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THE PURSUIT OF ACTUAL PROBLEM-SOLVING BEHAVIOR: AN OPPORTUNITY FOR BEHAVIOR ANALYSIS

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ABSTRACT: The generalization of trained verbal problem-solving skills to overt performance has been difficult to demonstrate and assess (Tisdelle & St. Lawrence, 1986). The few studies that have attempted to assess actual problem-solving behavior have used analogues or simulation situations. The most commonly used problem-solving training model was developed by D'Zurilla and Goldfried (1971). The model appears to have face validity because it is based on the process used by "normal" individuals when they attempt to solve complex, difficult, or unique situations. However, there are no systematic evaluations documenting the effectiveness of the model with the types of populations and problems it was initially designed to treat. In fact, it has been suggested that there is little empirical data supporting the widespread application of this model for solving problems (Tisdelle & St. Lawrence, 1986). Our paper discusses these issues and suggests some future directions in the assessment, training, and conceptualization of problem solving. In the process, we discuss generalization issues as they relate to actual problem-solving performance and offer suggestions for studying the motivational aspects of the problem-solving process.
Key words: problem solving, verbal behavior, generalization, skills development, verbal vs. actual behavior.

It is well known that there is generally little correspondence between what people say they would do in a situation and what they actually do (e.g., Krasnor & Rubin, 1981). Yet, a long standing underlying assumption in problem-solving skills training has been that *in vivo* utilization of problem-solving skills would occur naturally following verbal problem-solving skills training. As a result, research has focused on obtaining verbal problem-solving skills acquisition and generalization of verbal skills to novel problems. However, actual problem-solving behavior does not necessarily follow verbal skills acquisition (Tisdelle & St. Lawrence, 1986), and the generalization of these skills to performance in actual problem-solving situations has been rarely studied and difficult to demonstrate and assess (Bellack, Morrison, & Musser, 1989; Tisdelle & St. Lawrence, 1986). Indeed, the few attempts to demonstrate that individuals trained to solve problems verbally will use their newly learned skills in actual problem-solving situations

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have been mainly disappointing. This has led some to question whether or not actual problem-solving behavior is even trainable (Bellack, et al., 1989).

Because two excellent reviews of social/interpersonal problem solving remain timely (Bellack et al., 1989; Tisdelle & St. Lawrence, 1986), the present paper limits its focus to the issue of why the demonstration of actual problem-solving skills behavior has been so difficult. In the process, we discuss the validity of the most popular problem-solving training model, assessment issues, training format problems, the failure to operationalize problem solving, motivational variables, the individuals targeted for training, and suggest tactics and strategies for perhaps enhancing skill generalization in actual problem situations. We also suggest an expanded conceptualization of what may constitute effective problem solving. We conclude with a suggestion for more study of problem solving by behavior analysts.

Factors Hindering Actual Problem-Solving Behavior

The Overreliance on One Model to Study Verbal Problem Solving

The historical overreliance on a single problem-solving skills training model may help explain the difficulty in demonstrating actual problem-solving behavior. Most interpersonal problem-solving research has focused primarily on a model developed by D'Zurilla and Goldfried (1971), who defined problem solving as "the process or technique by which one attempts to 'discover' a solution to a problem" (p. 109). The D'Zurilla and Goldfried model appears to have been originally designed as a form of therapy in the treatment of "normal" individuals with adequate repertoires of general performance skills but who were "dependent" on others for assistance in solving problematic situations or were experiencing emotional distress (i.e., anxiety) in their attempts to address major interpersonal conflicts or issues.

The D'Zurilla and Goldfried problem-solving intervention was based on the rationale that individuals displaying problem-solving deficits should use the same process as "normal" individuals to problem solve and that the mastery of the problem-solving process is a prerequisite for problem solving in real life. The training is conducted on what appears to be a logical ordering of component skills or stages. The training model focuses on four general components: 1) formulating or describing the problem clearly; 2) generating several response alternatives; 3) selecting the best solution; and 4) verifying the effectiveness of the selected solution. The component skills are usually taught separately to some criterion and evaluated using multiple-baseline designs.

Problem definition and formulation involves the identification and operationalization of all the relevant details and circumstances related to the situation so that concrete goals and objectives can be identified. Individuals are then taught to generate alternatives by considering previously emitted responses or response patterns and their association to the existing problem situation and then selecting and combining relevant responses in order to arrive at a number of

potential solutions. The various solutions resulting from this process are then evaluated and judged in regards to their response requirements and potential outcomes during a decision-making process. Lastly, the best course of action is practiced, typically in role-play, and further evaluations are made.

