

Social exergames mitigating the proximity effects in collaborative physical activity among office workers

Citation for published version (APA):

Ren, X., Lu, Y., & Brombacher, A. C. (2019). *Social exergames mitigating the proximity effects in collaborative physical activity among office workers.*

Document license:

Unspecified

Document status and date:

Published: 01/11/2019

Document Version:

Accepted manuscript including changes made at the peer-review stage

Please check the document version of this publication:

- A submitted manuscript is the version of the article upon submission and before peer-review. There can be important differences between the submitted version and the official published version of record. People interested in the research are advised to contact the author for the final version of the publication, or visit the DOI to the publisher's website.
- The final author version and the galley proof are versions of the publication after peer review.
- The final published version features the final layout of the paper including the volume, issue and page numbers.

[Link to publication](#)

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal.

If the publication is distributed under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license above, please follow below link for the End User Agreement:

www.tue.nl/taverne

Take down policy

If you believe that this document breaches copyright please contact us at:

openaccess@tue.nl

providing details and we will investigate your claim.

Social Exergames Mitigating the Proximity Effects in Collaborative Physical Activity among Office Workers

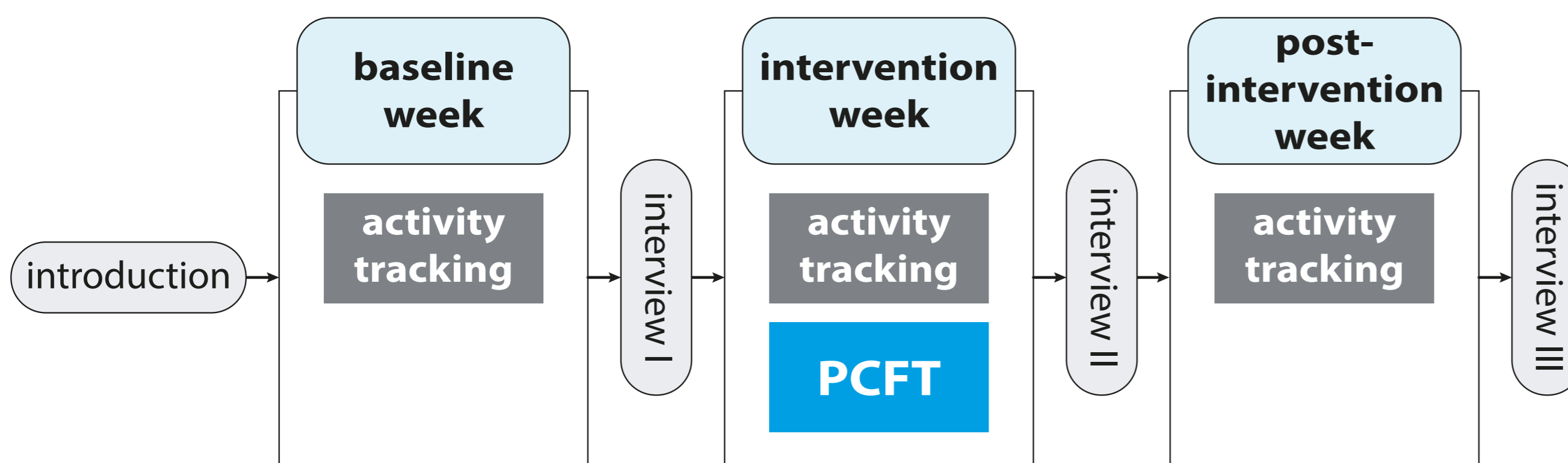
Xipei Ren (x.ren@tue.nl), Yuan Lu (y.lu@tue.nl), Aarnout Brombacher (a.c.brombacher@tue.nl)
Systemic Change Group, Department of Industrial Design, Eindhoven University of Technology

Background

Promoting physical activity at office work has become increasingly crucial, and challenges designers to create different solutions. One opportunity is leveraging the collaborative nature in the workplace to encourage peer-based physical activity. However, the social effects of peer bonding may be influenced by contextual factors, such as the proximity between co-workers in the office.

The Field Study [1]

First, we conducted a field-study consisting of three weeks to understand the proximity effects in peer-based collaborative physical activity. The study involved 10 pairs of co-workers (5 distributed vs. 5 co-located) using mi-band to facilitate a collaborative step goal. We collected daily steps, collaborative goals, and interview data.



