

ANNOTATION

MOTIVATION IN CHILDHOOD AUTISM: CAN THEY OR WON'T THEY?

ROBERT L. KOEGEL and MICHELLE MENTIS

University of California, Santa Barbara, CA, U.S.A.

PARADOXICALLY, autistic children have been described at times as extremely intelligent and at other times as severely retarded (cf. Rimland, 1978). For example, teachers are often puzzled by autistic children appearing very intelligent in isolated areas yet also giving the appearance of being unable to learn relatively simple tasks such as self-help and basic language skills. As late as 1978, Rutter reported that approximately 75% of autistic children could be expected to function at a retarded or severely retarded level throughout life. This 'retardation', however, appears to be highly variable across tasks and situations. For example, such children have been described as extremely unmotivated during testing and in other circumstances where demands are made of them (Koegel & Egel, 1979; Mittler, 1966) and seem to perform especially poorly under such conditions. These and other observations have led researchers to question whether autistic children's typically very low level of performance reflects an inability to learn, or instead a possible lack of motivation to learn.

EFFECTS OF FAILURE ON MOTIVATION

A number of researchers have suggested that motivation may be depressed, performance impaired and task avoidance increased by repeated experiences of failure (Clark & Rutter, 1979; MacMillan, 1971; Rodda, 1977). This is particularly pertinent to autistic children as the severity of their handicap may result in them being repeatedly exposed to failure. In addition, pathological failure in autistic and schizophrenic children has been found to increase dramatically during exposure to failure (Churchill, 1971). It has also been noted that as autistic children frequently respond incorrectly when attempting a task, noncontingent reinforcement or unusual accidental contingencies of reinforcement may be created and the attempts the child does make may either go unrewarded or be minimally rewarded (Koegel & Egel, 1979). These conditions may thus serve to decrease further their motivation.

In contrast, the positive influence of success on motivation was clearly demonstrated in a study conducted by O'Dell, Dunlap & Koegel (1983). They compared the effectiveness of two reinforcement contingencies on the verbal responding of four autistic children with severe communication delay. They found that all the children achieved higher percentages of correct verbal responding and progressed more rapidly when a 'motivation' contingency was used in which the children's

Requests for reprints to: Autism Research Center, University of California, Santa Barbara, CA, U.S.A.

observable attempts to verbalize were reinforced. The other, less successful contingency used was a more narrowly defined shaping contingency under which only very strictly defined successive approximations to a target verbalization were reinforced regardless of how hard the child was 'trying'. The former (attempts) contingency was superior in all areas. In addition to improvements in their learning, when the children's affect was rated by naive observers all the children were judged to be happier, more enthusiastic, more interested and better behaved when their verbal attempts were reinforced. The results suggest that by reinforcing communication attempts, the children's motivation to maintain interest and attention in a task may be increased and that, at least for this severely handicapped population, it may be more important to increase motivation before further refining the types of behaviour that are being taught through shaping.

LEARNED HELPLESSNESS

A further significant implication of this study relates to the notions of success and failure and of learned helplessness. Seligman and his colleagues have argued that learned helplessness results from learning that reinforcement and responding are independent (Miller & Seligman, 1975; Overmier & Seligman, 1967; Seligman & Maier, 1967). They state that such learning serves to: "lower performance by reducing the incentive for instrumental responding, which results in lowered response initiation. In addition, learning that reinforcement and responding are independent interferes with learning that responses later control reinforcements" (Miller & Seligman, 1975, p. 228). Learned helplessness thus results in individuals being slow to initiate responses and in their having greater difficulty in learning the response-reinforcement contingency. It has been suggested that the types of behaviours shown in learned helplessness studies are very similar to those exhibited by autistic children (Koegel & Egel, 1979). Seligman, Maier & Geer (1968) have suggested that the maladaptive behaviours associated with learned helplessness may be corrected by enforced exposure to the response-reinforcement contingency. In the above study, as the children experienced more success during the attempt condition they experienced the response-reinforcer contingency more frequently. Dunlap (1984) also found a similar positive effect by interspersing well-learned maintenance tasks among new tasks being taught, suggesting that there may be a generalized positive influence obtained when autistic children obtain more experience with response-reinforcer contingencies.

