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Change Process Research

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Research on change processes is needed to help explain how psychotherapy produces change. To explain processes of change it will be important to measure three types of outcomes—immediate, intermediate, and final—and three levels of process—speech act, episode, and relationship. Emphasis will need to be placed on specifying different types of in-session change episodes and the intermediate outcomes they produce. The assumption that all processes have the same meaning (regardless of context) needs to be dropped, and a context-sensitive process research needs to be developed. Speech acts need to be viewed in the context of the types of episodes in which they occur, and episodes need to be viewed in the context of the type of relationship in which they occur. This approach would result in the use of a battery of process instruments to measure process patterns in context and to relate these to outcome.

Research on the process of psychotherapy has yielded some interesting findings (Orlinsky & Howard, 1978) but has not led to the type of understanding and explanations of psychotherapy that the field has needed. A basic problem with most of the process research is its lack of attention to context (Elliott, 1983a; Rice & Greenberg, 1974, 1984). Rather than assuming that any given process has equal significance or a similar meaning at any point in therapy, it is important to segment therapy into different therapeutic episodes or events in order to understand process in the context of clinically meaningful units. One of the most important criteria for selecting episodes for study is whether or not they represent the process of change.

A focus on processes of change serves to transcend the dichotomy between process and outcome that has previously hindered the field (Kiesler, 1983). In studying the process of change, both beginning points and endpoints are taken into account, as well as the form of the function between these points. With processes of change as the focus of investigation, the emphasis is not on studying what is going on in therapy (process research) nor only on the comparison of two measurement points before and after therapy (efficacy research) but rather on identifying, describing, explaining, and predicting the effects of the processes that bring about therapeutic change over the entire course of therapy (Greenberg, 1982, in press).

Outcome

In studying the process of change it is possible to measure three types of patient outcomes or changes over the course of therapy, namely, immediate outcomes, intermediate outcomes, and ultimate (or final) outcomes (Greenberg, 1982, in press; Pinsof, 1981). An immediate outcome or impact is that change that is evident in the session. It is important to be able to specify and measure important in-session changes that result from specific intervention or from the overall interaction. These in-session changes then need to be related to extrasessional, intermediate changes such as those measured by session outcome measures designed to evaluate changes in target attitudes and behaviors. Changes in these targets then need to be tracked over time to establish the robustness of the intermediate changes and to shed light on the process of outcome, that is, to see how these intermediate changes vary over time and how they relate to final outcomes. Final outcomes are taken at the end of treatment and at follow-up and represent ultimate change. To provide a complete picture of the change process, outcomes at all three points need to be simultaneously related to each other.

Process

To rigorously study the process of change in the session, researchers need to focus on (a) specifying immediate outcomes in the session and (b) measuring those in-session processes that lead to this change. To enable a rigorous study of change, the reliable measurement of in-session change processes has to become a priority issue in psychotherapy research. Measuring in-session process raises a number of measurement issues with which process researchers have struggled over the years; a major issue is the type and size of unit for process ratings. In addressing the problem of choice of units in process research, Kiesler (1973, p. 37) concluded that "in process research there are as many different units as there are distinct constructs requiring separate measurement." In this view the unit chosen, be it a word, phrase, utterance, problem area, initial period of therapy, and so forth, will depend on the constructs of interest and on the questions being asked by a particular study. This is how process research has proceeded until now, and this has made it difficult to compare findings from one study to another or to draw general conclusions from these studies.

A solution to this problem is needed in the form of a conceptualization of standard levels of units of study. Some agreed upon framework of units would help to coordinate different process measurements and would greatly enhance process research.

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Pearce and Cronen (1980), working in the area of communication and social interaction, have proposed a hierarchical model of meaning, which suggests that a complex network of relations exists among various hierarchical levels of meaning and that several levels of this hierarchy need to be described in order to understand the meaning of any communicative act. Psychotherapy process research could benefit by using three (possibly four) of their hierarchically arranged standardized levels to describe in-session process. The levels that appear to be most relevant are the levels of content, speech act, episode, and relationship, which are arranged hierarchically in the order given. *Content* is—for the purpose of the study of change processes—the most dispensable of the levels. It refers to the actual content being talked about without reference to the kind of message being used.