Despite the widespread application and face validity of the D'Zurilla and Goldfried (1971) model, there is little empirical data supporting its use for solving complex or simple problems (Bellack et al., 1989; Foxx & Faw, 1990; Tisdelle & St. Lawrence, 1986). Hence, the prevailing conceptualization of problem solving that has dominated skills training efforts for almost three decades does not appear to be applicable to the populations that typically receive training, for example, the chronically mentally ill (Bellack et al., 1989), developmentally disabled (Castles & Glass, 1986), and emotionally disturbed adolescents (Tisdelle & St. Lawrence, 1988).

Assessment Problems

The myriad of procedural and methodological difficulties that are presented in attempting to conduct truly natural assessments have inhibited the assessment of real life problem solving (Tisdelle & St. Lawrence, 1986). Thus, it is not surprising that the history of attempts to teach problem solving is characterized by an early reliance on verbal assessments such as self-reports (Spivack, Platt, & Shure, 1976) and later on the use of simulations and analogues (Tisdelle & St. Lawrence, 1988). Although analogues or simulations are designed to evoke *in vivo* problem solving, it has been difficult to identify problem situations that are both relevant or meaningful enough to do so and that can be assessed repeatedly in a practical fashion (Tisdelle & St. Lawrence, 1986).

Intuitively, a truly relevant problem should elicit problem behavior without the need for extra cues, prompts, or instructions from the assessor. Yet, in every assessment it has been necessary to provide explicit verbal cues (demands) that a problem-solving response was expected. For example, Edelstein et al. (1980) verbally intervened and prompted responses to problem-solving component skills when their adult psychiatric subjects failed to display problem recognition during a posttraining generalization assessment in an analogue setting. In a study by Tisdelle and St. Lawrence (1988) with inpatient adolescents, subjects were assessed on two contrived *in vivo* problem situations in which they were confronted and accused of either defacing, stealing or deliberately bumping into someone. In staged interactions with brain-injured individuals, Foxx and his colleagues (Foxx et al., 1988; Foxx, Martella, & Marchand-Martella, 1989) also included verbal stimuli that indicated that a problem-solving response was expected. Thus, although these studies have offered a more externally valid measure of problem-solving skills than those in previous research, each was somewhat confounded because there were explicit demands (i.e., someone's verbal prompts) that a problem-solving response was expected.

Clearly, a more externally valid assessment would involve determining whether individuals would independently recognize that a problem existed and then engage in the behaviors necessary to solve it. Such an assessment would reveal whether an individual's failure to problem solve is the result of a skill or performance deficit. For example, if pretested individuals do not recognize that a problem exists (i.e., fail to identify the problem situation as problematic or relevant to them), then their failure to exhibit problem solving is not an accurate reflection of their problem-solving abilities. Similarly, if individuals have no strong motivation to problem solve either via explicit or implicit demands or consequences, then there is no reason to expect that they will attempt to do so or regard the situation as problematic for them (D'Zurilla & Nezu, 1982). In both cases, the individuals' true problem-solving abilities may be drastically underestimated.

In order to obtain accurate measures of individuals' entry-level problem-solving skills, their problem solving should be preassessed under a number of conditions. For example, pretraining assessments should include all members of the three-term contingency. Thus, the assessed individuals should: a) be presented with salient discriminative stimuli (i.e., have ample opportunities to recognize that problems exist); b) be given reasonable opportunities to respond correctly (i.e., solve the problem); and c) have consequences follow their responding. The use of the featured salient discriminative stimuli would highlight problem situations in such a way as to rule out recognition deficits. To maximize the individuals' motivation to problem solve, preassessments should include opportunities for them to receive feedback and/or experience the consequences that result from effective or ineffective solutions. Individuals who failed to display problem-solving under these various conditions could be regarded as suitable candidates for training. Furthermore, these assessments could be arranged (i.e., by counter balancing conditions) to permit an in depth analyses of individual problem-solving deficits or sources of motivation.

