Is video-based instruction effective in the rehabilitation of children with autism spectrum disorders?

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CRD summary
This review assessed the effectiveness of video-based instruction for teaching adaptive behaviours to children with autism spectrum disorders. Included studies were small case series or single cases in which introduction and removal of the intervention provided the control. The evidence provided by these studies was not adequate to support the author's conclusion that video-based instruction was an empirically supported intervention.

Authors' objectives
To assess the effectiveness of video-based instruction for teaching adaptive behaviours to children with autism spectrum disorders.

Searching
ERIC, SpringerLink, PsycINFO and ProQuest were searched from inception for articles published in English. Search terms were reported. Dissertations and other grey literature were excluded. Bibliographies of relevant studies were screened for additional articles. An author search was conducted to identify other articles written by the authors of identified studies. Journals that published identified studies were handsearched (1989 to 2009).

Study selection
Studies of video modelling and video prompting interventions that focused on developing the adaptive behaviour or academic skills of children (under 18 years) and included at least one participant identified as having an autism spectrum disorder were eligible for inclusion.

Videos that did not include a behaviour or skill that study participants were to model were excluded. Relevant adaptive behaviours included social, communication, daily functional, behaviour management objectives and academic skills.

Most of the study participants (83%) were boys. Eighty-four per cent of the participants were reported with autism; other diagnoses described were Asperger's syndrome, high-functioning autism, pervasive developmental disorder (not specified) and autism spectrum disorders. Mean age of study participants was 7.6 years (range 2.6 to 17.4 years). The most common settings for studies were schools and home. Video models that performed the task or behaviour to be learned or imitated varied and included both adults and peers; two studies used animated material. Approximately half of the studies used reinforcement procedures such as verbal praise or edible treats in addition to video instruction. Most studies (approximately 70%) targeted social or communication skills.

After initial screening of titles and abstracts, two reviewers independently assessed retrieved full text articles for inclusion. It was unclear how many reviewers conducted initial screening.

Assessment of study quality
The authors did not state that they assessed study quality. A procedure for coding the reliability of study conclusions was reported: studies without a control group were classed as able to provide only inconclusive evidence; experimental studies were classed as conclusive if data presented showed a significant (not defined) effect for the intervention, data on inter-observer agreement showed at least 80% agreement for at least 20% of data and dependent variables and intervention were sufficiently described to permit replication.

It appeared that data were extracted by one reviewer and a random sample of 22 studies was checked by a second reviewer.

Data extraction
Descriptive data were extracted and coded on participant characteristics, setting, model type, target skill, study design, intervention procedure, follow-up duration, generalisability and results.

Where studies employed multiple models or settings, these were counted as separate experiments.

Data were extracted by one reviewer and a random sample of 22 studies was checked by a second reviewer.

Methods of synthesis
Studies were combined in a narrative synthesis.

Results of the review
Forty-four studies that included 49 experiments (n=131) were included in the review. Sample sizes ranged from one to 13 (41 studies included one to three participants). All except one study used single-case designs. These were classified as experimental (36 studies) if they used a design that sequentially introduced and removed the intervention (ABAB) or if the intervention was sequentially introduced following a baseline phase (multiple baseline or multiple probe design). There were five pre-experimental (no control) studies, two studies of unclear design, and only one study that employed a group intervention (pre-post study for whole group, classified as non-experimental). Forty studies reported inter-observer agreement and all had agreement above the specified standard. Evidence was deemed conclusive for 30 studies.

Twenty-three studies reported follow-up (range two days to 15 months). Six studies reported only data collected immediately after the intervention.

Overall, 27 (55%) of the included studies reported positive results. Seven studies reported a requirement for intervention modification (such as reinforcement, different model, further training) to achieve a positive result. Four studies reported positive results for only some participants and 11 studies reported improvements in only some measures.

Authors' conclusions
The results from this review supported the use of video-based instruction in the rehabilitation of children with autism spectrum disorders.

CRD commentary
The review provided a defined research question, supported by appropriate inclusion criteria. A number of sources were searched for relevant studies. The restriction to published English-language articles raised the possibility of language and publication biases meant that relevant studies may have been omitted. Even though the review had a single author, some measures were taken to reduce the potential for error and bias in the review process. Use of a narrative synthesis was appropriate, but description of the results of individual studies was sparse. The included studies were of very small case series or single case designs in which introduction and removal of the intervention provided the control. Although the author classified those studies with experimental designs and measures of inter-observer agreement as providing conclusive evidence, studies of this type are not sufficient to provide strong evidence for the effectiveness of an intervention. Only 55% of the included studies reported a positive result and a number of these showed mixed results. Overall, the author's conclusion in favour of video-based instruction was not adequately supported by the data presented.

Implications of the review for practice and research
Practice: The author provided no recommendations for practice.

Research: The author stated that future research should assess the effect of using different models on the outcomes of video-based instruction. The effects of additional reinforcement interventions should also be considered. The use of portable multi-media devices (such as iPods) to deliver interventions could be investigated.
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