

The effect of pictograms on learning to swim of children with Autism Spectrum Disorders: a randomised research

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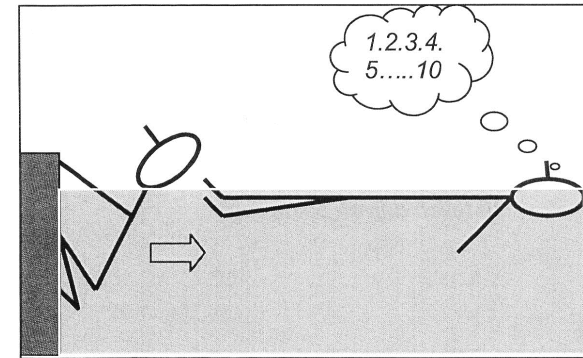
Introduction (1)

ASD children ...

- **... have more motor learning problems**
(Emck, C. 2011)
- **... need more time to learn to swim**
(based on profesional experience)
- **... prefer visual attention to objects rather than persons**
(Simmons et al 2009)
- **... show more difficulties imitating movement**
(Vanvuchelen et al 2007, Sevler et al 2010)

Introduction (2)

- Use of pictograms for learning to swim
- Pictograms are part of TEACCH
- Showing the intended behaviour
- Structuring time and activities



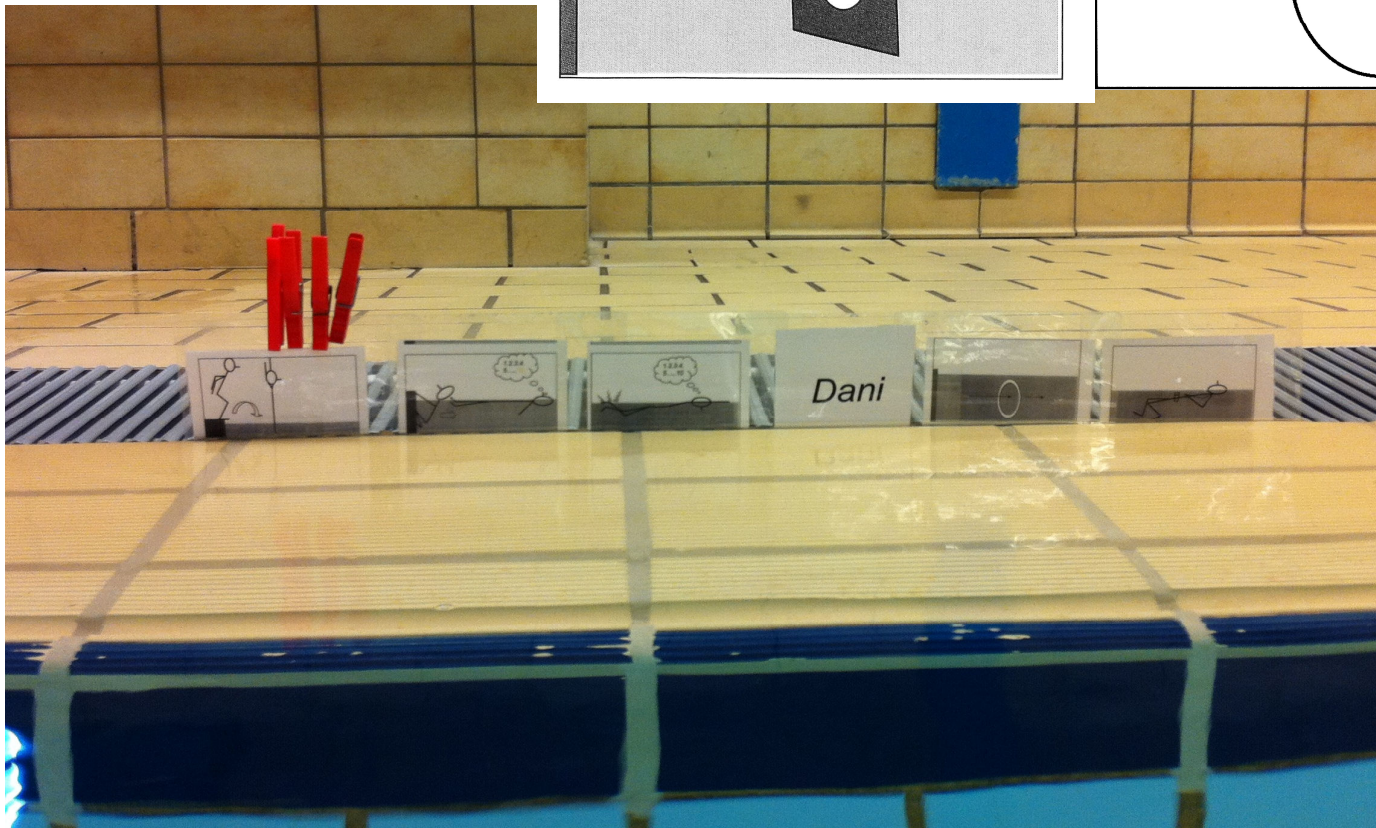
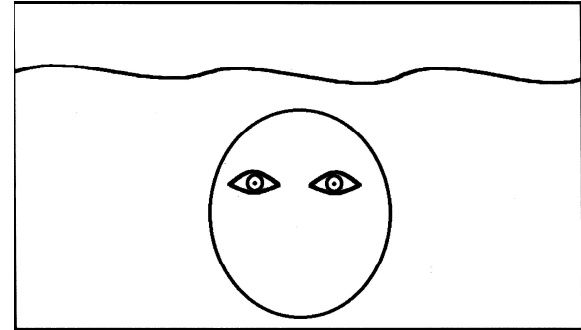
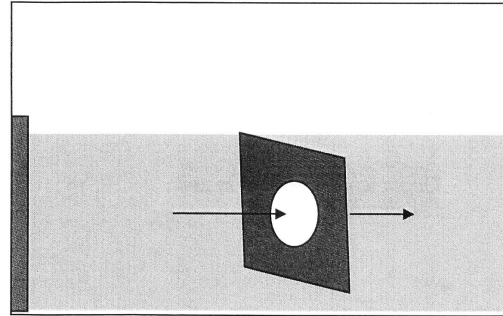
Context

