Errors in judging “offside” in football and the role of expertise

Catteeuw Peter, Gilis Bart, Helsen Werner
Katholieke Universiteit Leuven, Belgium
Department of Biomedical Kinesiology
Perception and Performance Lab

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According to different studies (1,2), the flash-lag effect (FLE) may account for the errors that ASR make, not only in real life situations, but also in computer animations (3). The FLE is defined as a moving object that is perceived as spatially leading its real position at an instant defined by a time marker (in the particular case of judging offside the moment the ball is passed). The first aim of the present study was to examine the impact of the movement of the second last defender on the FLE. The second aim was to examine if international FIFA ASR can better deal with this perceptual problem than national ASR.

FIFA ASR (n=54), who were all potential candidates for the World Cup 2006, and Belgian ASR (n=34), who were all active in matches of the professional league, had to assess 2 sets of 32 computer-based offside situations. In these animations, the position of the attacker relative to the offside line was experimentally manipulated. For the onside positions, the attacker was either 20 or 10 pixels behind the offside line or on the offside line. For the offside positions, the attacker was 10 pixels ahead of the offside line. Furthermore, the movement of the defender was also manipulated. The second last defender was either standing still at the moment the pass was given, or he was moving in the opposite direction of the attacker (as often is the case in matches).

First, the results clearly showed a better performance (P<.048) for the FIFA ASR (70.6%) compared to the Belgian ASR (64.2%). Second, significantly more errors were made in situations where the attacker was on the offside line than 10 pixels behind the offside line. In situations where the attacker was 10 pixels behind the offside line, significantly more errors were made than 20 pixels behind and 10 pixels ahead of the offside line. These results support previous findings (3) and clearly support the flash-lag hypothesis. Finally, situations with a static defender (74.9%) were assessed more correctly than situations with a dynamic defender (61.4%) (P<.0001). FIFA ASR better assessed situations with a static (75.9%) as well as with a dynamic (65.3%) defender than Belgian ASR (static 65.3%, dynamic 55.2%).

Interestingly, FIFA ASR made fewer errors in onside situations than Belgian ASR, particularly in onside situations with a static defender. In situations with a dynamic defender, the FLE was still clearly present, also in FIFA ASR. In conclusion, when the second last defender and the attacker were moving opposite, the FLE enlarged the difficulty of judging offside. Future research is needed to examine if there are other ways outside the game using video simulations and computer animations to let ASR master the offside situations during a match in a better way.

(3) Gilis B, Helsen W, Catteeuw P (under review). Journal of Sport & Exercise Psychology