An overview of the study process

Our findings:

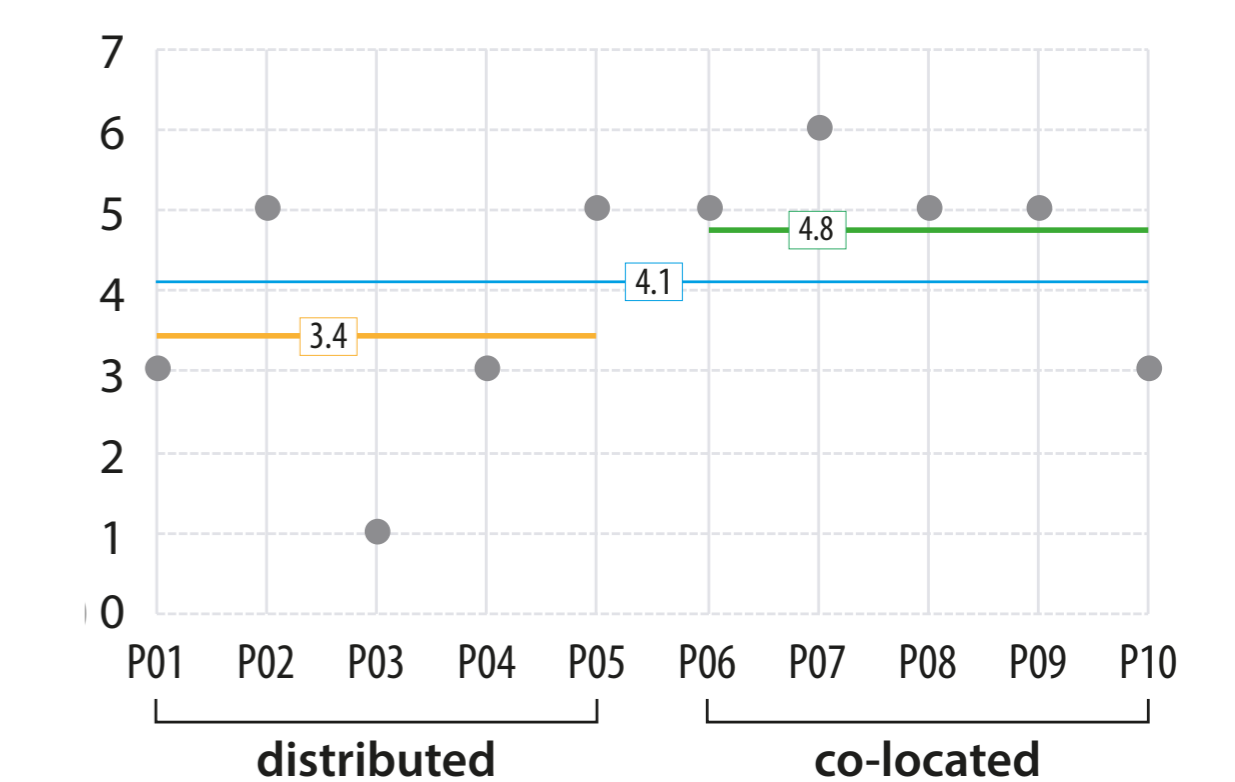
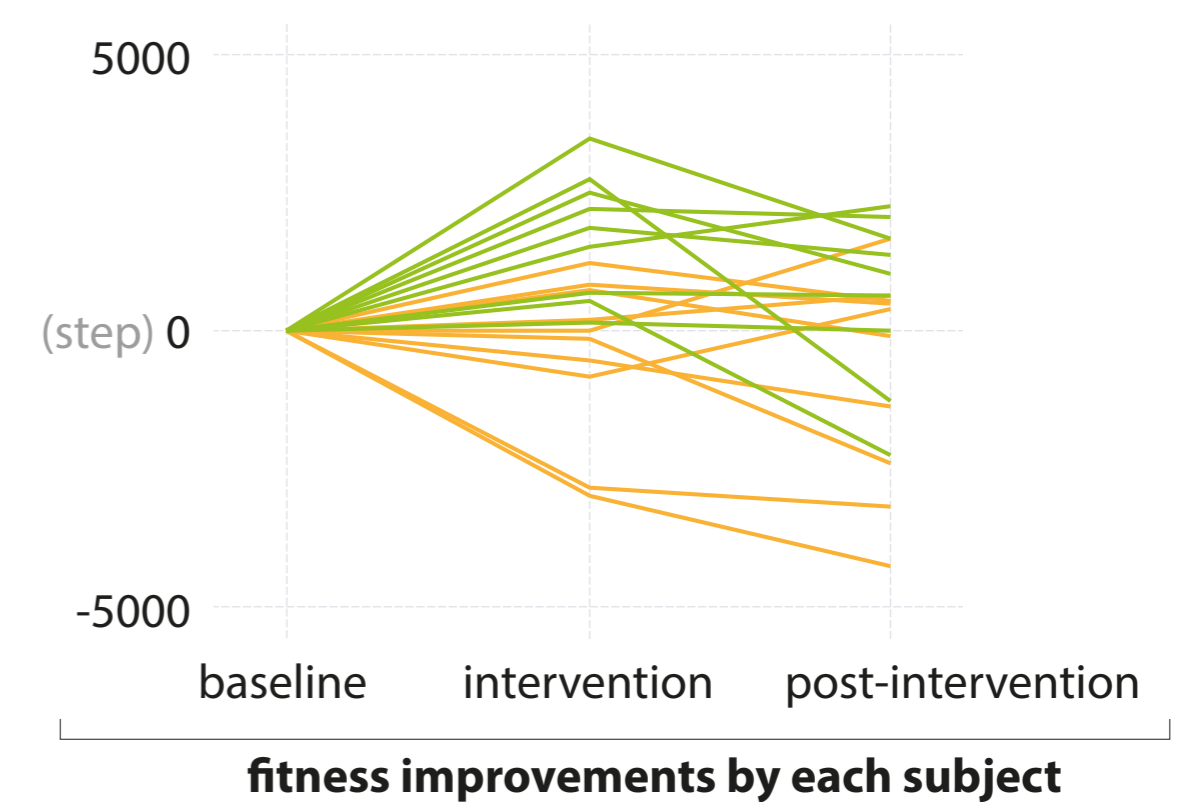
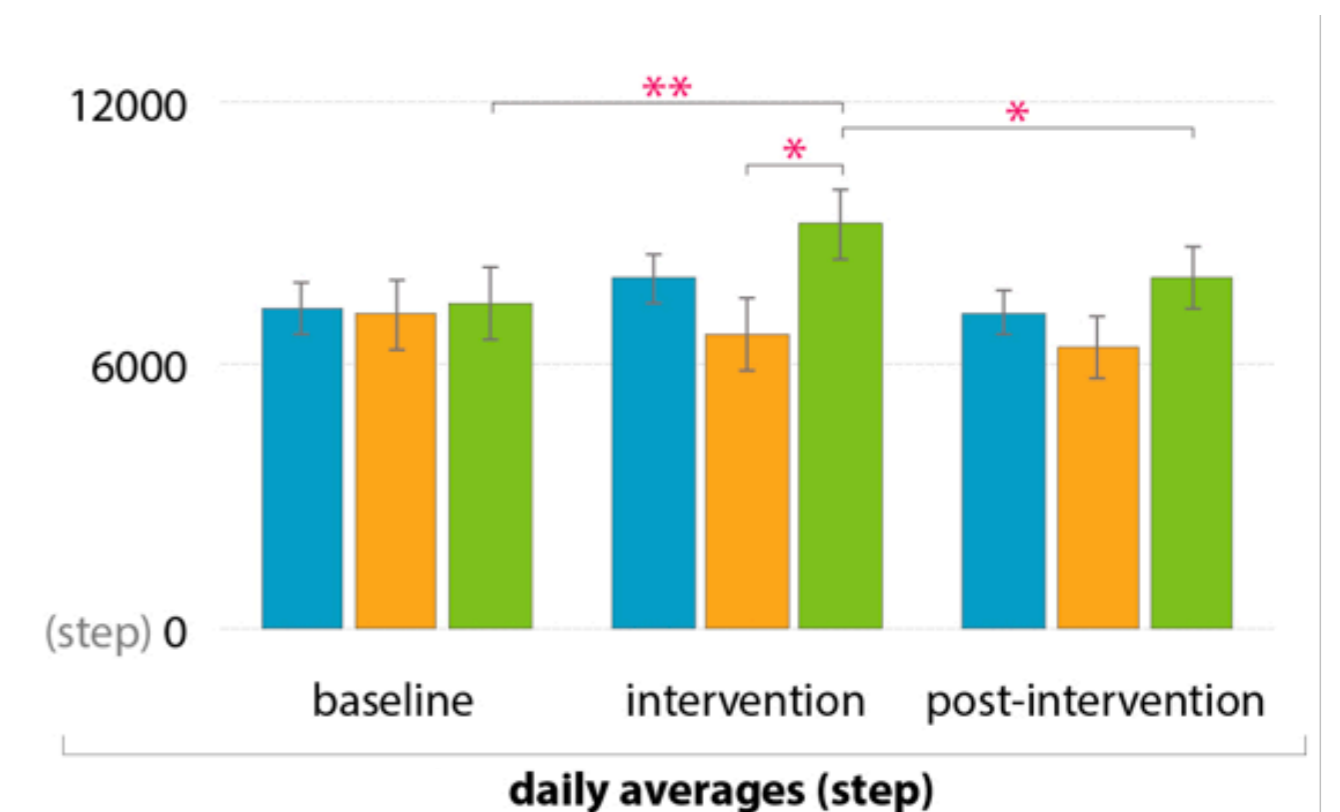