The notion of learned helplessness and the suggestion that success may heighten motivation was also discussed in a study conducted by Koegel & Egel (1979). They investigated the effect on motivation of correct vs incorrect task completion. Their results indicated that the children's motivation (which was defined in terms of the children's attempts to complete a task and the level of enthusiasm the child displayed) decreased to extremely low levels when they worked on tasks that they did not complete correctly. However, when the children were prompted to keep responding until they had completed the tasks correctly, their motivation to respond to those tasks was markedly increased. The results are thus consistent with those reported by

O'Dell, Dunlap & Koegel (1983) and suggest that the experience of failure may result in decreased motivation, and that by increasing successful task completion, motivation may be heightened. This may be done through prompting, as in the above study, by interspersing maintenance tasks (Dunlap, 1984) or by altering the reinforcement contingency so that attempts are reinforced regardless of whether they are followed by success (O'Dell *et al.*, 1983).

In a related study investigating the variables controlling social avoidance behaviour (Dyer, Bell & Koegel, 1983) it was found that when autistic children engaged in child-preferred activities, decreased levels of social avoidance behaviour were exhibited. On the basis of these results the authors suggested that by being able to direct the social situation, increased success in this situation was experienced and social approach behaviour was therefore reinforced. Thus by maximizing the child's chances of success, motivation to engage in social approach behaviour was heightened and, by being reinforced for this behaviour, the generalization and maintenance of the behaviour was increased. These results are also significant in that the child's motivation was maintained by reinforcement contingencies occurring in the child's everyday life, important for the continued maintenance of the behaviour.

SHARED CONTROL AND INCREASED SUCCESS

Recently, several studies have investigated the effects of shared control and the use of child-preferred activities on the motivation of autistic children. Although the results of these studies are preliminary, they strongly suggest that the motivation of autistic children can be significantly increased and that this may result in increased generalization and maintenance of learned behaviour.

It has been suggested that by giving autistic and other children some control over the choice of topic of conversation, the materials to be used or the activities to be engaged in, an increased level of interest and motivation in the activity may be achieved (Dyer *et al.*, 1983; O'Dell & Koegel, 1981; Turner, 1978). This is an important consideration as it has been reported that the major type of interaction between adults and autistic children seems to be adult-directed demands and requests (Bernard-Opitz, 1982; Duchan, 1983). In a study conducted by Wetherby (1982) autistic children were found to initiate communication with adults in a free-play setting frequently. As this is inconsistent with anecdotal reports in the literature that autistic children lack spontaneous use of communication, Wetherby suggested that the results she obtained may have been due to the fact that the adult in her study was non-directive. She felt that this gave the child opportunities to engage in child-preferred activities rather than those selected by the adult. Similar results were obtained by Bernard-Opitz (1982), who found that an autistic child initiated communication more frequently when the parent was instructed not to initiate communication with her child, but only to respond to her child's initiations. It may be suggested that the increase in the child's initiations was due to her increased control in the interaction once she was able to initiate topics with a high probability of success.

In a related study described by O'Dell & Koegel (1981) a natural language paradigm of treatment delivery was more successful than a repetitive practice paradigm. Two of the variables differentiating the 'natural language paradigm'

from the 'repetitive practice paradigm' were turn-taking and shared control. In the natural language paradigm, turn-taking (the exchange between the speaker and listener that takes place in normal conversation) and shared control (the sharing by both the child and the clinician of the topic and the control over the communicative act) were major factors in delivering the stimulus materials. If the child indicated with an appropriate vocal request that the activity should be discontinued, or that a new activity should be started, the clinician would comply. Thus in this treatment approach both the child and the clinician were active participants in the activity. In the 'repetitive practice paradigm', however, a drill format was used in which repeated trials were presented by the clinician who then waited or prompted the child to respond (i.e. used clinician control). A marked difference was found between the two methods of language intervention regarding the children's utterances in the imitative, deferred imitative and spontaneous utterance categories. In the 'natural language paradigm' the results indicated an increased use of appropriate, spontaneous and generalized speech and language, whereas in the 'repetitive practice paradigm' the results showed a low level of imitative and spontaneous production of target words, and negligible evidence of generalization. These results and those of related research (cf. Hart & Risley, 1980; McGee, Krantz & McClannahan, in press; Neef, Walters & Egel, in press) suggest that a 'natural language paradigm' may be a useful form of treatment as it increases the child's interest and motivation to learn and facilitates generalization of acquired skills. Generalization is further facilitated by the fact that the programme utilizes stimulus events and contingencies which more closely approximate the child's natural environment.

That choice may be a significant motivational variable for autistic children was further demonstrated in the previously mentioned study by Dyer *et al.* (1983). They found that decreased levels of social avoidance behaviour were exhibited when the children engaged in child-preferred activities and that higher ratings of interest and involvement in the social interaction were obtained when the toys and topics for conversation were selected by the child. They also found that a child who participated in a long-term clinical intervention exhibited a generalized reduction of social avoidance responses after clinical intervention. Thus it may be suggested that generalization and maintenance of appropriate behaviour was facilitated by the child's increased motivation in interacting with strangers, resulting from the child taking some control of the interaction and introducing preferred topics.