The level of *speech acts* represents what one person is doing to another by saying or doing something. This level refers to the pragmatics of discourse, how people get what they want by using language (Austin, 1962; Searles, 1969). Speech acts, according to these linguists, involve such things as inform, advise, promise, threaten, insult, direct, and so forth. A number of coding systems of this level are reported in the literature. Coding of such features as therapist and client response modes most clearly represent this level (Hill, in press; Snyder, 1963; Stiles, in press). In addition to descriptions of the function or effect of patient and therapist speech acts, features of the acts that help in understanding the meaning of the speech act such as depth of experience (Klein, Mathieu, Gendlin, & Kiesler, 1969), voice quality (Rice, Koke, Greenberg, & Wagstaff, 1980), speech duration and silence (Matarazzo, Wiens, Matarazzo & Saslow, 1968), and other paralinguistic variables would also fall into this level. In psychotherapy research coding of this level would be done on the smallest unit of analysis in any particular study.

The next larger unit to be coded should be the episode. *Episodes* are "communicative routines which [the participants] view as distinct wholes, separate from other types of discourse, characterized by special rules of speech and non-verbal behavior and often distinguished by clearly recognizable opening or closing sequences" (Gumperz, 1972, p. 17). The episode unit has been used in descriptive studies in anthropology, sociology, and social psychology. In conversational analysis, the concept of episode has been used to describe how conversants fill in missing meanings by drawing on their knowledge of the structure of episodes (Schank & Abelson, 1977). In psychotherapy research, therapeutic episodes are meaningful units of therapeutic interaction which, according to the therapeutic approach being used, are designed to achieve an intermediate therapeutic goal. Most therapies and therapists have explicit and sometimes implicit sets of subtasks in which the patient is engaged in order to achieve specific subgoals. The strategic interactions between the therapist and patient in these subtasks constitute the meaningful episodes of that approach. For example, in cognitive therapy an episodic level subtask in which the patient is asked to engage may be the creation of an agenda for the session (Beck, Rush, Shaw, & Emery, 1979), whereas important change episodes may be the challenging of a specific irrational belief (Ellis, 1962) or the collection of schema-inconsistent evidence (Beck et al., 1979).

In this hierarchical approach to the selection of units, the largest unit of analysis would yield ratings of the relationship. The *relationship level* describes the particular qualities that people attribute to the ongoing relationship that go beyond any particular content, act, or episode. These are understandings, usually implicit, that make up a collective sense of the attributes of the relationship, the sense of *we*. Relationship has been discussed in detail in the therapeutic literature, and various measures of the relationship have been devised (Lambert, 1983) using either therapist and patient reports or third-party ratings.

This hierarchical model is suggested here as a heuristic device for identifying units of analysis and levels of meaning for understanding communication in psychotherapy. The different levels provide a context for each other, and this helps to define the meaning of any communication. The same act in a different context will have a different meaning. For example, the statement in psychotherapy "I feel like a small child" counts as a speech act of disclosure in the episodic context of resolving a conflict in the relationship context of a good working alliance (Bordin, 1979). However, in the episodic context of discussing problems in the therapeutic relationship or a relationship context of poor alliance (in which goals and tasks were not agreed upon and there was no sense of working together [Bordin, 1979]), this statement could count as an accusation or a complaint.

Social meanings, therefore, are context dependent. A message is given meaning by reference to the context in which it occurs. With the perspective that systems of meaning are organized hierarchically, researchers will have to contend with the complexities of doing research on phenomena that are viewed as hierarchical systems.