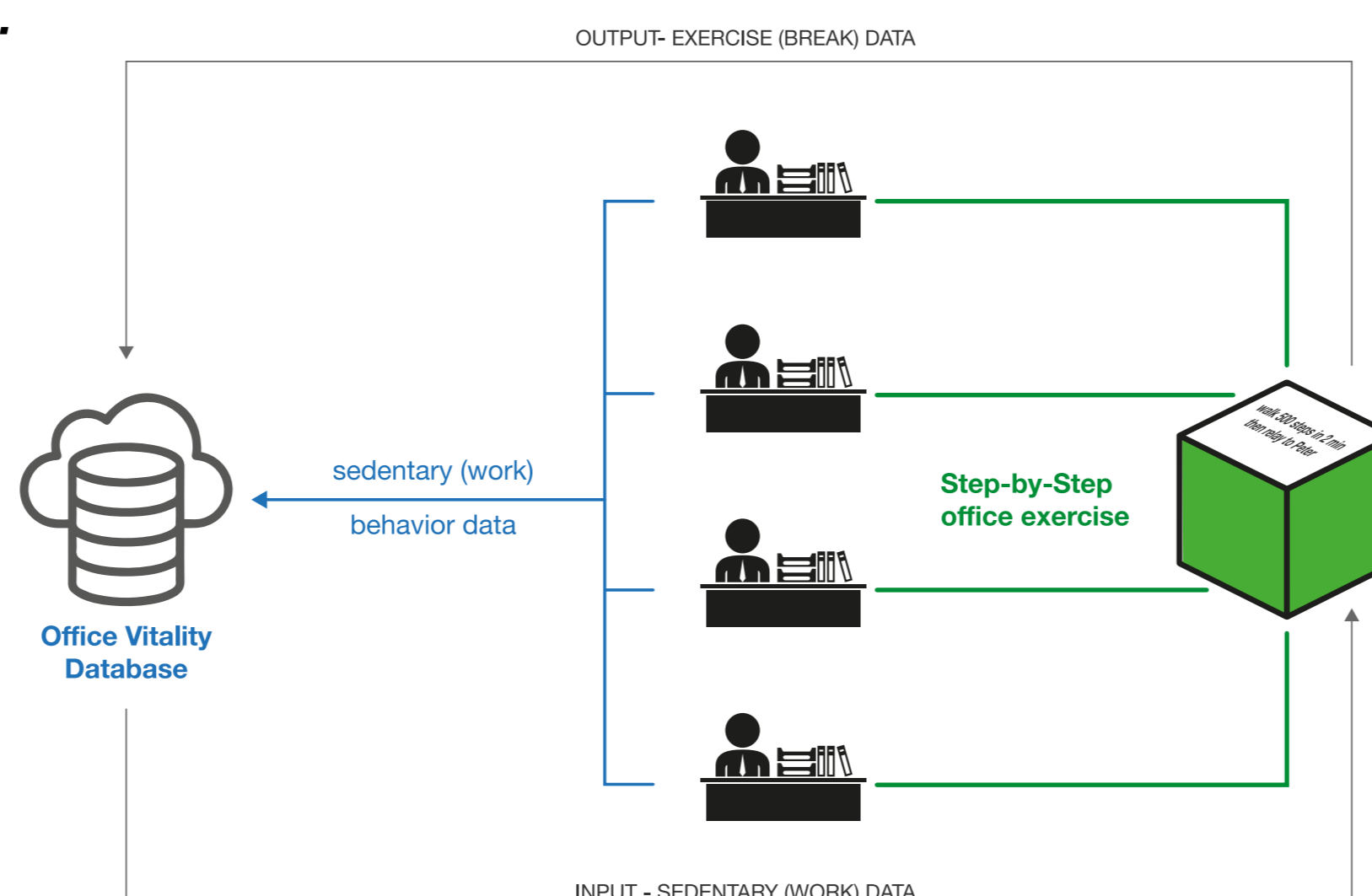
- Collaborative physical activity had a significant effect on participants' daily steps $F(2, 36) = 3.463, p < 0.05$.
- The close proximity positively affected the adoption of peer-based collaborative physical activity. $F(2, 36) = 6.143, p < 0.01$.

