Virtual Training for Discrete Trial Trainers

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Motivation

Behavior analysis based methods have proven successful for teaching children with auti
❖ Need to be correctly implemented or risk set back
❖ Critical to train the methods

Not always possible to get:
❖ Supervision and feedback
❖ Children to practice with

Our Project

Build
- ❖ Virtual training environment and a virtual child

Support Training of
- ❖ The Discrete Trial Training (DTT) method

Test
- ❖ Usability and effectiveness

Traditional skill learning is difficult for children with autism (Smith 2001)

❖ A more restrictive learning environment is required

❖ Discrete Trial Training (DTT) is such an environment
(Green 2001; Severtson and Carr 2012; Smith 2001; Fisher, Piazza and Roane 2011)

❖ DTT can be used for variety of learning tasks

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| Discriminative Stimulus | → | Response | → | Consequence |

| Prompt | | | | Registration |
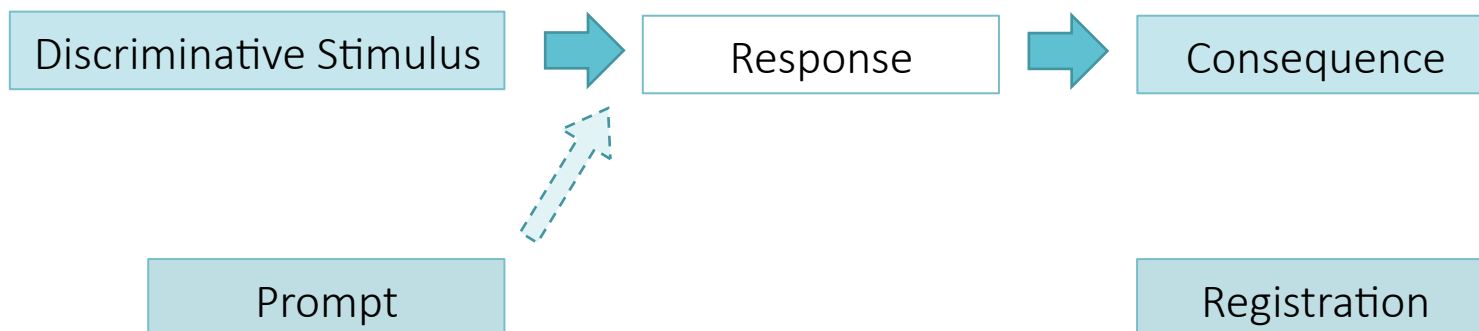
Background

Intelligent Virtual Agents have been:

❖ Tutors (Johnson and Rickel 1997; Johnson and Lester 2016)

    Fixed

    Mobile

❖ Patients (Kenny et al. 2007; Rizzo et al. 2010)

    Passive

    Social

❖ Children (Cassell et al. 2000; Ryokai et al. 2002; Tartaro and Cassell 2007)

    Peers

    Students ⟵ Less work done here

Approach

Interdisciplinary collaboration
- ❖ Domain expert
- ❖ Students in training

Full Virtual Reality
- ❖ Oculus Rift CV1
- ❖ Oculus Touch pending

Iterative implementation
- ❖ First prototype built during summer

Live Demo

Feature Summary

Important features already in place
- ❖ Immersive VR
- ❖ Configurable difficulty
- ❖ Feedback (basic)
- ❖ Trainee profile / history

Important features in progress
- ❖ More expressive virtual human
- ❖ Oculus Touch (waiting)

Evaluation

Planned Studies

- ❖ Usability
- ❖ Trainee testing (comparing training methods)

Informal expert and trainee feedback so far

- ❖ **Con**: Rigid, lacks "bad" behavior
- ❖ **Pro**: Realistic environment, promotes practice, would get used, focuses on skill training without distractions

Useful Advice Received

- ❖ Include a tutorial round

Conclusion and Future Work

Work in progress
* But a lot of excitement has been generated

Future work
* Studies + data gathering
* Virtual human architecture (connect with others?)
* Look into use for children with autism

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