Training Problems

The Training May Hinder In Vivo Performance. The difficulty in obtaining *in vivo* displays of problem-solving skills in actual problem situations following training may be somewhat related to the incongruity between the orderly sequencing of the stages or component skills that characterize training and how everyday problem solving occurs. For example, in the D'Zurilla and Goldfried (1971) training model a logical sequence of steps is taught serially, whereas everyday problem solving appears to represent unsystematic movement back and forth between various steps. Thus, while the use of a highly structured and sequenced training format may well promote skill acquisition, it may actually hinder the display of these skills *in vivo*. Hence, the difficulty in obtaining *in vivo* generalization may reflect the lack of correspondence between what is taught and what is functional.

The Discriminative Stimuli and Responses Associated With Problem-Solving Training Differ From Those in a Generalization Assessment. Training efforts have focused typically on teaching a verbal problem-solving strategy wherein problem situations are presented as discreet events that require a verbal solution (i.e., highly specific verbal discriminative stimuli occasioning verbal responding). In contrast, generalization assessment *in vivo* situations are integrated into a sequence of ongoing events that feature multiple verbal and nonverbal stimuli that require complex discriminations. To overcome this problem, future training efforts should consider including subtle and complex discriminative stimuli to occasion problem solving during training.

Training is Conducted in Isolation. Another hindrance is that training tends to occur in isolation. That is, problem solving is taught separate from other skill content areas and the massed trial training format appears to promote highly situation specific use of the "newly learned" problem-solving skills. Thus, the likelihood of generalization occurring to other persons, settings, and responses is greatly reduced. Both of the above issues suggest that future research should consider training more loosely, in more natural environments or contexts, and analyzing what skills represent everyday problem solving (e.g., Stokes & Baer, 1977).

The Failure to Operationalize Problem Solving

Another explanation for the failure to obtain generalized problem solving in the natural environment may relate to the failure to operationalize problem solving adequately. Perhaps future research should defer seeking to produce clinically significant changes (e.g., Hollon & Flick, 1988) and instead concentrate on how problem solving is operationalized and the contingencies that influence it (Deitz, 1978). For example, effective problem solving could possibly be operationalized as an individual's generalized use of a repertoire of solutions. Consider that it may be possible to create general "classes" of problem situations by grouping together those that have similar stimulus and response characteristics and then devising solutions that are general enough to be applicable to all members of a particular class. Conceptualized this way, individuals in need of training would be taught effective solutions and how to match them to the appropriate problem situations.

For example, the skills training research has identified inpatient adolescents as experiencing problems in addressing situations wherein they are unjustly accused (Foxx et al., 1989a; Tisdelle & St. Lawrence, 1988). The application of this approach might involve identifying those unjust accusations with similar stimulus and response characteristics, assembling a response "class" and then designing a response strategy that is applicable to all members of the "class" (i.e., calmly deny the accusation using appropriate language and offer other explanations). A number of other general response strategies could also be developed to address different types of "classes" of unjust accusations. Conceptualized this way, individuals in need of training would be taught effective solutions and how to match them to the

appropriate problem situation. Such an approach seems reasonable because it operationally defines problem solving in a way that permits it to be directly observed and suggests a methodology to teach (i.e., multiple exemplars) and study it (i.e., multiple baselines across "classes" of problem situations). It also appears to be somewhat analogous to the approach taken in the treatment of various types of clinical problems. Consider that an individual who is experiencing a marital problem is referred to "marriage counseling" whereas someone experiencing a family problem might be referred to a "family counselor." In each case, the problem type (i.e., marriage versus family) has been classified in accordance with its different stimulus and response characteristics. Furthermore, the respective therapy may actually consist of learning general solutions that are applicable across a wide range of marriage or family problems.

Motivational Variables

Another potential explanation relates to the trainees' motivation to problem solve. By their very nature, real-life problem-solving situations and responses (i.e., those upon which our norm-based training efforts are predicated) are typically relevant to the individual attempting a solution (i.e., contain demands to be solved) and are associated with positive/negative consequences. However, as others have incisively discussed (e.g., Tisdelle & St. Lawrence, 1986), contrived *in vivo* assessments contain no such consequences and the situations are hardly relevant and natural. Thus, whether or not individuals interpret a situation as problematic is inextricably determined by their motivation to solve the problem. Although this explanation is not new (see D'Zurilla and Nezu, 1982), it typically has been ignored in the programming and evaluation of problem-solving skills. Accordingly, future research should attempt to manipulate consequences and enhance the relevancy of the situations. This could increase the likelihood of obtaining an accurate assessment of the subjects' problem-solving skills and their legitimate efforts to use them, especially during pretesting.

