

# Immersive Virtual Reality-Based Allocentric Spatial Cognitive Training on Improving ToM in Children with Autism

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## Introduction:

Is there any in common between understanding your friend's perspective and finding your way around the city? It seems that there is an interconnection between these two functions in the brain. Understanding other's minds (Theory of Mind) is a vital factor in one's social interaction, however, ToM does not function efficiently in some mental disorders such as Autism. Moreover, the majority of ASDs have difficulties in spatial frames of reference processing, especially the allocentric one (egocentric is intact). Other studies have shown that allocentric frame of reference deficits were not related to poor visual short-term memory or mental rotation in an ASD group.

## Aim:

We intend to explore immersive virtual reality cognitive training to study the allocentric frame of reference of children with ASDs. By enhancing allocentric frame of reference capabilities, we assume that we observe a difference in ToM function among ASDs.

## Methods:

We perform a pre-test intervention on ToM skills of children with ASD. Then, we propose an IVR training to 20 children with ASD (45 minutes a session, 3 days a week for 8 weeks) and conceive to improve their allocentric frame of reference skills through playing an interactive game. We will compare the ASD children's ToM in post-intervention.

## Results and Conclusion:

We are in the starting phase of the experiment and we are unable to deliver any results. We assume that our future results suggest that immersive virtual reality training of allocentric frame of reference might be clinically beneficial to enhance ToM function of ASD children.

More information on our Website:  
[www.mixedrealitylab.de](http://www.mixedrealitylab.de)

