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Paper
Review

Design of a Virtual Trainer for Exergaming

L. A. Shaw, R. Tourrel, B. C. Wunsche, C. Lutteroth, S. Marks
and J. Buckley. *Design of a virtual trainer for exergaming*.
ACM, 63, 2016.



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Design Recommendation

- ▶ Match virtual trainer to individual personality:
 - Offer competitive trainer for competitive individuals
 - Offer cooperative trainer for cooperative individuals



Exercise

- ▶ Obesity is a world wide problem
 - ▶ Maintain physical, mental and psychological health
 - ▶ Boring, tedious, exhausting
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Exergames

- ▶ Exercise and videogames
- ▶ Effective exercise motivation
- ▶ Dismiss psychological profile
- ▶ Personalized motivational strategies – long term adherence & increase activity levels
- ▶ **Player motivations: relax and achieve**

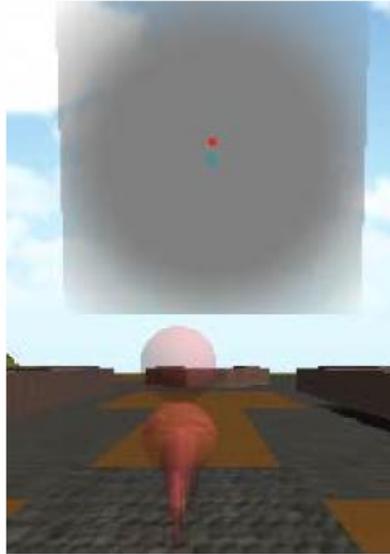


Competition and Cooperation in Exergames

- ▶ Competitive factors increases motivation in exergames
 - ▶ Non-competitive players do not enjoy competitive exergames
 - ▶ Cooperative exergames results in more weight loss compared to competitive exergames
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Design Requirements

- ▶ Feel like a game that is **fun to play**
- ▶ Elicit moderate to **high intensity exercise** from the player



Trainer System Requirements

- ▶ The trainer must be **customizable** to different personality types
- ▶ Following the trainer's cues must be **intrinsically motivating**
- ▶ It must be able to **effectively motivate** people of **different fitness level**
- ▶ The **trainer's behaviour** in the game should be **human like**

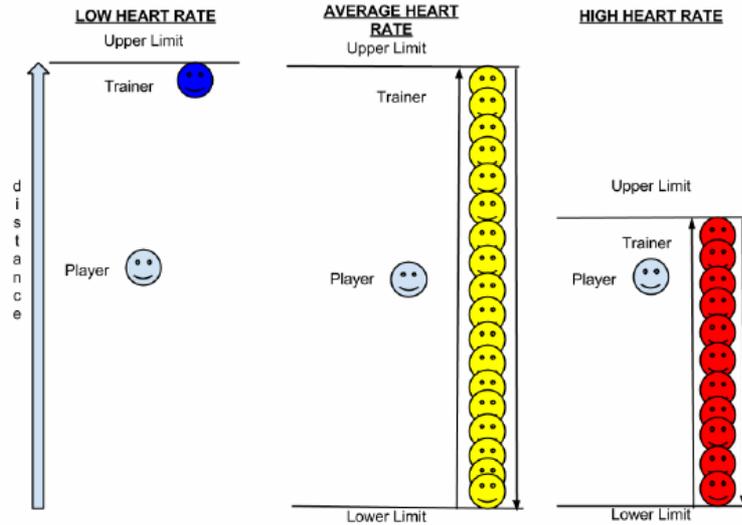


Virtual Trainer

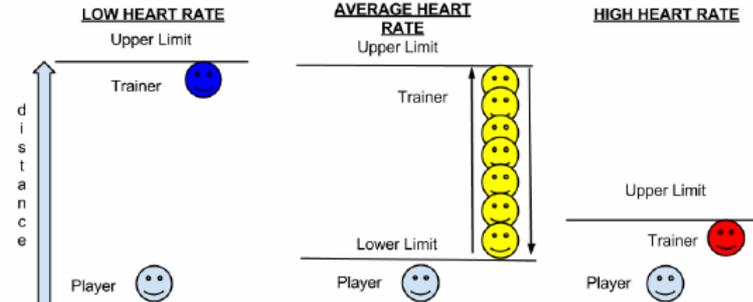
Competitive

Cooperative

Competitive Mode



Cooperative Mode



Feedback



Written feedback



Positive information and
score multiplier

Pilot Study

- ▶ 6 participants
- ▶ Sport orientation questionnaire
- ▶ Three 10 minute exercise sessions
 1. No trainer
 2. Competitive trainer
 3. Cooperative trainer