Individuals Targeted for Training

The problem-solving literature has focused primarily on demonstrating that problem-solving skills can be taught to dysfunctional individuals (e.g., maladjusted children, emotionally disturbed adolescents, adult psychiatric patients), with the rationale being that improvements in these skills will result in improvements in overall social functioning. While this may or may not be accurate, the fact remains that the dominant training model and intervention was initially designed for individuals who displayed adequate repertoires of general performance skills but were unable to problem solve under situation specific conditions (D'Zurilla & Goldfried, 1971). As such, it would seem that individuals with general skills deficits (e.g., limited or dysfunctional cognitive, communication, and/or social skills) may not benefit dramatically from training based on such a complex cognitive model.

An Expanded Conceptualization of Problem Solving

The D'Zurilla and Goldfried model represents a conceptually elegant strategy for solving problems that ensures that a number of potential responses and consequences have been considered before a solution is implemented. However, it seems highly unlikely that one approach would be appropriate for every type or class of problem situation (Bellack et al., 1989). For example, the D'Zurilla and Goldfried model would appear to be an appropriate strategy for solving complex, difficult, or unique situations (e.g., surviving an in-depth tax audit, going through a divorce, deciding to sell one's house, change one's career, or country of residence), where a conceivably lengthy and comprehensive evaluative process may be possible and necessary. However, it would seem less applicable for solving problems encountered on a day-to-day basis that do not permit planning because timely responses are required. Such problems include a cashier overcharging subjects for items purchased (Edelstein et al., 1980) and accusations of defacing, stealing, or deliberately bumping into someone (Tisdelle & St. Lawrence, 1988). In situations such as these, the process of problem identification, goal definition, solution evaluation, evaluation of alternatives and selection of a best solution may prove to be somewhat cumbersome and impractical. Given that these types of actual problems are typically assessed in studies, should we be surprised that generalization has not occurred!

Most of the problems that maladjusted individuals encounter do not permit planning or detailed cognitive processing. For example, consider the formerly institutionalized individual who is approached by a policeman and asked why he is loitering near an expensive car. It is doubtful that the peace officer would wait for the person to generate several response alternatives, evaluate their consequences, and then select the "best" solution before simply rousting him.

Perhaps maladjusted individuals should be taught practical types of problem-solving strategies rather than an involved cognitive process one. Certainly, simple strategies might enable them to problem solve more effectively in the situations in which they commonly find themselves. Indeed, it appears as though effective problem solvers have a repertoire of different problem-solving strategies and are skillful at selecting and implementing the appropriate one. If so, then perhaps our research should include the development of a taxonomy of strategies. One way of perhaps facilitating this process would be to observe and evaluate the strategies used by successful problem-solvers.

This approach was taken by Foxx and his colleagues by asking "normal" individuals to provide written solutions to a variety of common problems (Foxx & Bittle, 1989; Foxx & Faw, 1990; Foxx, et al., 1989a, 1989b; Foxx, Marchand-Martella, & Martella, 1989). An analysis of the responses of "normal" individuals indicated that they addressed a set of questions related to the problem situation in forming a solution (i.e., Who should I talk to?, Where should I look for help?, and What should I say?). Thus, if an individual was experiencing a problem with a neighbor's dog incessantly barking, they would first talk to the neighbors and inform them of the problem. If that failed to solve the problem, then they would

seek the help of the police as well as indicate that less extreme attempts to remediate the problem have failed. Because these three principle questions appeared to adequately address a variety of everyday problematic situations, Foxx and his colleagues developed and evaluated a standardized problem-solving strategy and training program wherein a variety of maladjusted individuals were taught to ask themselves these basic questions in order to solve problems. Although the strategy was based on written accounts of how one would address problematic situations rather than direct observations, it represented the application of a systematized methodology in the development of "norm based" problem-solving strategies. In staged *in vivo* interactions, minimal pre to post improvements were reported for psychiatric subjects (Foxx & Faw, 1990), and low (14.8%) (Foxx, et al., 1988) to moderate (40.5%) (Foxx, Martella, & Marchand-Martella, 1989) increases in actual problem-solving behavior for brain-injured adult subjects.

