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DOCUMENT RESUME

ABSTRACT
          The results of a group of studies, the objective of
which was to clarify the conditions that account for the
effectiveness of verbal approbation, are reported. Among the most
significant findings were: (1) that the reinforcement properties of
verbal approval are susceptible to distortion, misinterpretation or
enhancement and must be applied in a consistent information-giving
manner; (2) that high prior frequency of occurrence does not
necessarily lead to a lowered effectiveness of verbal approval (i.e.
satiation); (3) that the pre-experimental indiscriminative use of
social approval can override experimental manipulation; and (4) that
disapproval words are quite effective, regardless of prior,
pre-experimental use, in the control of children's learning. (TL)

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Final Report

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<u>Name of Institution:</u>   Department of Psychology, Indiana University

<u>Title of Project:</u>   The role of social rewards in children's learning and

performance.

<u>Name of Project Director:</u>   Robert B. Cairns

Summary of Major Research Activities and Their Significance

The objective of the studies completed under the terms of this grant
was to clarify the conditions that account for the effectiveness of verbal
approbation. Toward this end, the research used both experimental and
observational research procedures. The results of the major studies will be
summarized below. Detailed accounts of the procedures and methodology of
the studies are provided in the independent reports that appear in the
Appendix.

1. The enhancement of social reinforcement through the induction of inform-
ation properties.

a. Experimental manipulation of meaning and attention. The first
question with which this research dealt was the effectiveness of verbal
approval in facilitating the child's learning. Will children learn faster
if they are rewarded than if they are not? Surprisingly, the evidence with
regard to this most basic question is equivocal. In the initial study,
appropriate non-reward control conditions were included to obtain information
on the extent to which social rewards do in fact facilitate learning. Strik-
ingly, the differences between rewarded and nonrewarded groups were minimal.
That is, given a simple concept formation task--one that is well within the
range of the child's ability--primary school children who are given social
rewards for correct performance hardly differ from children who are not
rewarded.

The hypothesis suggested by the initial results was that children were
not attending to--or failed to comprehend the relevance of--the approval
behavior of the experimenter. We speculated that the reason that the children

did not pay attention to the experimenter's approval was that the events had

previously been used indiscriminatively in the child's everyday experience.

In other words, it may be the case that approval had not been consistently

associated with the accuracy or inaccuracy of the child's specific responses,

referring instead to nonspecific qualities of the child.

To explore this hypothesis, we thought it would be of theoretical and

practical importance to attempt to make the adult's approval more effective

by enhancing its validity. The relevant experiments (Cairns, 1970) were

conducted in two stages. In the first stage, the approval responses of the

experimenter occurred as discriminative, highly informative signals. In the

second stage, the effectiveness of the verbal event as a reward was assessed.

To insure that the presumed increase in effectiveness reflected the "discrim-

inative" use of approval, three additional control conditions were included

in the initial stage. One was the "continuous" condition, where the event

occurred on every trial, regardless of outcome. Presumably this "systematic"

use of approval--after every response-- would signal to the subject that his

performance was progressing smoothly and its omission should be highly dis-

tinctive. Another condition was the "ambiguous" or random group. In this

instance, the signal (the word "right") was randomly paired with the outcome

event. Hence, no new information was to be gained in the experimental mani-

pulation proper. The final experimental condition was the negative-discrim-

ination condition. For this group approval occurred if and only if a bell

was not delivered. This meant that approval was necessary and sufficient

condition for the nonoccurrence of a bell. Parallel conditions--one with

verbal comments and the other with a buzzer--were conducted in each of the

several conditions to yield a balanced factorial design.

The upshot of the results was that the signal properties of approval can indeed be manipulated by using them as discriminative or as random signals (Cairns, 1970). The conditions where the events were used in a fashion consonant with their prior usage (e.g., approval as a positive signal and the buzzer as a negative signal) yielded strong experimental effects in the expected direction. Furthermore, if approval occurred as a random event in stage 1 (the manipulation phase), the children tended to ignore it in phase 2 (the learning phase). These data provide strong support for our original contention that the reinforcement properties of verbal approval are directly susceptible to distortion, misinterpretation, or enhancement according to their contemporary usage.

