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# SYNC3-IN

H O R I Z O N 2 0 2 3

“ 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

- **Highlights from Recent Months:**
  - midterm report
  - trainings: administrative exchange, Secore microcoding
  - open lecture
- **Looking Ahead** - data analysis & symposia
- **Did You Know?** - Self-regulation may start with synchronized brains?

## Welcome

Welcome to the next edition of the SYNC3-IN newsletter! As always, we're pleased to share the latest updates from our project – including updates on recent training sessions, visits, presentations and publications. . This issue is particularly special, as we're now halfway through the project – a good moment to look back at what we've achieved so far and think about what comes next!

RESEARCH	EDUCATION	EVENTS
45 Copenhagen	91 4 workshops	4 conferences
100 Warsaw	61 summer school	2 symposia
ASD	402 seminar series	1 Scientific Picnic
TD	20 SECORE training	1 popular science events at UW
FNIRS	11 student theses	
	1 study visits	
	1 erasmus agreement	

**Visits**

**Lectures**

**Midterm report**

**Trainings**

# Halfway through SYNCC-IN: a great moment to look back

We have now reached the **midpoint of the SYNCC-IN project** - a perfect moment to pause, reflect, and look at how much has already been achieved. Over the past 18 months, SYNCC-IN has grown into a dynamic European collaboration bringing together researchers, students, and institutions around shared administrative and research goals.

This halfway point is not only an important milestone for the project, but also an exciting opportunity to see how ideas introduced at the beginning have already turned into concrete research, training activities, international collaboration, and growing societal impact.



## What we've achieved so far



A major milestone has been the rapid progress of our multicentre study on caregiver-child interaction. Across sites, data collection has already involved **more than 140 caregiver-child dyads**, exceeding the original target at this stage.



In Copenhagen, data collection has been completed with **45 dyads**. In Warsaw, the team has already completed the planned data collection for children with typical development and autism, reaching **over 70 participants**.

Importantly, the Warsaw team also expanded the study by adding an **fNIRS hyperscanning component**, which enabled the collection of additional brain data from another **33 caregiver-child dyads**. This has significantly strengthened the project's methodological capacity and opened new possibilities for multimodal analyses of real-life social interaction.

SYNCC-IN has also had a strong educational and training impact. So far, the project has delivered **two international workshops**, attracting a total of **91 participants**. Our **international summer school in Heidelberg** brought together **61 participants (41 on site and 20 online)**, offering advanced training in caregiver-child synchrony, hyperscanning, EEG, fNIRS, multimodal analysis, and behavioural microcoding. We also organised **two online seminar series**, each involving around **20 participants**, focused on Open Science, reproducibility, and the biological, social, and behavioural foundations of synchrony.



SYNCC-IN provides a platform for young researchers to develop their skills and expertise. Currently, there are 11 student theses in progress, all of which are connected to SYNCC-IN research questions and data.



Hands-on skills transfer has been another key achievement. During microanalysis training sessions in Warsaw, Heidelberg, and online, an average of **20 participants from all five partner sites** took part in learning the SCORE coding system used to analyse synchrony and co-regulation in caregiver-child interaction.

Study visits also played an important role: in December 2025, **six early-career researchers and students** from Warsaw and Trento joined a three-day methodological visit in Copenhagen focused on fNIRS data collection and lab procedures. These activities are helping to build a new generation of researchers equipped with advanced tools to study social interaction in a rigorous and reproducible way.



The project is also already visible internationally. So far, SYNCC-IN has been presented at **three international conferences and one local conference**, and the consortium has already submitted **two accepted symposia** for 2026 conferences in Kraków and Rome. Our online presence is steadily growing as well, with around **500 followers across social media channels** and **five newsletter issues** already published. Beyond academia, the project has reached broader audiences through public engagement activities such as the **Scientific Picnic in Poland**, popular science events at the University of Warsaw, and collaborations with parenting-focused social media creators.



Just as importantly, SYNCC-IN is creating momentum for the future. The collaboration has already contributed to **three follow-up funding initiatives**: a dissemination grant application in Poland, a Strategic Partnership application to NAWA, and a Marie Skłodowska-Curie Doctoral Network proposal. The project has also supported new mobility opportunities, including an **Erasmus agreement between the University of Warsaw and the University of Trento**.

## Why does this matter for society?

Understanding caregiver-child interaction is not only a scientific question - it is directly relevant to everyday life. Early interactions between children and caregivers shape emotional development, communication, self-regulation, learning, and social functioning.

By studying how synchrony works across behaviour, physiology, and the brain, SYNCC-IN can help generate knowledge that is relevant for families, educators, clinicians, and professionals working with children.

This is especially important in the context of neurodiversity. A better understanding of how social connection unfolds in children with different developmental trajectories may help improve support for children and caregivers, inform more sensitive educational and clinical practices, and promote stronger, evidence-based approaches to child development and wellbeing. In this way, the project contributes not only to scientific excellence, but also to a broader social goal: supporting healthier, more inclusive, and better understood caregiver–child relationships.

## Highlights from Recent Months

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### International Collaboration in Action: Administrative Exchange between UW and Trento

From 2 to 7 March 2026, we hosted a visit of the administrative team from the University of Trento at the University of Warsaw, focusing on the exchange of knowledge and good practices in research management and administrative support. The visiting delegation from Trento consisted primarily of administrative staff, who worked closely with their counterparts at our University.



Throughout the week, we organised a series of meetings, presentations, and workshops addressing key areas such as **research centre management**, **administrative workflows**, **international grants support**, and **training models for new principal investigators**. The programme brought together not only the visiting team but also science managers from the University of Warsaw, as well as representatives of central administration - particularly from the Office for International Research and Liaison - and local administrative staff from the Faculty of Psychology.

