Normal Peer Models and children with autism's learning

(Andrew L. Egel, Gina S. Richman, and Robert L. Koegel , Normal Peer Models and children with autism's learning, Journal of Applied Behavior Analysis, 141,3-12, Nr. 1, Spring 1981)

Background

As federal legislation has set up passages asking for education in least restrictive environment there is considerable research regarding the possibility of integrating children with autism in a "normal school" (Russo & Koegel, 1977). Can children with autism benefit from the integration by successfully modelling their peers without disabilities? There is a vast variety of research demonstrating that peer models lead to changes in the behavior of children without autism (Elliot & Vasta, 1970; Hartup & Coates, 1967; Igelmo, 1976; Kobasigawa, 1968; Miran, 1975; Bandura & Kupers, 1964; Clark, 1965; Debus, 1970; Ridberg, Parke & Hetherington, 1971; Bandura, Grusec, & Menlove, 1967; Bandura & menlove, 1968).

Therefore, it might be considered that similar results are true for children with disabilities. Several studies showed that responses could be brought under stimulus control of neuro-typical children (Apolloni, Cooke, & Cooke, 1976; Barry & overman, 1977; Peterson, Peterson, & Scriven, 1977; Rauer, Cooke, & Apolloni, 1978; Talkington, Hall, & Altman, 1973).

The effectiveness of children with autism observing others has been studied as well. A case history by Coleman and Stedman (1974) described the successful modelling of voice loudness and increased labelling vocabulary.
Other studies couldn't affirm this finding and suggested that it cannot be held for all types of children with autism. E.g. stimulus over-selectivity in low-functioning children with autism may account for a failure in learning through observation, which might get less for higher-level children with autism (Varni, Lovaas, Koegel & Everett, 1979).

This study tested if at least some children with autism benefit from exposure to neuro-typical peers.

Method

Subjects
4 children with autism between 5-10 years (mental age 3-5 years) took part in this study. They made general overall progress but had difficulties in acquiring certain tasks in their classroom curriculum. Not all of them were able to speak and most of them produced echolalia. All of them showed low to moderate amount of self-stimulatory behavior and some threw tantrums. Most of them had considerable problems in appropriate play, social behavior and self-help skills.

Peer models
Three neuro-typical children from neighbouring classrooms, as well as one very high functioning child with autism (Child 3, Task 2), who weren't older than two years of their attributed subjects, were selected as role models as they could answer all tasks correctly and were responding to adults request.

Setting
The experiment took place in an area of the classroom. Sessions took between five and fifteen minutes with 10-40 trials per session. There was a session at least every three days and with a maximum of two sessions per day. The second author, and an in behavior modification experienced undergraduate who didn't know about the hypothesis of this study were the therapists.

Target behavior
The target behavior was some activity from the curriculum the child had difficulty in acquiring (discriminating between two colors, shapes, use of prepositions, affirmative yes/no picture).

Design

Basline (no modeling)
The baseline was measured through the therapist asking the child to perform a task (e.g. "give me the circle", "give me blue"). Correct responses were reinforced (e.g. "good boy") while incorrect responses were followed by a verbal "no". If the child was incorrect for about three successive trials, prompt fading procedures (e.g. manually guiding the child's hand) were used.

Modeling condition
Identical teaching procedures as in baseline, but the therapist worked first with the model child who responded correctly and who got reinforced immediately. The model sat beside the child with autism or opposite the child who was instructed to look at the stimulus material. Afterwards, the therapist presented the same stimuli material and instruction to the child with autism. Consequences for incorrect answers were the same as in baseline.
Task counted as acquired if the child answered correct 8 out of 10 times without need of prompting.

Additional no model trials
The procedure was the same as in baseline. The reason for this trial was to control if the child with autism would answer consequently correct on 30 trials without a model two days later.

Data recording and reliability
The therapist scored the answer and an independent observer monitored the score. There was a reliability of 100%.

Results

Baseline showed very low levels of correct responding (24-50% correct responding (50% equals chance level)). Correct Responses increased very fast in modelling condition. The children achieved 8 out of 10 correct answers after a maximum of 20 trials. Some of them even achieved 100% correct answers (10 out of 10).

These results were successfully repeated at the no-modelling condition. The percentage stabilised or even increased at the rate of model condition.

Discussion

Peer modelling increased performance on discrimination tasks for participating children with autism.

Limitations

Children with autism differ in pre-teaching and in developmental level. Participating children were not as deeply impaired than that in Varni et al. study who were at the level of severe retardation and had high self-stimulatory behavior. Participating children in contrast were good in imitating, had large receptive language abilities and were acquiring a small functional expressive vocabulary. Therefore, it might be necessary to expose children with autism to some pre-teaching before using peer modelling. Participating children had an intelligence quotient of 50-87 that might be the precondition for benefitting from modelling. A lot of children with autism function at that level.

Similarity of peer models to learner

Children with autism might benefit from same age children compared to adults (Barry & Overmann, 1977; Hicks 1965; Kazdin 1974; Kornhaber & Schroeder 1975). Age and sex of the model and the observer may influence the probability of the model being imitated (Bandura, Ross, & Ross, 1963; Hartup & Lougee, 1975; Rosekrans 1967). Therefore, learning didn't take place when adults were modelling (baseline).

Novelty

Modelling children was novel to the children with autism and this kind of learning might have increased the saliency of the required responses and reinforcer.

When it is difficult to direct children with autism responding to relevant cues, this type of teaching might therefore be a possibility for the children.

Conclusion

Classroom implications

The results show that it may be effective to put moderately impaired children with autism into classrooms with peers without autism (two children of the study are in a normal classroom in the meantime and seem to keep on imitating peers).

The language ability, affects of children with autism on normal peers, overall functioning level, teacher knowledge of applying modification techniques may influence successful integration and need to be studied therefore.

As modelling peers seems to be an effective way to learn for children with autism, it has to be evaluated deeper in future.

Please note that every effort has been made to condense and provide a broad overview of this research, however in order not to lose the key information some of the information in this summary has been copied directly form the original article. All credits of the summary whether directly worded or re-worded are solely given to the researchers.

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http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1308180/pdf/jaba00043-0005.pdf

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