Recent theoretical discussions of evaluative comments assume that while it is possible to attenuate the efficacy of approval-assent words by special operations, these events are normally effective as reinforcing stimuli (Gewritz, 1967; Hill, 1968). This faith in the reinforcing efficacy of verbal events is reflected in the label used to refer to these events, i.e., social reinforcers. A reasonable body of information is now accumulating that suggests the faith is misplaced and the label misleading. As the results obtained in the control groups of this study confirm, social reinforcers are not necessarily rewarding in terms of the operations that have been traditionally employed to assess reinforcement properties. What seems called for is re-examination of why it is that the events are sometimes effective in behavioral control, rather than assuming reinforcement effectiveness to be an intrinsic property of the stimulus class.

b. The satiation of social reinforcement: a function of frequency or ambiguity? In further analyses of the principal determinants of social reinforcement events, the research critically examined the proposition that social reinforcement effectiveness was controlled by a "social drive" state, in a fashion analogous to primary drive states. A rather widely held view of social rewards has been that these events vary as a function of the number of times that they had been previously used. This "satiation" phenomenon has been assumed to be direct evidence for the proposition that the incentive values of social rewards are controlled by internal processes that are the same as the ones that control primary biological states.

The procedure developed in the first set of studies was applied to the general question as to whether or not the "satiation" model is an appropriate one for the analysis of social rewards. The approval of the experimenter occurred under one of four conditions in this study. First, approval was dispensed at a low density, but under conditions of high validity (i.e., only when candy was delivered). Second, approval occurred again at a low density, but under indiscriminative conditions (unrelated to candy delivery). The final two conditions involved the high density occurrence of approval, one under conditions of discriminative pairing and the other under conditions of nondiscriminative pairing. The point of these conditions was to determine whether the effects of "satiation" could be attributed to the frequency of prior occurrence or to discriminative or informational prior occurrence. Another group of 20 children served as a non-rewarded control group, to determine again what effects are obtained when the child is tested without any prior presentations of social rewards.

The results strongly support the conclusion that high prior frequency
of occurrence does not necessarily lead to a lowered effectiveness of
verbal approval (Warren & Cairns; 1971). In the group that obtained repeated
presentations of discriminative approval, the effectiveness of the event was
enhanced. That is, rather than obtaining the satiation effect—as might have
been predicted from a social drive model—the control properties of approval
were increased by repeated presentation. Again, these findings provide
impressive support for the proposition that social approval effectiveness
varies as a function of the amount of information that the event conveys to
the child. If approval occurs indiscriminatively or randomly, its effective-
ness becomes minimal. If, however, it occurs in a discriminative or reliable
fashion, its effectiveness is immediately enhanced.

2. The enhancement of social reinforcement through definition and verbal
structure.

a. Informational determinants of social reinforcement effectiveness
among retarded children.   prior work had shown that the effectiveness
of "praise" words for normal children ould be markedly enhanced by delimiting
and clarifying their informational properties through definition. If the
verbal event is preceded by a brief instructional statement that brings the
child's attention to the event and clarifies its meaning in the experimental
context, then the child's performance improves strikingly (Cairns, 1967;
Hamilton, 1969; Spence, 1966). Parallel gains are produced when the instruc-
tional set is given in conjunction with events that have little or no previousl.
established informational properties (e.g., a buzzer).

next investigation asked whether the performance of children assigned

to special education classrooms could be as markedly influenced through rein-
focement structure as that of their peers in regular classes. In view of the
common assumption that approval-assent is a preferred, if not the primary,
means of motivating and reinforcing children who have learning disabilities, a
direct test of the question seemed called for. Seventy-two children from
special education classrooms were administered a concept identification test
under one of six reinforcement conditions. Two classes of outcome events were
used in conjunction with three levels of information structure. One of the
classes included foreign words that were unfamiliar to the children--or to
most other persons. (One of the words--galat--was a Pakistani term meaning
"wrong" and the other word--awhe--was a Polynesian term meaning "so be it").
For some children, these words simply occurred following their choice on the
concept formation task, while for other children, these words had been explicitly
defined as meaning "correct." The other words used were common terms of social
approval--"good" and "fine." A similar breakdown of instructed and noninstructed
conditions was followed in the use of these "familiar" or "meaningful" terms.
Each child was assigned to one of the six conditions in the 2 X 3 factorial
design (i.e., 2 types of stimuli and 3 levels of information structure).

