

**Title:**

How can situational interest increase students' physical activity in a design-based bike exergame?

**Authors:**

Roure C<sup>1</sup>, Pasco D<sup>2</sup>.

<sup>1</sup>Teaching and Research Unit in Physical Education and Sport, University of Teacher Education, Lausanne, Switzerland

<sup>2</sup>School of Education, University of Bourgogne Franche-Comté, Besançon, France

**Abstract:**

**Introduction:** Active video games or exergames are “video games that are also a form of exercise” (Gao & Chen, 2014). Over the last decade, they have been used with promising results as an innovative way to promote physical activity among various populations. Exergames have also the potential to motivate players based on their fun and entertaining nature. According to Sun (2013), these characteristics are capable of inducing a high level of situational interest which has been conceptualized as a multidimensional construct encompassing five dimensions: novelty, challenge, attention demand, exploration intention and instant enjoyment. We adopted a design-based exergame approach to build a bike exergame called Greedy Rabbit with the purpose of promoting players' health-related physical activity outcomes and situational interest (Pasco, Roure, Kermarrec, Pope & Gao, 2017).

**Methods:** Sixty undergraduate students ( $M_{age} = 20.8$ ,  $SD = 1.3$ , 18-25 years, 51.7 % boys) were assigned to two groups: an experimental group playing Greedy Rabbit (N = 41) and a control group playing a placebo version of Greedy Rabbit (N = 19). The physical activity metrics measured were maximum oxygen consumption, heart rate and cadence. They also responded to a validated situational interest questionnaire (Roure, Pasco & Kermarrec, 2016) directly after playing the exergame.

**Results:** The results from mixed models for the experimental group showed that Greedy Rabbit increased students' physical activity metrics as they progressed through the stages of the exergame. Additionally, the results revealed significant associations between the five situational interest dimensions and the changes in students' physical activity measures for the experimental group.

**Discussion/Conclusion:** All in all, this study demonstrated that a design-based bike exergame might be a good option to enhance students' physical activity based on the five situational interest dimensions. Greedy Rabbit might be useful for health professionals to promote physical activity participation and adherence among undergraduate students.

**References:**

- Gao, Z., & Chen, S. (2014). Are field-based exergames useful in preventing childhood obesity? A systematic review. *Obesity Review*, 15(8), 676-691.
- Pasco, D., Roure, C., Kermarrec, G., Pope, Z., & Gao, Z. (2017). The effects of a bike active video game on players' physical activity and motivation. *Journal of Sport and Health Science*, 6, 25-32.
- Roure, C., Pasco, D., & Kermarrec, G. (2016). Validation de l'échelle française mesurant l'intérêt en situation, en éducation physique [French validation of the situational interest scale in physical education]. *Canadian Journal of Behavioural Science*, 48(2), 112-120.
- Sun, H. (2013). Impact of exergames on physical activity and motivation in elementary school students: A follow-up study. *Journal of Sport and Health Science*, 2, 138-145.