Together, we engaged in discussions, site visits to research facilities, and collaborative sessions, including a focus group on grant workflows and the development of a training syllabus within the SYNCC-IN project. We also explored topics related to **student mobility programmes**, such as Erasmus and co-tutelle schemes, and concluded the visit with a wrap-up session outlining follow-up actions.



In addition to the workshop component, we included **cultural activities** in the programme, such as a guided tour of the University of Warsaw campus with a visit to the University Museum, as well as participation in a concert held at the University on the occasion of Chopin's name day. These events created further opportunities to strengthen institutional ties in a more informal setting.



## Secure microcoding training



Since January, a group of researchers and students from all partner universities, under the supervision of **Dr Cecil Mata**, have been undergoing intensive training in standardised **microcoding of videos of structured parent-child play** according to the **SECORE procedure**.



SCORE employs **microanalysis to evaluate parent-child interactions** from a bidirectional perspective, seeking to understand how parents and children regulate their own internal states (self-regulation) or support each other to regulate (co-regulation).

At **weekly online meetings**, we jointly code video clips, discussing in detail the correct interpretation of interactions between parents and children. In addition, each week the training participants do homework, tackling the challenges of microcoding in practice. The training will culminate in a **weekend workshop in Warsaw**.

Thanks to such thorough preparation, we hope to begin behavioural analysis of the data collected as part of the project in April!

## Open Lecture by Dr Elisa Frasnelli



On 5th of March we had the pleasure of hosting an open lecture by **Dr Elisa Frasnelli (University of Trento)** at the Faculty of Psychology, University of Warsaw.

The event gathered around 20 participants and provided a welcoming, discussion-friendly atmosphere.

The lecture, titled ***“Neurocognition in an insect model: what we can learn from small brains,”*** introduced the use of invertebrate models such as bees to investigate cognitive processes and the evolution of neurocognitive systems. Professor Frasnelli presented key research areas including **lateralization, neuromodulation of pain, and the links between gut microbiota, behaviour, and cognition.**



The meeting was also an opportunity to further develop collaboration with the University of Trento, initiated through earlier contacts within the SYNC-IN project.



## Presentation by Prof. Lorella Gianni

As part of SYNCC-IN's dissemination and public engagement activities, **Prof. Lorella Gianni** recently presented the project to a group of journalists and to the general public during her **interview at the launch of the book *Le donne della cura***, which explores the history and work of women and professionals in maternal and infant care.

The event offered a valuable opportunity to share the aims of SYNCC-IN beyond the academic community and to raise broader awareness of the importance of caregiver-child interactions and synchrony in early development.



## Looking Ahead

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As of today, we have gathered enough data to begin our **initial analyses soon**. We hope to share some preliminary results of the project at **symposia** during conferences:



14th **NEURONUS** & Young PTBUN Neuroscience Forum in Cracow in April



8th European Society for Cognitive and Affective Neuroscience Meeting (**ESCAN**) in Rome in June

## Did You Know?

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### Self-regulation may start with synchronized brains?

Together with project members from from 4 partner universities, we have written an article examining the significance of interpersonal neural synchrony (INS) for the development of self-regulation skills.

Self-regulation is the ability to manage our **emotional, motivational, and cognitive** processes in ways that help us reach our goals and interact with others appropriately. It includes skills such as resisting impulses, calming down when emotions run high, focusing attention when needed, and adjusting our behavior depending on the situation or the people around us. Although these skills often feel automatic in adulthood, behavioral research suggests that self-regulation is not innate but **socially constructed**.

In the first months of life, a newborn's adjustment to the world depends heavily on caregivers. They play a crucial role in meeting the child's needs, introducing them to their environment, and helping them navigate everyday challenges. In fact, the origins of self-regulation lie in **parental co-regulation** - the process by which caregivers help infants manage their internal states. Caregivers help children calm down, guide them through problems by scaffolding their thinking during difficult tasks, and keep them motivated through praise, encouragement, or feedback.

During these co-regulatory interactions, the brains of caregivers and children may temporarily enter similar activity patterns - a phenomenon known as **interpersonal neural synchrony (INS)**. Through repeated experiences of such shared neural states, children may gradually internalize the regulatory processes that caregivers initially provide. In other words, the child's brain may learn to reproduce patterns that were first established during interaction with another person, creating a **neural bridge** that supports the transition from shared co-regulation to independent self-regulation.



The strongest evidence for this idea currently comes from the emotional domain. Several studies suggest that interpersonal neural synchrony between parents and children may contribute to the development of children's emotional self-regulation: **higher synchrony**, particularly in prefrontal brain regions, is associated with **more effective emotional and behavioral regulation**.

To better understand this phenomenon, more research is needed in the cognitive and motivational domains. Above all, **longitudinal studies** are required to determine whether repeated experiences of neural synchrony actually lead to improvements in children's self-regulation over the course of development.



- **self-regulation** is not innate but **socially constructed**
- **INS** can create a **neural bridge** that supports the transition from shared co-regulation to independent self-regulation
- **higher synchrony**, particularly in prefrontal brain regions, is associated with more effective **emotional and behavioral regulation**

## Further Readings

Interested in this topic and eager to learn more?



Mata, C., Nguyen, T., Zaborowska, J., Carollo, A., Niedźwiecka, A., Komorowska, E., Beck, J., Esposito, G., Kampis, D., Pluta, A. & Pauen, S. (2026). [Interpersonal neural synchrony as a potential neural bridge between co- and self-regulation: A Narrative Review. 10.31234/osf.io/9tc5m\\_v2.](https://doi.org/10.31234/osf.io/9tc5m_v2)

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

## STAY CONNECTED



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