

*SOME THOUGHTS ON CORRESPONDENCE BETWEEN
SAYING AND DOING*

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Recent research on verbal-nonverbal correspondence is evaluated, and conceptual, methodological, and applied issues regarding correspondence are addressed. Directions for research concerning the correspondence training procedure and extended applications are suggested.

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The relationship between an individual's verbal and nonverbal behaviors is central to developmental processes (*e.g.*, the regulatory function of speech, learning to tell the truth), some forms of abnormal behavior (*e.g.*, psychopathy) and clinical procedures (*e.g.*, self-instruction training and verbal forms of psychotherapy). Explicit training of correspondence between saying and doing also may have importance for the field of applied behavior analysis because of its potential for helping to solve problems of generalization and maintenance. This potential remains relatively unexplored, although it was an implicit interest in early research (Israel and O'Leary, 1973; Risley and Hart, 1968) and somewhat more directly approached recently (Karoly and Dirks, 1977; Rogers-Warren and Baer, 1976). To the extent that correspondence training encourages the individual to produce his or her own verbal cues and enhances the controlling function of such cues, it would seem to have potential for generalization to other situations. The individual can generate those cues in other than the original training situation. Maintenance of behavior change might also be enhanced by

the individual producing verbal cues in the absence of external cues for behavior. The other potential focus of correspondence training—the control of nonverbal behavior via monitoring of corresponding verbal behavior—also suggests certain maintenance and generalization strategies. Certain nonverbal behaviors may be maintained in situations where it is inconvenient or undesirable to monitor and reinforce such behavior continually. The more accessible corresponding verbal behavior could be the target of controlling influences with occasional correspondence “training trials” to maintain the verbal-nonverbal correspondence. For example, parents might in this way influence their child's nonverbal behavior at some other time and/or outside the home. The purpose of the present paper is to examine the current status of research, conceptualization and application in correspondence training, and to suggest future directions. It is hoped that these suggestions will facilitate contributions to both the understanding and extended application of verbal-nonverbal correspondence.

Early Research

Applied research interest in correspondence proceeded from two strategies; (1) reinforcing changes in individuals' verbal behavior in hopes of thereby effecting changes in corresponding nonverbal behaviors or (2) “encouraging” indi-

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viduals to use their own verbal behaviors to change corresponding nonverbal behaviors. Early researchers investigated correspondence, that was presumed already to exist, from one or the other of these two approaches. Examples of the first strategy are attempts at verbal conditioning of aggressive acts, rate of verbal behavior, food preferences (Lovaas, 1961, 1964*a, b*), attention to toys (Sherman, 1964), and the social behavior of retarded adults (Brodsky, 1967). Research exemplifying the second strategy explored the effects of self-instructions on key, finger, and foot tapping (Bem, 1967; Birch, 1966; Meichenbaum and Goodman, 1969*a, b*), and resistance to rule-breaking (Monahan and O'Leary, 1971; O'Leary, 1968).

The two research strategies described above, reinforcement of verbal behavior and encouragement of self-instruction, both assume that some functional relationship exists between verbal and nonverbal behavior. Given that this relationship exists, increases in one category of behavior produce changes in the other category. The development of a functional correspondence between verbal and nonverbal behavior where it does not already exist, how this correspondence might be learned, and how persistent correspondence might be produced were not addressed.

While the above research investigated factors that influenced a presumed correspondence, Risley and Hart (1968) were the first to investigate directly the training of correspondence. Since, like the aforementioned investigators, their goal was to control nonverbal behavior via verbal behavior, and not just demonstrate the establishment of truthful reporting, they first established the desired verbal component. No concomitant change in the corresponding nonverbal behavior occurred. They then demonstrated that if a teacher rewarded a child for the desired verbalization *only* if it accurately reflected previous play behavior, a correspondence developed between what the child did and said, with the desired outcome that the child began to make the desired actions more often. With repeated reinforcement of this sequence of nonverbal and

verbal behavior, when reinforcement again became contingent on verbal behavior alone, the child continued both to do and to say. Children thus received reinforcement following a sequence of nonverbal and verbal behaviors, and correspondence was thus maintained.

Since the publication of the Risley and Hart findings, several studies attempted both to extend the application of correspondence procedures and to clarify the processes by which efficient training can occur (Israel and O'Leary, 1973; Karoly and Dirks, 1977; Rogers-Warren and Baer, 1976). The remainder of this paper attempts to explore issues related to the conceptualization of the correspondence process, current correspondence methodology and future directions for application and research.