The suggested approach to the problem of choice of unit is to treat psychotherapeutic process as a three- or four-level phenomenon (depending on the relevance of content) where content and/or speech acts are given meaning by their episodic and relationship contexts. Rather than implying that content or speech acts are the fundamental data of process research to the exclusion of other variables such as stylistic, kinesic, or paralinguistic variables, the intent here is to suggest that context is of great importance in change process research and should be incorporated in our research strategy. The framework of rating process, in the context of episodes and in the context of relationship, defines a type of process research in which one uses a battery of process instruments of different types to ensure that one captures the three levels previously discussed. This type of research would enable investigators to describe both client and therapist process from both observer and participant perspectives in such a way as to allow the meaning of the act to be more clearly described.

What is being suggested, therefore, is the establishment of an agreed upon set of hierarchically organized categories for measuring process. Modern category formation theory provides some guidelines for formulating categories. Cantor and Mischel (1979) and Rosch (1978) have made useful distinctions regarding the level of abstraction used in category formation. Recognizing that objects can be categorized at varying levels of inclusiveness, Rosch (1978) identified a basic, or middle, category level as the optimal one for most categorization tasks. Categories at a middle level of abstraction are rich in details yet are well differentiated from one another.

Following this line of thinking it would be helpful to attempt to categorize psychotherapy interactions as a set of midlevel episodic categories, describing particular strategic interactions in which both patient and therapist are engaged in resolving a par-

ticular type of problematic patient condition. To date, psychotherapy process researchers have tended to focus on (a) lower level categorization schemes, devising rating systems of acts that on their own are too rich in detail to capture therapeutically meaningful units of change and (b) higher level superordinate categorization of relationships in which too much detail is sacrificed for the sake of commonality. The efforts to develop a set of low- and high-level inference categories would be greatly enhanced by the development of a midlevel set of episodic categories of in-session strategic interactions between the participants aimed at achieving an intermediate therapeutic goal.

Recent work in studying change episodes in therapy (Rice & Greenberg, 1984), such as resolution of conflicts (Greenberg, 1984a), resolution of problematic reactions (Rice & Saperia, 1984), changes in states of mind in therapy (Horowitz, 1979), changes in symptoms in therapy (Luborsky, Singer, Hartke, Crits-Christoph, & Cohen, 1984), and resolution of core conflictual themes (Levine & Luborsky, 1981; Luborsky, 1984), shows some promise of helping to isolate processes of change in different types of therapeutic interactions.

In addition to multilevel measurement it appears that a profile of different attributes at the same level is needed in order to capture different dimensions of the performance at any one level. How many attributes or profile variables are needed at each level would be determined by the research question being asked. It may, however, be standard procedure to utilize at least one relationship variable, such as, for example, alliance; one episode level, such as resolving conflict; and a number of lower level inference variables at the level of the speech act, such as voice quality (Rice & Kerr, in press), depth of experience (Klein et al., 1969), and type of conceptual/perceptual processing (Toukmanian, in press). This would result in the standard use of a multilevel, multidimensional, and multiperspective (observer and participant) approach to process research in which a battery of process instruments is used to measure change processes.

Change Events

Rice and Greenberg (1974, 1984) have suggested an events-based approach to the study of change processes. An *event* is a therapeutic episode consisting of four components: the patient problem marker, the therapist operation, the client performance, and the immediate in-session outcome. The patient *marker* is a statement or set of statements by the patient that indicates to the therapist that the patient is in a particular problem state at the moment (such as conflict) and is amenable to intervention. These markers can be reliably identified by judges (Greenberg, 1984a; Rice & Saperia, 1984). The *therapist operation* is the set of interventions made by the therapist to promote problem resolution and is described in an operation manual. The ongoing client responses to the therapist intervention constitute the *client performance,* which in resolution events ends with a particular type of *in-session outcome* such as integration of conflicting tendencies or cognitive reorganization. Events can vary in size from a three-statement client–therapist–client interchange to an episode occupying a major part of a session or even possibly a few sessions. Events are best selected for study because they are regarded as potent change events or because they have relevance to understanding how change occurs in therapy (Elliott, 1983b).