The results indicate that the undefined use of the nonsense words or the
"familiar" words yielded the parallel (nonsignificant) results (Cairns & Paris,
1971). Retarded children, like normal ones, do not learn under the "typical"
conditions of social reinforcement. What was somewhat surprising in the present
results was the finding that the definitional structure--where the children
were told what "good" and "fine" meant in this context--was ineffective in
enhancing the value of social approval words. Even after they had been apprised

of the meaning of approval in the experimental setting, the retarded
children continued to fail to use it in ordering their own behavior
On the other hand, the neutral terms were highly susceptible to information
induction. When the foreign terms were defined and used as outcome events,
performance was significantly enhanced.

A general conclusion consistent with these results is that the pre-experi-
mental indiscriminative use of social approval can override the experimental
manipulation. Even when the children were told that the approval words were
being used in a restricted and informational fashion, they did not make use
of them in their problem solving behavior. The novel and entirely unique
words, however, could be used quite effectively by the retarded children after
the definitions.

   b. _Informational_ _determinants_ _of_ _social_ _reinforcement_ _effectiveness_
among _normal_ _children_. The next set of studies was concerned with the differ-
ential plasticity of approval, disapproval, and neutral words. Children in
primary grades (6-9 years old) were studied in three experiments (total N =
180) designed to yield information on the baseline effectiveness and the rela-
tive plasticity of the cue properties of standard expressions of verbal
approval _and_ disapproval (e.g., "fine," "good," and "wrong"). "Effectiveness"
was determined by the extent to which the child ordered his behavior in a
two-choice discrimination learning task so as to elicit or avoid the evaluation.
Again, the cue properties of these expressions were manipulated by the defini-
tional set prior to the performance. The success of the instructional opera-
tions was determined by comparisons with (a) non-instructed control groups
and (b) parallel conditions in which the same instructions were given

regarding the meaning of neutral foreign terms (e.g., galat and awhe).

The findings were nicel, consistent with our prior work, summarized in the preceding studies (Paris & Cairns, 1971 b). Words of approval-assent proved to be minimally effective when they occurred without the benefit of an instructional set or prior discriminative use. The present three studies demonstrated in addition that they do not differ in effectiveness from nonsense words, and that both yield performance at near chance levels (when not defined). The new information provided by these studies concerned the baseline effectiveness of "disapproval" or negative words (e.g., "wrong," "that's incorrect"). These outcomes were highly effective in behavioral control regardless of the experimental condition. That is, they were effective even in the undefined condition--where no information had been given concerning their informational content for the present testing context. Finally, the efficacy of the experimental definitional procedures was again obtained. Both approval-assent words and nonsense words are heightened in effectiveness in an equal and parallel fashion by the instructional sets.

These results, and those of the studies that preceded this work, suggest the following conclusions:

a. Approval words are not a very effective means for facilitating learning in children, unless these words have been previously used in a highly explicit and unequivocally defined fashion;

b. Approval words as they are normally used hardly differ in effectiveness from nonsense or meaningless foreign words;

c. Disapproval words are quite effective, regardless of the circumstances or conditions of definition, in the control of the child's learning;

d. Interpretations of social reinforcers in terms of a social drive or special motivational process that can be "satiated" or "deprived" must be drastically revised to account for the finding that frequence qua frequency of social approval does not necessarily lead to a decrement in effectiveness. Under discriminative conditions of occurrence, the effectiveness of these words is enhanced by repeated occurrence.

3. Ethological studies of the use of approval and disapproval.

The final studies undertaken during the grant period concerned the evaluation of our hypotheses on the typical "indiscriminative" use of approval in the classroom. Recall that when "right" or other social reinforcers repeatedly occurred in a nonsystematic fashion, unrelated to the "correctness" or "incorrectness" or the child's specific actions, then its subsequent influence upon choice behavior was further diminished. It may be the case that a parallel process has occurred in situ for all of the children, prior to their entering the experimental context. To the extend that words of social approbation, such as "right" or "good" have been used indiscriminately outside the laborate their efficacy in the control of specific actions would have been diminished. This proposal is consistent with the "Pollyanna" phenomenon described recentl; by Boucher and Osgood (1969), i.e., that expressions of approval-approbation are sued more generously and diffusely than are expressions of disapproval.

