

ADAPTIVE AGENT BEHAVIOUR FOR PERSONALIZED TRAINING

Karel van den Bosch, Romy A.M. Blankendaal, Rudy Boonekamp and Tjeerd Schoonderwoerd

Problem

Training simulators often aim for high realism, both in scenery as in behaviour. However, high realism does not necessarily mean high effectiveness of training.

Training simulators often lack smart virtual players: players that adapt their behaviour in such a fashion that the resulting situations support the learning needs of the trainee.

Proposed solution

Dynamic adaptation of agent behavior to support personalized fit-for-purpose training. The figure shows the developed framework.

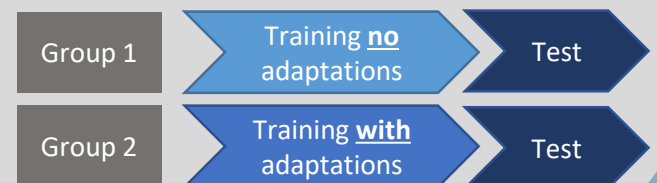
Research questions

- Do real-time adaptations of virtual agent behaviour lead to:
- better learning?
 - better training experiences and higher immersion?

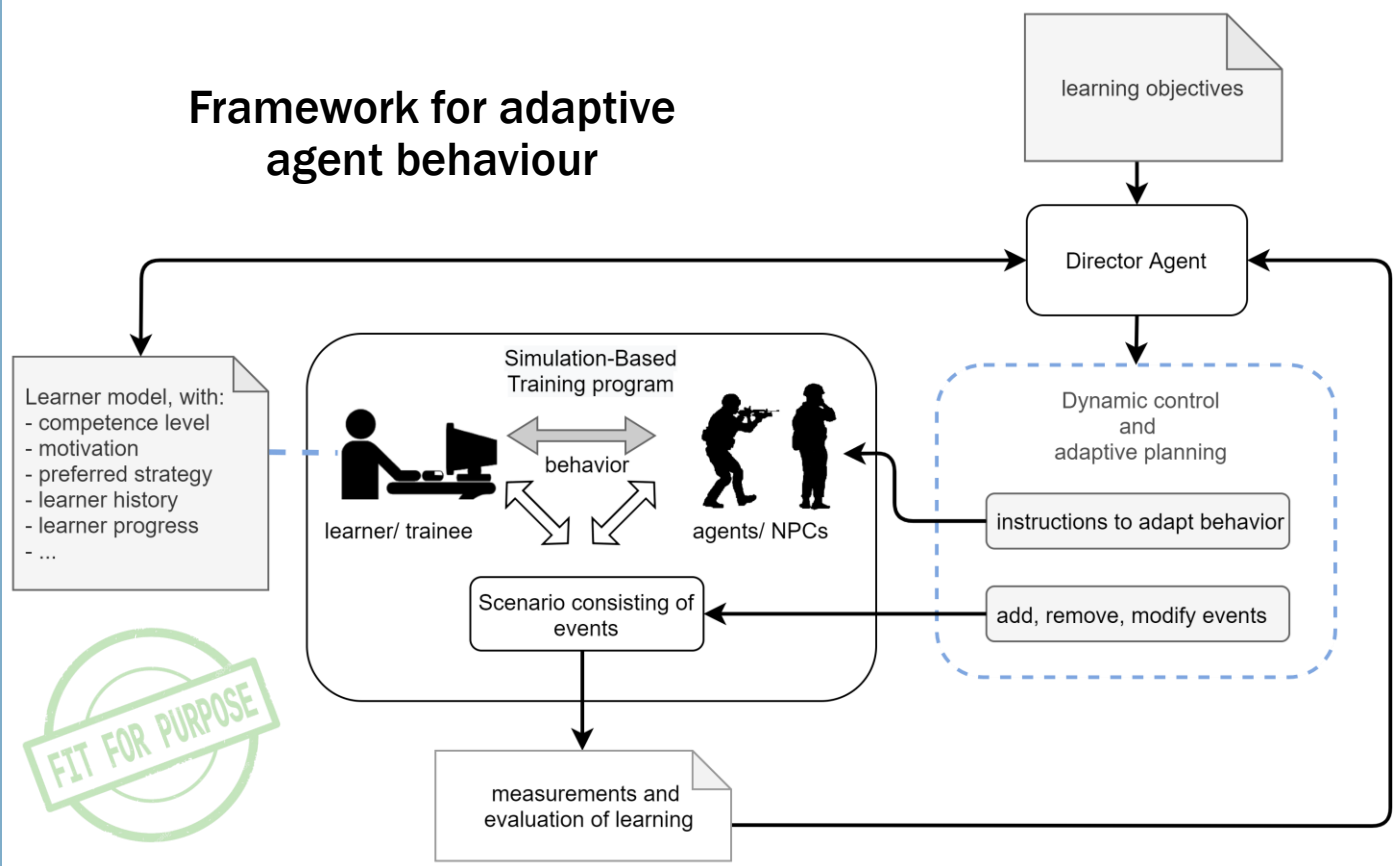
Study

A military patrol scenario was developed in VBS3, involving over 30 learning goals. Events in the scenario were designed to elicit behaviour from the trainee that corresponds to the learning goals.

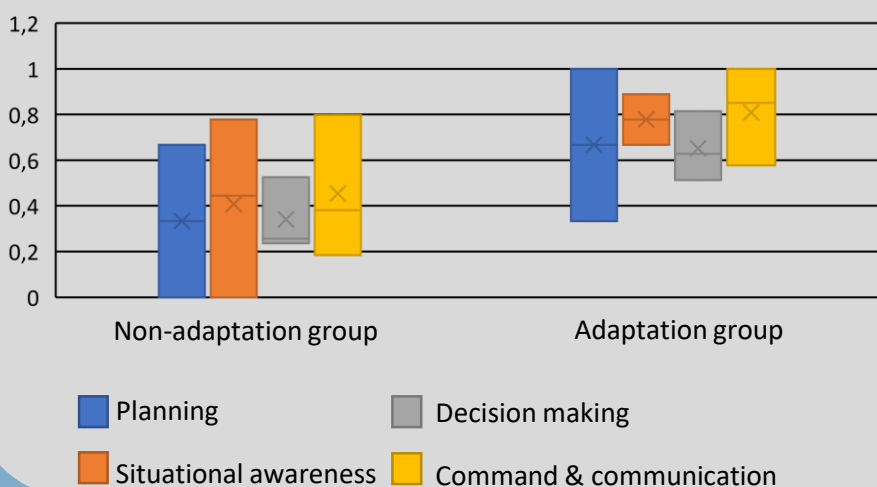
Adaptations to agent behaviour were carried out by a human “wizard”, thus roleplaying the director agent in the framework (see below).



Framework for adaptive agent behaviour



Results test performance



Conclusions

This pilot study suggests that:

- Adapting the behaviour of agents can be used to create learning situations that match the knowledge and competency level of the learner.
- Adapting agent behaviour supports learning, and leads to a better appreciated and more immersed learning experience.

Relevance for the military

- Outcomes provide directions to developers and instructors for designing adaptive agents in trainings simulations.
- Outcomes help to design personalized and effective learning.

See for a 2 minute clip of the study [this YouTube link](#).