Using this events framework, the investigator attempts to answer the following questions about potent events in therapy:

1. What client in-therapy performances, or markers, suggest themselves as problem states requiring and ready for intervention?
2. What therapist operations are appropriate at these markers? What therapist operations will best facilitate a process of change at this marker?
3. What client performances following the markers lead to change? What are the aspects of the client performance that seem to carry the change process, and what does the final in-therapy performance or immediate outcome look like?

This set of questions brings the investigator much closer to studying what patient and therapist actually do in therapy. Increased understanding of therapy will emerge by discovering what interventions make what type of impact at what particular client moments in therapy. Research on this question in the multilevel, multidimensional process framework previously suggested would allow a description of specific therapist activities (such as reflection, interpretation, and direct guidance) in specific strategic episode contexts (such as challenging irrational beliefs and reprocessing a critical incident from the past) and in specific relationship contexts (a good working alliance or therapist perceived as empathic). Similarly, client process could be coded on a number of descriptors in the context of higher level descriptors.

Attempts at this type of episode-based, explanation-oriented change events research would lead to a number of different types of studies of psychotherapy. First, differential intervention studies at the episode level, in which the focus is on immediate and intermediate outcomes for particular problem states, provide evidence of which interventions are most effective at particular points in therapy. Greenberg and Dompierre (1981), for example, showed that a Gestalt two-chair intervention was more effective than empathic reflection in helping to resolve an in-session statement of intrapsychic conflict. Second, studies that identify what problems clients actually discuss in therapy that suggest a readiness for intervention would begin the delineation of a system of process diagnosis of different types of client problem states presented in therapy for resolution. A system of process diagnosis of this type would help to organize the domain of client process and would become the basis for a functional diagnostic system that would suggest particular interventions for particular in-session patient conditions. Third, studies of client resolution performance would lead to a specification of immediate outcomes and improved understanding of how clients actually change in therapy. In these studies of resolution performance, both investigative single-case studies and group verification studies could be performed (Rice & Greenberg, 1984). This would lead to improved understanding and explanation of change both by intensive discovery-oriented investigation and by testing of hypotheses.

Questions regarding different types of outcomes would lead to a much clearer understanding of what kind of in-therapy performances and outcomes lead to what type of extratherapy changes. This would sharpen outcome research immensely and would help to begin a study of the process of extratherapy change. Rather than viewing outcome as a single unitary event, the process of daily and weekly impact of therapy would come into focus, and studies of outcome as a process would result. For example, Greenberg and Webster (1982) showed that particular conflict resolution performance patterns in therapy led to change in postsession reports of conflict resolution, improved mood and

goal attainment over the week following the session, and reduction in indecision and improvement in target complaint at termination and follow-up.

Change episode research would therefore pose a set of questions much closer to the practice of psychotherapy and would lead to research that could more directly affect practice. Once we knew what interventions were most appropriate for which client states and what resulting client performances led to problem resolution, we would be much closer to describing how change actually takes place in therapy. We would then be able to identify the active ingredients of change and explain the mechanisms that lead to this change.

Patterns of Change

Initial attempts at explanation in psychotherapy process research generally sought for simple associations between single variables in isolation from their context. This approach relies on a view of explanation in which notions of prediction and entailment predominate, that is, if x, then y, rather than interpretation of pattern. A more promising strategy, which will aid improved explanation, is the identification and discovery of patterns of in-session client and therapist behaviors (Gottman & Markman, 1978; Greenberg, in press; Rice & Greenberg, 1984). Identification of patterns in client and therapist in-session performance is the key strategy in studies aimed at explanation (Gottman, Markman, & Notarius, 1977; Greenberg, 1980, 1983, 1984a, 1984b; Horowitz, 1979).