Results

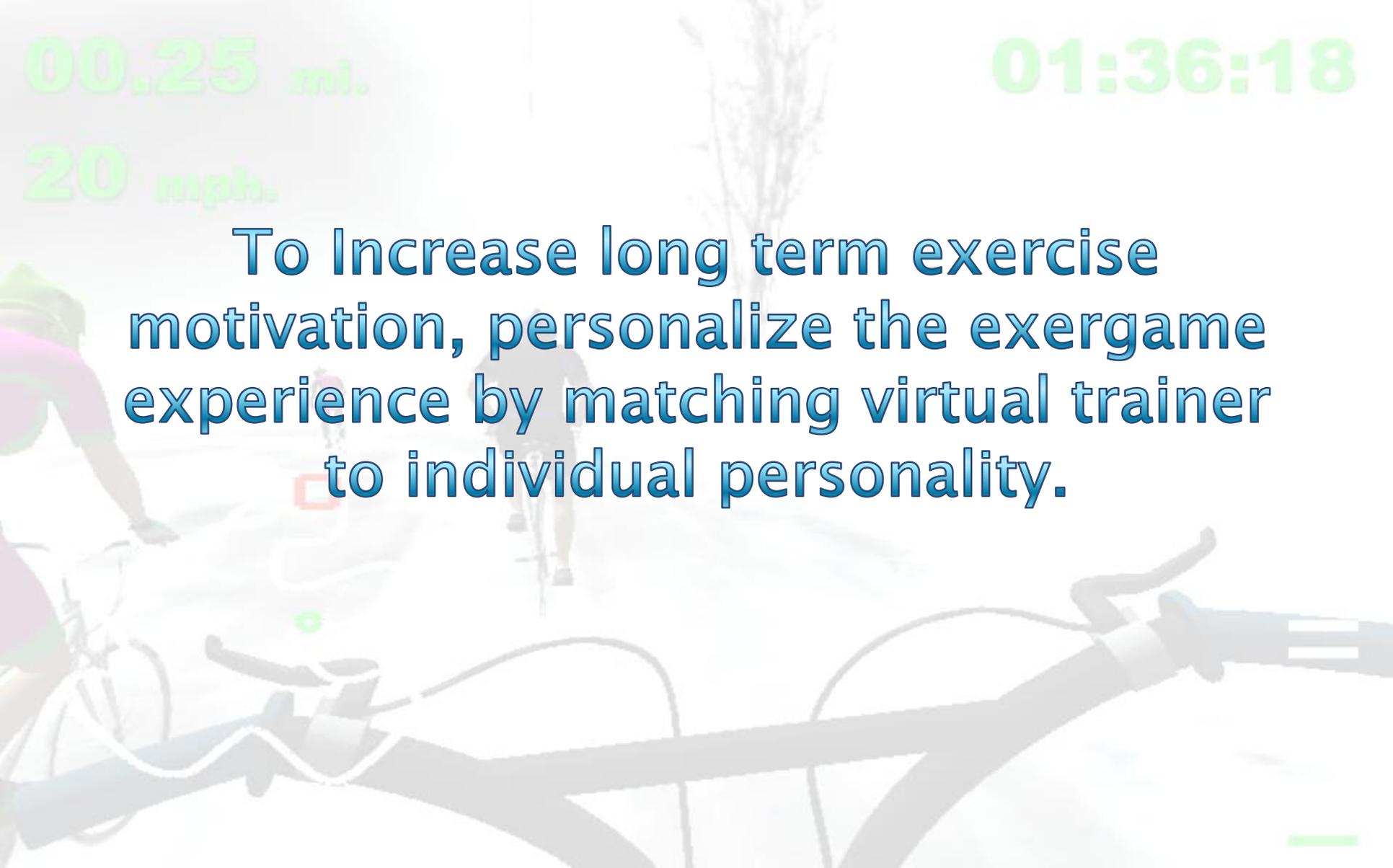
- ▶ The game is enjoyable and motivating
 - **Competitiveness** – motivation in **competitive** condition ($r = 0.70$).
 - **Winning orientation** – motivation in **competitive** condition ($r = 0.69$).
 - **Goal orientation** – motivation in **cooperative** condition ($r = 0.44$).

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To Increase long term exercise motivation, personalize the exergame experience by matching virtual trainer to individual personality.



Thought Questions

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- ▶ A personality survey at the beginning of the game or game system analyze player behaviours and modifies game's and trainer's properties accordingly?
- ▶ What other factors (e.g.: game, personality, social, emotional) could increase long term exercise motivation?

Sports Orientation Questionnaire

- ▶ Multidimensional measure of achievement motivation.
- ▶ 25 items measuring three different orientations:
 - **competitiveness** (the desire to enter and strive for success in sport-specific situations);
 - **win orientation** (the desire to win interpersonal competitive sporting events);
 - **goal orientation** (the desire to achieve personal goals in sport).

Design Recommendation

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