Interacting brains sync without physical co-presence during online gaming
30 August 2022, by Valtteri Wikström

Based on the findings, inter-brain synchronization occurs during cooperative online gaming, and increased synchrony in the alpha and gamma frequency bands is connected with better performance. The connection between performance and gamma synchronization could be observed continuously over time.

"We were able to show that inter-brain phase synchronization can occur without the presence of the other person. This opens up a possibility to investigate the role of this social brain mechanism in online interaction," says Doctoral Researcher Valtteri Wikström.

Toward better online interaction

Our social brain has developed in face-to-face communication, and increased screen time has caused concern especially among parents, teachers, and legislators.

"If we can build interactive digital experiences which activate fundamental mechanisms of empathy, it can lead to better social relationships, well-being, and productivity online," says Project Manager Katri Saarikivi.

According to Wikström, measurements of physiological synchronization and cooperative performance are potential ways to evaluate the quality of social interaction. Finding out which aspects of the interfaces promote understanding and connectedness can drive the development in a positive direction.

"This study shows that inter-brain synchronization happens also during cooperative online gaming, and that it can be reliably measured. Developing aspects in games that lead to increased synchronization and empathy can have a positive impact even outside of gaming," Wikström adds.

The study is published in Neuropsychologia.

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