To obtain direct information on this theoretical proposal, ethological analyses were made of the conditions under which the various expressions of approval-assent and disapproval typically occurred in primary grade classroor Using a time-sampling procedure, repeated observations were made in 12 differe classrooms. It was found that "social reinforcers" were used to serve a

variety of functions for the teacher, only a few of which could be categorized
as "rewarding" for the child (Paris & Cairns, 1971a, b). That is, the teacher
uses words of approval to organize her own behavior, to serve as stereotyped
transition words to move the class from one activity to another, and to indicate
that the child should continue working. Such "non-evaluative" uses of approval
are prevalent. For instance, many teachers use the words "Good" and "All right"
when they want a given child to terminate an interaction. The verbal behavior
serves, in this instance, as a signal for the child to go on to the next task.
The words are also used to begin a new activity, such as "Good, class, now we
will . . . " The referent for the "good" is indeterminant, and apparently does
not refer to any particular praiseworthy activity of a given child or the class
as a whole. As the data reported in Paris and Cairns (1971b) indicates,
teachers used approval to signal "correctness" in approximately only 39% of the
occasions in which it occurred. On the other hand, punishment words ("wrong",
"that's incorrect") were used less frequently than approval words. But when
they were used, they invariably referred to some changeworthy activity of a
particular child. These results are consistent with our proposal that "social
reinforcers" are not very reinforcing in the experimental context because of
their prior diffuse, nondiscriminative usage in the classroom. The success of
the laboratory analyses in enhancing the effectiveness of "typical" approval
words through their discriminative or informational usage raises the important
question of whether the essential process could be duplicated in the actual
teaching situation. The potential gains that would follow from enhancing the
effectiveness of the teacher's behavior in facilitating learning could be very
great indeed.

Dissemination Activities

The work conducted under terms of this grant has been reported in the relevant scientific journals and presented at professional meetings. These include the following:

Publications:

Cairns, R. B. Meaning and attention as determinants of social reinforcement effectiveness. Child Development, 1970, 41, December, Part 4.

Cairns, R. B., & Paris, S. G. Informational determinants of social reinforcement effectiveness among retarded children. American Journal of Mental Deficiency (in review).

Warren, V. L., & Cairns, R. B. Social reinforcement satiation: an outcome of frequency or ambiguity? Journal of Personality and Social Psychology (in review).

Cairns, R. B. Attachment and dependency: A psychobiological interpretation To appear in a volume of original essays, with J. L. Gewirtz, R. R. Sears, L. H. Yarrow, and M. S. D. Ainsworth.

Papers

Paris, S. G., & Cairns, R. B. Experimental-ethological studies of social reinforcement in children. Paper read at the Midwestern Psychological Association, Detroit, 1971.(a).

Paris, S. G., & Cairns, R. B. Experimental-ethological analyses of evaluative expressions among retarded children. Paper read at the Biennial Meeting of the Society for Research in Child Development, Minneapolis, 1971. (b)

The results of the studies reported in the MPA and SRCD papers which were presented with S. G. Paris are being prepared for independent publication. In addition, the same two authors have a theoretical paper underway which will integrate and summarize the parallel results of other workers. When these papers appear, appropriate acknowledgment will be given to the Office of Education.

Related to the work conducted over the grant period are two general reviews that the Project Director was invited to write. While the information contained in the reviews did not give a detailed report of the present research activities, the empirical background provided by studies did provide the general orientation which was reflected in the comments.

Cairns, R. B. Ontogeny and phylogeny: a behavioral integration. Review of Development and evolution of behavior (L. R. Aronson, E. Tobach, D. S. Lehrman, and J. S. Rosenblatt, eds.). In Science, 1971, 171, 270-271.

Cairns, R. b. Towards a unified science of development. Review of Early experience: comparative and developmental approaches. In Contemporary Psychology, 1970, 15, 214-215.

During the recent months, the Project Director served as a consultant for the Journal of Experimental Psychology and Journal of Personality and Social Psychology on manuscripts that were directly related to the present research.

Staff Utilization

Robert B. Cairns	Project Director
Scott Paris	Research Assistant
Gerald Forshee	Research Assistant

William McIntosh	Research Assistant
Judith Milakovich	Research Assistant

Future Activities

Work on the project has continued, and support funds are being requested from the National Center for Research. The areas in which the work is being extended include: (a) efficacy of techniques for training teachers in the discriminative usage of approval-approbation, (b) detailed accounts of the antecedents and consequents of social reinforcement delivery, and (c) a theoretical analysis of the roles that approval-assent events play in the maintenance of dyadic interaction sequences.