These results are consistent with what has been reported in associated areas. Studies in the normal population have suggested that when a subject is given a choice in the selection of the antecedent stimuli, motivation is increased. In addition, opportunity for choice has been found to affect learning ability and the generalization of the learned behaviour significantly (Blackwell, 1975; Kail, 1975; Monty, Rosenberger & Perlmutter, 1973). In a study conducted by Turner (1978) with two preschool language-impaired children, interest in the remediation setting was increased when they were given a choice of stimulus materials. In addition, she found that language structures learned during this condition were more likely to generalize to extra-clinic settings than when materials were selected by the experimenter.

The above studies suggest that the low motivation demonstrated by autistic

children can be increased in a setting where the control is shared by the child and clinician and where the child is given a choice regarding the selection of materials, activities and topics. In addition, they suggest that increased motivation may facilitate generalization and maintenance of treatment gains as the child is moving towards functioning in the environment in a manner more similar to that of normal children. This may be facilitated by eliciting teacher, parental, sibling and peer support in giving the child opportunities to initiate communication and select preferred topics, activities and toys.

CONCLUDING COMMENTS

The results of the above research suggest that the motivation of autistic children can be increased and that this may be a crucial variable in the acquisition, generalization and maintenance of their treatment gains. This is because the emphasis is being placed on helping the autistic child respond in a manner more similar to that of normal children. The low level of motivation evident in autistic children may inhibit the acquisition of new skills and restrict the generalization and maintenance of acquired skills beyond treatment settings. However, it seems that if their motivation can be increased, this will result in the acquisition and maintenance of a much wider range of behaviour. Thus motivation may be a key target behaviour which could result in more widespread behaviour change than has typically been seen in the past.

Although the research is still in its infancy, it has led to the identification of some of the variables that influence autistic children's motivation. Sensory reinforcers have been found to be powerful for autistic children, and have the advantages of being more resistant to satiation than primary reinforcers such as food (cf. Rincover, Newsom, Lovaas & Koegel, 1977). The variation of antecedent and consequent stimuli has also been shown to influence autistic children's motivation and thereby maintain a high level of responding (Dunlap & Koegel, 1980; Egel, 1980, 1981). A most significant finding in this area is the relationship that has been found between success and motivation. By encouraging autistic children to respond until they successfully complete tasks, their motivation to perform such tasks in the future may be increased. A further significant finding is that by increasing the child's control of the environment, success and motivation may be increased. This can affect a number of other behaviours and may result in widespread generalization and maintenance of a number of types of behaviour. In doing so, steps are being taken to enable the autistic child to function in a way that will be more effective in learning and maintaining new skills. However, these are essentially the first steps; while several ways to increase the autistic child's motivation to work on specific tasks within treatment have been identified, less research has been directed towards identifying how the child's motivation in the natural environment can be enhanced. The further development of more powerful motivational techniques for use with the autistic child may represent one of the major challenges to researchers in the field today.

SUMMARY

Research in the area of motivation in autistic and other children suggests that autistic children may be capable of performing at a higher level than they typically function. This article describes research in the area of 'learned helplessness' which suggests that autistic children's handicaps may expose them to frequent failure and to an unusual level of non-contingent reinforcement which may produce a 'learned helplessness' state of extremely low motivation, with a consequent abnormally low overall functioning level. The present article also discusses research on strategies which might be employed to improve autistic children's exposure to favourable response-reinforcer contingencies. This would be expected to improve the general level of motivation in such children, with related gains in the acquisition, generalization maintenance of a broad array of target behaviours.

Acknowledgements—Preparation of this annotation was supported in part by the U.S. Department of Education, Special Education Program Contract No. 300-82-0362 and by U.S. Public Health Service Research Grants MH28210 and MH28231 from the National Institute of Mental Health.