The basic problem with most earlier process studies has been their neglect of patterns. Often, only single variables were studied, and there was always the built-in assumption that the process under study did not vary significantly over time and was basically homogeneous within a session. Studies of process over time have shown that this homogeneity assumption is untrue (Rice & Greenberg, 1984; Gurman, 1973). Clearly process varies over time, and different processes have different meanings in different in-session contexts. Aggregating process, as though all process during sessions or across therapy is the same, perpetuates a uniformity myth from which psychotherapy research must escape. Particular processes occur at different times in therapy and have different meanings in different contexts. It is more the occurrence of a particular pattern of variables than their simple presence or frequency of occurrence that indicates the therapeutic significance of what is occurring in therapy. Typically, however, frequency data have been used as the basis of process research. Percentage of occurrence of the number of statements has been the summary figure (e.g., percentage of interpretations, head nods, etc.). The assumption is that all behaviors are equivalent regardless of context, timing, appropriateness, and quality. Clearly the timing, context, and sequence of interpretations or confrontations are of much greater significance than is their frequency.

In studying patterns of client behavior, the major strategy is rather one of looking for covarying relations over time between variables of the same level of description. In addition, this pattern may need to be viewed as being of particular significance in a particular higher level context. For example, in successful episodes of seeking insight, Elliott (1984) found that a series of covarying indexes at the level of speech acts and observable stylistic indicators could identify a pattern as complex as a client statement of attempting to achieve self-understanding, accompanied by an experience of distress at not being able to attain it, leading to a statement of a problem and a request for help. When this marker of seeking self-understanding was followed by a processing of new internally generated information and a differentiation of meaning and newly expressed feelings, insight occurred.

Two main approaches to the analysis of pattern have emerged in process research; one is a rational–empirical method called *task analysis* in which a human observer identifies the pattern (Rice & Greenberg, 1984), and the other is a purely empirical approach in which computational methods are used to identify sequences (Sackett, 1978).

Using a task-analytic approach (Greenberg, 1984b), the investigator selects a particular kind of recurring change event for intensive analysis. Then a hypothetical idealized client performance, which represents the clinician's best understanding of how resolution takes place, is compared with descriptions of actual client resolution performances from a series of intensive single-case analyses. This is done in an iterative manner, moving back and forth between idealized and actual performances until a refined proposed model of a resolution performance is built. This postdictive, discovery-oriented aspect of the approach involves a process of moving from clinical and theoretical expectations to observation and back again until the investigator is satisfied that the phenomena at hand have been described. The model constructed by this method is then subjected to appropriate verification procedures, such as relating these performances to outcome. This iterative procedure of comparing actual and possible performances represents a rigorous form of inductive clinical theorizing that results in the construction of a model in terms that can be tested by process measurement.

Using this type of task-analytic approach to the study of therapeutic events, the components of competence of successful intrapsychic conflict resolution have been described (Greenberg, 1984a) as well as the components of competence of the successful resolution of problematic reactions (Rice & Saperia, 1984). In an initial study of Gestalt two-chair dialogue, Greenberg (1980) showed that for each side of the conflict, characteristic patterns of voice quality and depth of experiencing were associated with resolution. It appeared that a critical aspect of resolution was the change in a previously externally focused, harsh critic to a more internally focused stance, as measured by higher levels of experiencing and a use of focused voice. In an extension of this study (Greenberg, 1983, 1984a), a sample of 14 resolvers (selected on the basis of client and therapist report) were shown to be clearly distinguishable from 14 nonresolvers on the basis of in-session performance patterns of affiliation and dominance (Benjamin, 1974) as well as voice and experiencing. In the initial phase, the dialogue between the parts of the self in conflict in the two groups was found to be indistinguishable on the three measures; but, as the dialogue progressed, the harsh critic in the resolution group became more affiliative, and this process of becoming more accepting of the self clearly distinguished resolvers from nonresolvers. The change of voice quality in the critic was also an important indicator that distinguished between the groups, and this indicator plus the increase in depth of experiencing of the critic suggested that the softening of the attitude in the critic occurs by a process in which attention is deployed internally to generate new meanings (Greenberg, 1984a).

