby.

Breastfeeding: A Path that strengthens synchrony

Breastfeeding is more than just nutritional—it's a powerful tool for developing behavioral synchrony between a mother and her child. Studies reveal that breastfeeding mothers experience increased brain activation in response to their baby's cues, enhancing emotional attunement. This biological process supports stronger mother-infant bonds and promotes better co-regulation of behaviors, making breastfeeding a unique pathway to fostering early relational and emotional development.

The Power of Early Contact: Rooming-In and Touch

Practices like rooming-in (keeping the baby in the same room as the mother) and sustained touch, like skin-to-skin contact, are vital for establishing strong behavioral synchrony. Early contact helps babies regulate their body temperature, heart rate, and even stress levels. When mothers respond to their baby's cries, facial expressions, and movements, they build a strong foundation of attunement and trust. These small but vital actions lay the groundwork for lifelong connection.

Further Readings

Interested in this topic and eager to learn more?

1. Lemus, A., Vogel, S. C., Greaves, A. N., & Brito, N. H. (2022). Maternal anxiety symptoms associated with increased behavioral synchrony in the early postnatal period. *Infancy*. https://doi.org/10.1111/infa.12473
2. Kim, P., Feldman, R., Mayes, L. C., Eicher, V., Thompson, N., Leckman, J. F., & Swain, J. E. (2011). Breastfeeding, brain activation to own infant cry, and maternal sensitivity. *Journal of Child Psychology and Psychiatry, 52*(8), 907–915. https://doi.org/10.1111/j.1469-7610.2011.02406.x
3. Dumas, L., Lepage, M., Bystrova, K., Matthiesen, A. S., Welles-Nyström, B., & Widström, A. M. (2013). Influence of skin-to-skin contact and rooming-in on early mother-infant interaction: A randomized controlled trial. *Clinical Nursing Research, 22*(3), 310–336. https://doi.org/10.1177/1054773812468316

Stay tuned for updates on our website and social media! We're excited to share this journey with you.

STAY CONNECTED

Website: https://synccin.uw.edu.pl

Facebook: https://www.facebook.com/people/Syncc-in-project/61566761616576/

Instagram: https://www.instagram.com/synccinproject/

YouTube: https://www.youtube.com/@SYNCC-IN

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