Training Strategies

Instances of correspondence employed in existing research, and those that can be enumerated as important regarding future applications, can be categorized as one of two types defined by the sequence in which the target behaviors occur: verbal-nonverbal or nonverbal-verbal. The studies described in this paper have investigated one or both of these sequences. The authors express varying degrees of confidence as to whether these two procedurally different sequences reflect one process—verbal-nonverbal correspondence—or are two separate and not *necessarily* related sequences.

Risley and Hart (1968), who employed a nonverbal-verbal sequence, suggested that the "mechanism" by which their training procedure produced correspondence was a verbal control of nonverbal behavior. Given this assumption, Israel and O'Leary (1973) investigated the relative efficiencies of a do-say (child does and later reports what was done) *versus* a say-do (child says what will be done and later does it) training sequence producing correspondence. The authors employed two different say-do sequences; say-give reward-do-consume reward and say-do-give reward and consume reward. The do-say sequence, like the Risley and Hart procedure, was

do-say-give and consume reward. It was suggested that if a verbal control of nonverbal behavior was both the presumed "mechanism" and the desired outcome of correspondence training, then directly training a verbal-nonverbal sequence would be the more efficient procedure. Israel and O'Leary also suggested that two additional rationales for the say-do sequence could be found in Luria's (1961) suggestion that the speech of children in the 3- to 5-yr-old period is beginning to serve a regulatory function, and that this still-novel function might be encouraged by training the say-do sequence. Furthermore, since that verbal behavior is readily available and is a more versatile discriminative stimulus than nonverbal behavior, verbal behavior is more likely to prompt rehearsal and, thus, serve a regulatory or directive function. These authors found that both say-do sequences were indeed superior in producing correspondence. The first say-do sequence produced a mean per cent correspondence of 57.2, compared to 13.4 for the do-say sequence. The second say-do sequence produced a mean per cent correspondence of 54.6, compared to 16.7 for the do-say sequence. In addition, only the say-do sequence appeared to facilitate learning of the opposite sequence.

Rogers-Warren and Baer (1976) extended the demonstration of correspondence training to a different, more socially interactive, set of behaviors: praising and sharing. These authors made a fairly strong statement that both the say-do and do-say sequences are the same procedural approach, saying affecting doing. The primary difference, according to these authors, is that in the saying-doing sequences in previous research, the opportunity to do occurs almost immediately, whereas for the doing-saying sequence, the opportunity does not arise until approximately 23 hr later. Based on this conceptualization, the authors elected to pursue the do-say training sequence, viewing it as having greater range of control (time during which saying might affect doing) and thereby as more likely to produce generalization.

Though sympathetic to the notion of both sequences reflecting the same verbal-nonverbal process, it is suggested that greater caution be exercised in drawing such conclusions at the present time. Existing evidence (Israel and O'Leary, 1973) suggests that training a say-do sequence facilitates the subsequent acquisition of a do-say sequence. However, initial acquisition of a do-say sequence did not facilitate the subsequent acquisition of a say-do sequence. This suggests the possibility that the two training sequences may not necessarily reflect the same process, and at least indicates that the nonverbal-verbal training sequence is not necessarily the most likely to produce *this* type of generalization. The possibility that the verbal-nonverbal process is simply more efficient but not different from the nonverbal-verbal sequence of course remains. That the say-do sequence seems to produce more rapid acquisition of correspondence is supported by the finding of Israel and O'Leary (1973) and Karoly and Dirks (1977) in a tolerance type self-control situation. The greater range of control suggested by Rogers-Warren and Baer (1976) remains only an assumption. It has not yet been demonstrated that the length of time that reinforced statements affect corresponding behavior is greater following nonverbal-verbal correspondence training sequences.

Types of Correspondence

From both an applied and logical perspective, given the absence of empirical evidence, a more cautious approach is also suggested. Several different instances of correspondence are possible. A child may learn to use verbal behavior to control nonverbal-motor behavior in the manner suggested by Luria. A child can be taught to state certain intentions and to follow through on them. An adult can come to control a child's nonverbal behavior by reinforcing the corresponding verbal behavior. Further, a child can be taught to report accurately on previous nonverbal behavior. All these are instances of correspondence, but may not "generalize" from one to the other. Each of these may have to be

taught separately. The last instance, though descriptively a doing-saying sequence like those in the research described above, may be viewed by the child as different from other correspondence training and indeed *may not* contribute to acquisition of the presumed common process of verbal control of nonverbal behavior. In an applied sense, such skepticism seems desirable, in that it suggests that the socializing agent would be well advised purposefully to train *all* types of desired correspondence, thus not significantly relying on generalizations from one to the other.