A more purely empirical approach to pattern identification

utilizes pattern analysis or sequential analysis methods such as Markov chain analysis, lag sequential analysis, and uncertainty analysis (Attneave, 1959; Sackett, 1978). In this approach, statistical methods are used to find sequences, usually probabilistic sequences, collapsing the occurrence of sequences over time to provide an overall picture of what occurs in a session. Because of its aggregation of data, this approach does not provide an opportunity for isolating the unique pattern; however, it is a useful one for moving beyond frequency counts of variables in isolation toward identification of sequential dependencies among a number of variables.

Sequential analysis utilizes conditional probabilities—the probability of x occurring, given that y has occurred—to describe the effects of antecedents on consequents. In psychotherapy research, however, analysis of two responses in a sequence rarely represents a meaningful interaction sequence. Two-step contingencies, say a client statement followed by a therapist statement or vice versa, may not be an ideal unit for investigation of all therapeutic change. Longer sequences need to be considered. The difficulty in analyzing longer sequences by simple conditional probabilities is the increasing paucity of data points that occurs by combining events. Increasing the chain to include three events (the probability of z following x, given that y has occurred) leads to a sizable reduction in data points and an increase in sampling error because the N at each data point decreases with the addition of each new step in the sequence.

One proposed solution to this problem is the use of lagged sequential analysis, where responses are considered in relation to antecedents more than one step back in time, irrespective of what happens in between. As Revenstorf, Hahlweg, Schindler, and Vogel (1984) pointed out, the problem with this approach is that this analysis is not really considering chains of behavior but rather behaviors that are simply more distant from the initial antecedents. Some authors have, however, inferred characteristics of behavior sequences from these lagged probabilities (Gottman et al., 1977; Patterson & Moore, 1979).

A further limiting feature of empirical identification of patterns by sequential analysis is that the results of the analysis are totally dependent on the coding systems selected to obtain the data. If one does not have systems that reflect dependencies in the data, they will not be found. In task analysis however, human observers who intensively inspect the data may notice a dependence in some features and then may construct new measurement systems. Purely empirical methods are therefore only as good as the measurement systems they use and prematurely restrict observation. In addition, human performance in therapy does not tend to be characteristically regular or clear-cut. Sequential dependencies do not occur in neat predictable fashions. Clients might react sometimes to something the therapist just said, but at other times, clients might react to something said a few statements back or even said at the last session. Similarly, the sequential dependence of one client statement on a previous client statement possesses a similar variability.

Conclusion

Change process research of the type discussed, which identifies the patterned characteristics of successful in-therapy change performances and relates these to extratherapy change, holds promise for increasing our understanding of mechanisms of client change in psychotherapy. With the identification of change processes as a research target, the dichotomy between process and outcome breaks down. It is replaced by the endeavor of relating process in different change episodes to different points along an outcome continuum.

Little literature currently exists relating in-therapy process to the different types of change discussed. If empirically identifiable patterns of change can be reliably identified for different types of change events and if these patterns can be related to outcome, then this relation will be demonstrated only with the use of improved measures of both process and outcome. These measures will need to be sensitive to subtle changes in both domains. In addition to the need for improved measurement (Greenberg & Pinsof, in press), the role of the individual difference variable in understanding how people change would need to be more clearly specified (Rice & Greenberg, 1984).

Finally, it might be argued that the processes and interventions that have been studied by this approach and that would yield to it are too global, complex, and unspecified and that what is required is a more atomistic definition of variables and the demonstration of causal links between them. There has, however, been a large gap between the research and practice of psychotherapy (Luborsky, 1972), and researchers have tended to study what they know how to study or can study relatively easily rather than what is of importance to the conduct of psychotherapy. Possibly for this reason, research has had little impact on the practice of psychotherapy. It is suggested here that practitioners will begin to take greater guidance from research findings if studies of the type suggested here can illuminate the practice of therapy by discovering patterns of performance that explain the process of change.

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