The Design Case Study [2]

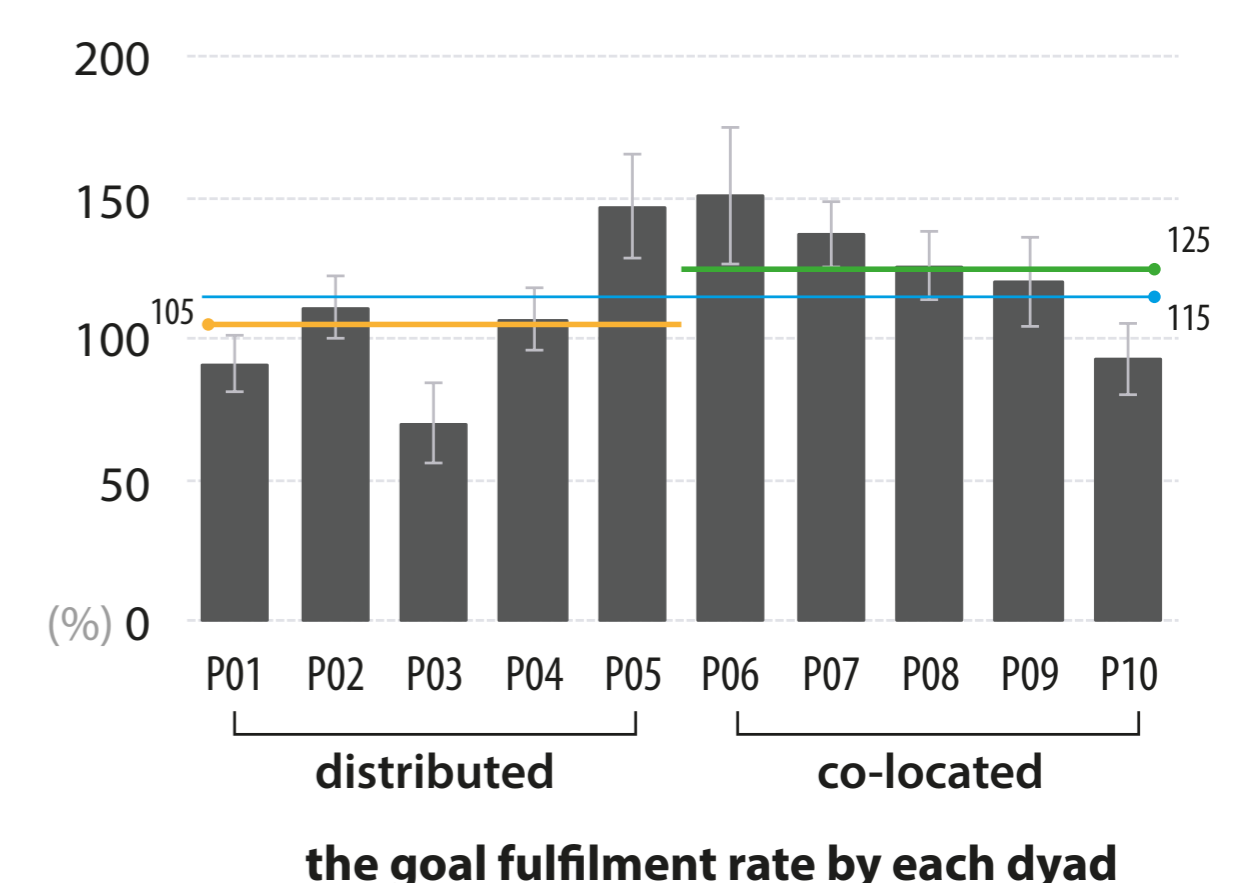
The study resulted in a set of design insights into developing social exergames to increased office vitality. To demonstrate the applicability of our research insights, we present one student design example, called *Step-by-Step*.

References

- [1] Ren, X., Yu, B., Lu, Y., & Brombacher, A. (2018). Exploring cooperative fitness tracking to encourage physical activity among office workers. Proceedings of the ACM on Human-Computer Interaction, 2(CSCW), 146.
- [2] Ren, X., Hollander, L., Marel, R. V. D., Molenaar, L., & Lu, Y. (2019). Step-by-Step: Exploring a Social Exergame to Encourage Physical Activity and Social Dynamics among Office Workers. In Extended Abstracts of the 2019 CHI Conference on Human Factors in Computing Systems (p. LBW0133). ACM.



the frequency of goal compliance by each dyad



the goal fulfilment rate by each dyad

Step-by-Step facilitates physical activity tasks that can be relayed from one to another co-worker in a workplace