Other practical behavioral types of strategies to address common everyday problematic situations need to be designed. In developing such strategies, consideration should be given to the types of general skills deficits or competing behaviors displayed by maladjusted individuals who have deficits in problem solving. Such individuals might be unprepared, skillwise, to independently address major crisis problem situations. Indeed, some may have significant and durable skills deficiencies that would seriously limit their capabilities to solve complex life crisis situations without having continuous access to supportive environments. However, they might possess adequate general skills to solve simpler problems that occur on a daily basis that "normal" individuals may not even regard as problematic. Thus, teaching such individuals strategies that could be acquired easily and that would enable them to effectively problem solve in their day-to-day environments is a clinically and empirically important endeavor.

Conclusions

In their discussion of social problem solving in schizophrenics, Bellack, et al., (1989) reached several conclusions: 1) research with a variety of populations revealed little transfer of training from one type of problem to another or even across different versions of the same problem; 2) the model that is the basis for most efforts (D'Zurilla & Goldfried, 1971) has face validity and heuristic value, but does not adequately account for problem-solving process in normal populations much less dysfunctional ones; 3) claims for the validity of any model and its' effectiveness should be tempered until its generalizability and range of applicability can be determined; 4) we must understand how problem solving occurs naturally before we can begin to develop effective technology to correct deficits and 5) much work was needed to develop an adequate assessment methodology. Little has changed since their article and hence research on problem solving has reached an impasse.

To us, this impasse represents an excellent opportunity for behavior analysts. There are several reasons why. First, behavior analysts distinguish between saying and doing. Thus, they would not be seduced by verbal problem solving but rather

would seek actual problem-solving behavior or the doing it. Second, behavior analysts would focus on direct observations of behavior rather than verbal descriptions of component skills. Third, behavior analysts would reject the study and measurement of cognition and instead study actual performance. Fourth, behavior analysts would utilize direct measures, natural assessments, and functional analysis.

Most importantly, behavior analysts have the conceptual legacy of Skinner's analysis of problem solving (Skinner, 1966). In this analysis, Skinner introduced the concept of rule-governed behavior which is either verbal or nonverbal behavior that is under the control of verbal antecedents. Rules can be privately or publicly self-produced or generated by others. The most effective verbal antecedents are self-generated. Rules that have the potential to alter how other stimuli function do so by specifying contingencies. The fundamental problem, as discussed throughout this paper, is that rule following does not necessarily occur in the presence of the rule (Catania, 1992). This, of course, demonstrates why rules do not always function as discriminative stimuli. Thus, problem solving, whether it be rule-governed or contingency-shaped behavior, remains a function of its consequences.

One promising area of research would be to view problem solving, especially by experts (e.g., Foxx, 1996a, 1996b; Sharpe, 1994), as occurring in a nonlinear rather than linear fashion. This would change the focus on problem solving as a sequence of steps or chain to an analysis of component/composite behavior relationships. Identifying the component skills that expert problem solvers exhibit could lead to some possible ways of increasing the likelihood that successful problem-solving behavior would occur. For example, Epstein and Skinner's Columban Simulation Project revealed that increasing the probability of various behavior components could increase the probability of a solution (in this instance a novel one) if the environment prompted and reinforced combining the components (Epstein, 1981). Or, the component analysis perhaps could be used to develop behavioral fluency (Binder, 1996). In this case, the components could be combined and built to high frequencies through focused component practice. Another benefit of building component fluency, rather than teaching a sequence of steps, is that fluency might produce a more flexible repertoire of high probability behaviors than the more rigid and therefore resistant to modification sequence approach. Such flexibility also might enhance the prospects of generalization.

In summary, a lack of problem-solving skills has prevented many dependent populations from making progress towards achieving independence. Yet, skill development and training have always been the strengths of behavior analysis. There is much that behavior analysis has to offer problem-solving skills research. It is our hope that this paper might serve as a catalyst for behavior analysts to apply their science and talents to this very important area of human behavior.

REFERENCES

Bellack, A. S., Morrison, R. L., & Mueser, K. T. (1989). Social problem solving in schizophrenia. *Schizophrenia Bulletin, 15*, 101-116. http://dx.doi.org/10.1093/schbul/15.1.101

Binder, C. (1996). Behavioral fluency: Evolution of a new paradigm. *The Behavior Analyst, 19*(2), 163-197.

Castles, E. E., & Glass, C. R. (1986). Training in social and interpersonal problem-solving skills for mildly and moderately mentally retarded adults. *American Journal of Mental Deficiency, 91*, 35-42.

Catania, A. C. (1992). *Learning*. (3rd ed.). Englewood Cliffs, NJ: Prentice-Hall.