- **Children with development disorders via schools for special needs**
- **Learning to swim**
- **Swimming instructors are psychomotricity students**
- **Dutch Swimming safety programme '*Zwem ABC*'**

Research Method

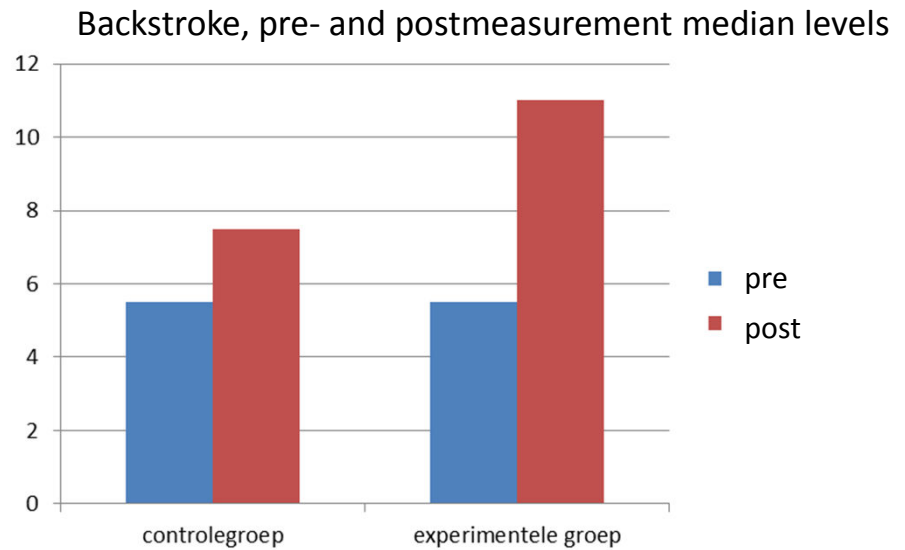
- Fourteen school-aged ASD diagnosed children ($n=14$) participated in the study. IQ 75-100
- Experimental group ($n=6$) and Control group ($n=8$).
- The same swimming curriculum once a week for twelve weeks.
- Measurement instrument based on '*Opleidingsweg ZwemABC*', a guidance for swimming programmes used in the Netherlands
- The backstroke and underwater swimming abilities of both groups were assessed before and after the twelve weeks of training.
- The experimental group experienced the same interventions as the control group, but they were shown pictograms as an organisational and learning aid.

Procedure



Results (1)

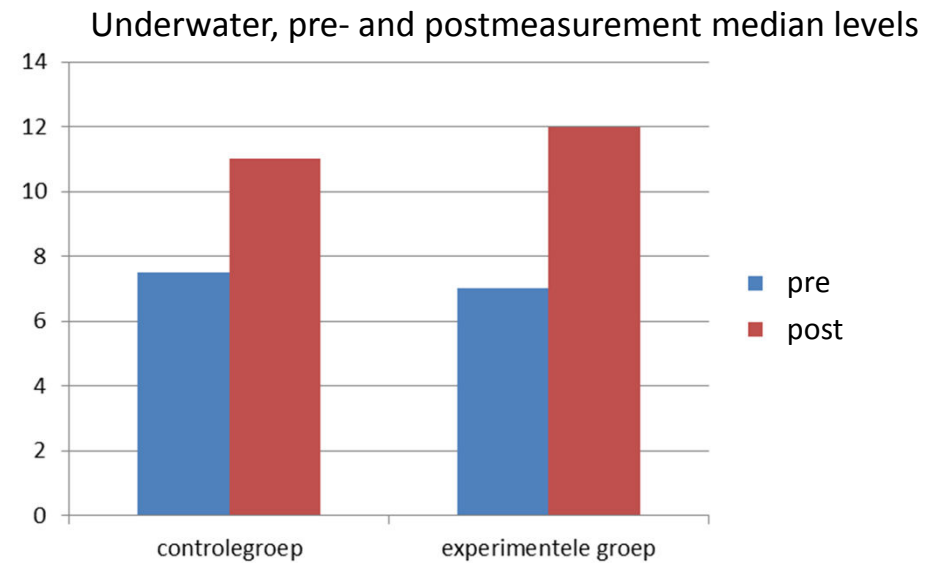
Backstroke



- Boths groups have a higher score in postmeasurement, but only in the experimental group the difference is significant $p=0.13$
- The learning effect in the experimental group is significant bigger than that of the control group

Results (2)

Underwater



- The learning effect is significant in both the experimental group ($p = .01$) as the control group ($p = .009$). No significance is found between the learning effect of both groups ($p = .23$).

Conclusion and Discussion

- **The use of pictograms has a positive learning effect on backstroke swimming for children with ASD.**
- **Yet both groups scored a significant learning effect on underwater swimming.**
- **This research shows that the learning effect of using of pictograms remains equivocal.**
- **Observation and evaluation shows that teachers find working with pictograms effective when working with children with ASD.**

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Any questions?