REFERENCES

- Bernard-Opitz, V. (1982). Pragmatic analysis of the communicative behavior of an autistic child. *Journal of Speech and Hearing Disorders*, **47**, 99-109.
- Blackwell, L. R. (1975). *Student choice in curriculum, feelings of control and causality, and academic motivation and performance*. Unpublished dissertation.
- Churchill, D. W. (1971). Effects of success and failure in psychotic children. *Archives of General Psychiatry*, **25**, 208-214.
- Clark, P. & Rutter, M. (1979). Task difficulty and task performance in autistic children. *Journal of Child Psychology and Psychiatry*, **20**, 271-285.
- Duchan, J. F. (1983). Autistic children are noninteractive: or so we say. *Seminars in Speech and Language*, **4**, 53-61.
- Dunlap, G. (1984). The influence of task variation and maintenance tasks on the learning and affect of autistic children. *Journal of Experimental Child Psychology*, **37**, 41-64.
- Dunlap, G. & Koegel, R. L. (1980). Motivating autistic children through stimulus variation. *Journal of Applied Behavior Analysis*, **13**, 619-627.
- Dyer, K., Bell, L. K. & Koegel, R. L. (1983). *Generalized reduction of social avoidance behaviors in autistic children*. Paper presented at the American Psychological Association Annual Convention, Anaheim, CA.
- Egel, A. L. (1980). The effects of constant versus varied reinforcer presentation on responding by autistic children. *Journal of Experimental Child Psychology*, **30**, 455-463.
- Egel, A. L. (1981). Reinforcer variation: implications for motivating developmentally delayed children. *Journal of Applied Behavior Analysis*, **14**, 345-350.
- Hart, B. M. & Risley, T. R. (1980). *In vivo* language intervention: unanticipated general effects. *Journal of Applied Behavior Analysis*, **13**, 407-432.
- Kail, R. V. (1975). Freedom of choice, task performance and task persistence. *Journal of Experimental Education*, **44**, 32-34.
- Koegel, R. L. & Egel, A. L. (1979). Motivating autistic children. *Journal of Abnormal Psychology*, **88**, 418-426.
- MacMillan, D. L. (1971). The problem of motivation in the education of the mentally retarded. *Exceptional Children*, **37**, 579-586.
- McGee, G. G., Krantz, P. J. & McClannahan, L. E. (In press). The facilitative effects of incidental teaching on prepositional usage by autistic children. *Journal of Applied Behavior Analysis*.

- Miller, W. R. & Seligman, M. E. P. (1975). Depression and learned helplessness in man. *Journal of Experimental Psychology*, **84**, 228-238.
- Mittler, P. (1966). The psychological assessment of autistic children. In J. K. Wing (Ed.), *Early childhood autism: clinical, educational and social aspects* (pp. 145-158). London: Pergamon Press.
- Monty, R. A., Rosenberger, M. A. & Perlmutter, L. C. (1973). Amount of locus of choice as sources of motivation in paired-associate learning. *Journal of Experimental Psychology*, **97**, 16-21.
- Neef, N. A., Walters, J. & Egel, A. L. (In press). Establishing generative yes/no responses in developmentally delayed children. *Journal of Applied Behavior Analysis*.
- O'Dell, M. C., Dunlap, G. & Koegel, R. L. (1983). *The importance of reinforcing verbal attempts during speech training with nonverbal children*. Paper presented at the American Psychological Association Annual Convention, Los Angeles, CA.
- O'Dell, M. & Koegel, R. L. (1981). *The differential effects of two methods of promoting speech in non-verbal autistic children*. Paper presented at the 1981 Annual Convention of the American Speech-Language-Hearing Association, Los Angeles, CA.
- Overmier, O. B. & Seligman, M. E. P. (1967). Effects of inescapable shock upon subsequent escape and avoidance learning. *Journal of Comparative Physiological Psychology*, **63**, 28-33.
- Rimland, B. (1978). Inside the mind of an autistic savant. *Psychology Today*, **12**, 68-80.
- Rincover, A., Newsom, C. D., Lovaas, O. I. & Koegel, R. L. (1977). Some motivational properties of sensory reinforcement in psychotic children. *Journal of Experimental Child Psychology*, **24**, 312-323.
- Rodda, M. (1977). Language and language-disordered children. *Bulletin of the British Psychological Society*, **30**, 139-142.
- Rutter, M. (1978). Diagnosis and definition. In M. Rutter & E. Schopler (Eds), *Autism: a reappraisal of concepts and treatment* (pp. 1-26). New York: Plenum Press.
- Seligman, M. E. P. & Maier, S. F. (1967). Failure to escape traumatic shock. *Journal of Experimental Psychology*, **74**, 1-9.
- Seligman, M. E. P., Maier, S. F. & Geer, J. (1968). The alleviation of learned helplessness in the dog. *Journal of Abnormal and Social Psychology*, **73**, 256-262.
- Turner, B. L. (1978). *The effects of choice of stimulus materials on interest in the remediation process and the generalized use of language training*. Unpublished thesis, University of California, Santa Barbara, CA.
- Wetherby, A. (1982). *Communicative, cognitive, and social development in autistic children*. Unpublished dissertation, University of California, San Francisco, CA.

This document is a scanned copy of a printed document. No warranty is given about the accuracy of the copy. Users should refer to the original published version of the material.