Deitz, S. M. (1978). Current status of applied behavior analysis: Science versus technology. *American Psychologist, 33*, 805-814. http://dx.doi.org/10.1037/0003-066X.33.9.805

D'Zurilla, T. J., & Goldfried, M. R. (1971). Problem-solving and behavior modification. *Journal of Abnormal Psychology, 78*, 107-126. http://dx.doi.org/10.1037/h0031360

D'Zurilla, T. J., & Nezu, A. (1982). Social problem solving in adults. In P. C. Kendall (Ed.), *Advances in Cognitive Behavioral Research and Therapy* (Vol. 1, pp. 201-274). New York: Academic Press.

Edelstein, B. A., Couture, E., Cray, M., Dickens, P., & Lusebrink, N. (1980). Group training of problem-solving with psychiatric patients. In D. Upper & S. M. Ross (Eds.), *Behavioral group therapy, 1980: An annual review* (pp. 85-102). Champaign, IL: Research Press.

Epstein, R. (1981). On pigeons and people: A preliminary look at the Columban Simulation Project. *The Behavior Analyst, 4*, 43-55.

Foxx, R. M. (1996a). Twenty years of applied behavior analysis in treating the most severe problem behavior: Lessons learned. *The Behavior Analyst, 19*(2), 225-235.

Foxx, R. M. (1996b). Translating the covenant: The behavior analyst as ambassador and translator. *The Behavior Analyst, 19*(2), 147-161.

Foxx, R. M., & Bittle, R. G. (1989). *Thinking it through: Teaching a problem solving strategy for community living*. Champaign, IL: Research Press.

Foxx, R. M., & Faw, G. D. (1990). Problem solving skills training for psychiatric inpatients: An analysis of generalization. *Behavior Residential Treatment, 5*, 159-176.

Foxx, R. M., Kyle, M. S., Faw, G. D., & Bittle, R. G. (1989a). Teaching a problem solving strategy to inpatient adolescents: Social validation, maintenance, and generalization. *Child and Family Behavior Therapy, 11*, 71-88. http://dx.doi.org/10.1300/J019v11n03_05

Foxx, R. M., Kyle, M. S., Faw, G. D., & Bittle, R. G. (1989b). Problem-solving skills training: Social validation and generalization. *Behavior Residential Treatment, 4*, 269-288.

Foxx, R. M., Marchand-Martella, N. E., Martella, R. C., Braunling-McMorrow, D., & McMorrow, M. J. (1988). Teaching a problem solving strategy to closed head-injured adults. *Behavioral Residential Treatment, 3*, 193-210.

Foxx, R. M., Martella, R. C., & Marchand-Martella, N. E. (1989). The acquisition, maintenance, and generalization of problem solving skills by closed head-injured adults. *Behavior Therapy, 20*, 61-76. http://dx.doi.org/10.1016/S0005-7894(89)80118-2

Hollon, S. D., & Flick, S. N. (1988). On the meaning and methods of clinical significance. *Behavioral Assessment, 10*, 197-206.

Krasnor, L. R., & Rubin, K. H. (1981). Assessment of social problem-solving skills in young children. In. T. Merluzzi & M. Genest (Eds.), *Cognitive assessment* (pp. 452-474). New York: Guilford.

Sharpe, T. (1994). Training recommendations for “expert” behavior analysts. *ABA Newsletter, 17*, 13-15.

Skinner, B. F. (1996). An operant analysis of problem-solving. In B. Kleinmuntz (Ed.), *Problem-solving: Research, method and theory* (pp. 225-257). New York: Wiley.

Spivack, G., Platt, J. J., & Shure, M. B. (1976). *The problem solving approach to treatment*. San Francisco: Jossey Bass.

Stokes, T. F., & Baer, D. M. (1977). An implicit technology of generalization. *Journal of Applied Behavior Analysis, 10*, 349-367. http://dx.doi.org/10.1901/jaba.1977.10-349

Tisdelle, D. A., & St. Lawrence, J. S. (1986). Interpersonal problem-solving competency: Review and critique of the literature. *Clinical Psychology Review, 6*, 337-356. http://dx.doi.org/10.1016/0272-7358(86)90005-X

Tisdelle, D. A., & St. Lawrence, J. S. (1988). Adolescent interpersonal problem-solving skill training: Social validation and generalization. *Behavior Therapy, 19*, 171-182. http://dx.doi.org/10.1016/S0005-7894(88)80040-6