Related to the issue of multiple forms of correspondence is the question of the focus of correspondence training. Is correspondence training intended to produce verbal control of nonverbal behavior? This is a focus on processes, such as increasing the production of verbal cues or mediators by the persons themselves or improving the controlling function of such mediators once produced. Alternatively, is the focus of correspondence training to allow control of less accessible nonverbal behavior by predominantly monitoring the corresponding verbal behavior alone? While these are not *necessarily* separate processes, prospects for a variety of effective applications and the current status of knowledge would seem to argue for retaining the facility, conceptually, both to separate and to integrate the two focuses.

The issue of the definition of correspondence is clearly of both methodological and conceptual concern. Descriptively, at least, two definitions of verbal-nonverbal correspondence are possible. *Positive correspondence* might be defined as the presence of both the verbal and nonverbal behaviors (saying X and doing X). The absence of both the verbal and nonverbal behavior (not saying X and not doing X) might be termed *negative correspondence*, though assuming that the absence of the two behaviors constitutes correspondence presents some logical-measurement difficulties. To date, experimental work in this area has employed the definition of correspondence herein labelled positive correspondence. A

negative correspondence definition seems to have some applicability when a do-say sequence of behaviors is employed and the focus is on the "veracity" of the child's report. However, such a definition seems to be of little interest when a do-say sequence is employed but the focus of interest is the verbal control of nonverbal behavior. The negative correspondence definition also does not seem to be applicable to investigations employing a say-do sequence. An exception to this may be in future extensions that examine inhibitory verbalizations—"do not" sentences.

A related methodological issue is the choice of dependent variable to be reported. Both Risley and Hart (1968) and Rogers-Warren and Baer (1976) chose to present the percentage of children doing and the percentage of children saying the target behavior. Israel and O'Leary (1973) reported the percentage of children exhibiting correspondence. While reporting percentages of doing and saying is defensible on a number of grounds, the present author's preference remains for the later dependent measure. Employing the former measure permits possible distortion of results, especially during the period in which a correspondence is being acquired. To take an extreme example; children A, B, C, and D say but do not do "X", while children E, F, G, and H do "X" but do not report it. This is graphed as 50% saying and 50% doing—the reader abstracts that half of the children exhibited correspondence, when in reality none did. Though in initial research it may have been important to demonstrate visually the initial "independence" of the verbal and nonverbal behaviors, sufficient support for this is now available. Furthermore, empirical support exists for conceptualizing the original verbal content phase as an experimental control procedure and not a necessary precursor to correspondence training (Israel and Brown, 1977). Given the above considerations, the investigator should evaluate whether reporting of the separate behaviors is deemed to be necessary. For example, the development of psychopathy is a yet unexplored

area of correspondence research where separate measures of saying and doing might be seen as important. However, it is suggested that percentage correspondence be employed as the major dependent measure in most research. Authors might communicate, through footnotes, their preparedness to make available the separate saying and doing data.

One final methodological point, as indicated above—reinforcement of verbal content alone before reinforcement of correspondence—does not seem necessary in order to produce correspondence and the subsequent control of nonverbal behavior via monitoring of verbal behavior alone. However, if one is primarily concerned with controlling nonverbal behavior via control of verbal behavior, then it does seem necessary to follow correspondence training with a phase in which the verbal behavior is predominantly or exclusively the contingency for reinforcement and changes in the corresponding nonverbal behavior are observed. In earlier studies, this sequence was consistently employed. Rogers-Warren and Baer (1976), in their series of training packages and studies, followed this procedure only once—and then for a somewhat different reason. They have thus demonstrated that a correspondence for both sharing and praising can be trained. Control of praising and sharing behavior through reinforcement of the corresponding verbal behavior, however, does not seem sufficiently demonstrated. The present state of correspondence research would suggest not abandoning this verbal content phase. Retaining this phase, or a similar phase where regular reinforcement of correspondence is absent, allows the effects of prior training of the correspondence contingency to be evaluated, and therefore seems indicated.

The present paper has briefly examined the existing correspondence literature and explored certain methodological-conceptual concerns. The question of whether verbal-nonverbal correspondence can be presumed to be a unitary phenomenon was primary of these issues. Caution concerning this assumption was suggested and

perhaps procedures that facilitate such "generalization" should receive early attention. Furthermore, avenues of possible future research were suggested. Those that seem likely to yield important information concerning applications and limitations of correspondence training are especially encouraged.

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