

Smarter, quicker-thinking referees? There's an app for that

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KU Leuven and UEFA, European football's governing body, have embarked on a four-year project to expand and fine-tune a web-based skills training platform for referees. Early results show that the application can improve assistant referees' on-field perception and decision-making by up to 25%.

The application, called Perception 4 Perfection, is the product of a partnership that began in 2012 between KU Leuven's Faculty of Kinesiology and Rehabilitation Sciences and UEFA. The web-based training platform utilises real-life game footage to train referees' eyes and minds to quickly and consistently recognise offside infractions, foul incidents and goal/no goal situations.

The application is already being used by UEFA's assistant referees and additional assistant referees in the UEFA Champions League and UEFA Europa League.

According to Professor Werner Helsen of KU Leuven's Movement Control & Neuroplasticity Research Group, who leads the project, the tool opens unique perspectives to better prepare match officials for the important job they need to fulfill.

"The application can be accessed anywhere, anytime," says Professor Helsen. "Individual users can decide for themselves when to log in and start their perceptual-cognitive training. In that way it's a 24/7 'distance learning' tool." The interface is also customisable – users can select how

much feedback they want and filter it by category.

Once logged in, users are shown a series of game scenarios and their calls are recorded in real time. "The tool not only immediately shows the correct call for a given incident, it also gives direct feedback and a clear explanation for why the user's call was correct or incorrect. This helps to continually refine the user's thinking process, which significantly increases both the uniformity and consistency of their calls," says Professor Helsen.

In a 2013 study published in the journal *Psychology of Sport and Exercise*, the researchers examined the extent to which this web-based training transfers to the field. They found that the decision-making accuracy of Belgian assistant referees who completed four web-based training sessions of 60 incidents each improved by 23.3% for on-field incidents.

"Our data shows that the application improves assistant referees' ability to evaluate actual game situations substantially. This is why we are eager to optimise it and to also make it available for referees and additional assistant [referees](#). We want to offer an individualised approach. Not every referee starts at the same level and needs constant feedback. Others flourish on it," says Professor Helsen.

The technology used to build Perception 4 Perfection could also prove useful beyond the world of sports, say the researchers. "The platform could be used to train people tasked with making decisions in various stressful, time-sensitive scenarios. Think of driving in traffic, responding to emergency situations or performing surgery. People in these situations would all benefit from practice and learning opportunities. We think our method could significantly increase decision-making performance in all kinds of real-life situations." says Prof. Helsen.

Professor Helsen and his team are now exploring these possibilities with KU Leuven's Experimental Psychology research group (Professor Johan Wagemans) and the Instruction Psychology and Technology research group (Professor Jan Elen).

Provided by KU Leuven

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