Human beings have the unique ability to mental time travel. We remember personal past events or think about what awaits us in the future. Looking into own past and future is called autobiographical memory and autobiographical future thinking, respectively. Importantly, however, regardless of whether we "travel" into the past or the future, our Self plays the main role in this travel. As Canadian psychologist Endel Tulving said: "(...) there can be no travel without a traveler". Nevertheless, we are not born with the full ability for mental time travel; it emerges during development. Mark Howe and Mary Courage argued that in order for a young child to develop autobiographical memory, they must first become self-aware, that is, realize that they are separate from the surrounding people and the outside world. Gordon Gallup, in turn, linked self-awareness to developing an awareness of mortality, the most advanced form of autobiographical future thinking.

Currently, many researchers assume that the emergence of self-awareness is indicated by the ability to recognize oneself in a mirror. In the mirror test, designed by Gordon Gallup, an odorless dot is placed on the child's face and then the child's reaction to his or her own mirror reflection is observed. The assumption is that children who touch a dot on their face while looking in the mirror are considered self-aware. However, the mirror test allows drawing conclusions about only the visual and present aspects of the sense of Self. In the project, by contrast, we argue that self-awareness is a dynamic and multi-faceted process that includes at least three aspects: visual (recognizing the features of own appearance), bodily (awareness of the body and its physical properties, e.g. weight), and temporal (a sense of continuity over time).

The aim of this project is to comprehensively investigate the role of these three aspects of self-awareness in the development of mental time travel in early childhood. We also want to determine what impact social factors have on the development of both self-awareness and mental time travel. We argue that children learn to talk about their past and future from caregivers who, by asking questions and telling stories about events, give children an idea of what to remember, how and why, and what is worth planning and dreaming of. Conversations with parents about the past and future also teach children the concept of time, which is itself an important element of mental time travel.

Due to the issues undertaken, longitudinal studies will be carried out with the participation of children in early childhood. Each child will take part in the study twice: at the end of the second year of life and the end of the third year of life. Conversations between caregivers and children will be analyzed, as well as children's behavior in specially designed tasks for studying self-awareness, mental time travel, and understanding of time. Despite the intuitions linking self-awareness with mental time travel and several empirical studies trying to explore this relationship in the course of human development, to our knowledge, there is no research that comprehensively explores the role of various aspects of the Self in the development of mental time travel into the past and the future. We plan to fulfill this gap and claim that exploring the Self beyond only its visual aspect will allow us to better understand its role in the development of mental time travel both into the past and the future. The most important goals of the project are:

1) a comprehensive examination of the role of the three aspects of self-awareness in the development of mental time travel (autobiographical memory and future thinking) in early childhood;
2) investigating the role of the way the caregivers talk about past and future events in the development of children’s self-awareness and mental time travel;
3) investigating the role of understanding of time in the development of mental time travel;
4) studying how children in their second and third year of life process information related to the Self.

We anticipate that children who show a higher level of the three different aspects of self-awareness will have better autobiographical memory and the ability to think about their own future. We also expect that children with a higher level of self-awareness will pay more attention to stimuli related to the Self than children with a lower level of self-awareness. Furthermore, we argue that children of caregivers with a more complex style of talking about past and future events will have more developed mental time travel skills. Finally, we hypothesize that children who better understand time will demonstrate improved mental time travel abilities and develop temporal aspect of self-awareness more rapidly.

Besides exploring the fascinating link between the Self and mental time travel, this project can have significant practical implications for education and clinical interventions. If the Self is shown to play a crucial role in early childhood information processing, self-referential methods could enhance educational strategies. Additionally, understanding the development of autobiographical memory and future thinking can improve well-being, coping skills, and mental health in young children and later in life.