

# *Study of the Socratic Method During Cognitive Restructuring*

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Cognitive restructuring, in particular in the form of the Socratic method, is widely used by clinicians. However, little research has been published with respect to underlying processes, which has hindered well-accepted explanations of its effectiveness. The aim of this study is to present a new method of analysis of the Socratic method during cognitive restructuring based on the observation of the therapist's verbal behaviour. Using recordings from clinical sessions, 18 sequences were selected in which the Socratic method was applied by six cognitive-behavioural therapists working at a private clinical centre in Madrid. The recordings involved eight patients requiring therapy for various psychological problems. Observations were coded using a category system designed by the authors and that classifies the therapist's verbal behaviour into seven hypothesized functions based on basic behavioural operations. We used the Observer XT software to code the observed sequences. The results are summarized through a preliminary model which considers three different phases of the Socratic method and some functions of the therapist's verbal behaviour in each of these phases: discriminative and reinforcement functions in the starting phase, informative and motivational functions in the course of the debate, and instructional and reinforcement functions in the final phase. We discuss the long-term potential clinical benefits of the current proposal. Copyright © 2010 John Wiley & Sons, Ltd.

## **Key Practitioner Message:**

- This article highlights the relevance for clinicians to reflect on the mechanisms that explain the patient's change during therapy, to improve their professional practice.
- It also highlights the importance of not using circular explanations to account for change.
- This article proposes an alternative to the traditional explanation about the mechanisms that would explain change when the Socratic method is applied.
- Additionally, it presents a preliminary descriptive model of the application of this therapeutic procedure emphasizing the hypothesized functions of therapist's verbal behaviour in each phase.
- Finally, this work helps the clinician to understand cognitive change through change in the patient's verbalizations.

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## INTRODUCTION

In 1995, Seligman revolutionized psychotherapy outcome research with his article, 'The effectiveness of psychotherapy. The Consumer Reports Study' (Seligman, 1995). The conclusions of that report triggered an unusually large wave of commentaries, in part because of its methodological problems (Brock, Green, Reich, & Evans, 1996; Hollon, 1996; Jacobson & Christensen, 1996; Mintz, Drake, & Crits-Christoph, 1996), but also because it claimed that any type of psychotherapy is just as effective as any other or as effective as talking with friends, a clergyman or even doing nothing (judging from the opinions of the people who answered the Consumer Reports survey, *Mental health: Does therapy help?* [1995]). Seligman illustrated the value of studies into effectiveness (i.e., the achievement of therapeutic goals in common clinical practice), which focus on psychotherapy as it actually occurs, as opposed to the efficacy studies that had hitherto played a central role in outcome research and that focussed on the achievement of therapeutic goals in controlled clinical settings.

Regardless of whether we focus on efficacy or effectiveness, studying results is not the only aim of clinical psychology: finding out whether a specific intervention works is an important first step, but then we need to know why the intervention works, which therapeutic elements are responsible for the observed effects, and what processes underlie a particular treatment procedure. Although there have been many outcome studies analyzing techniques or brand-name therapies (e.g., see Anderson, Lau, Segal, & Bishop, 2007; Beidel, Turner, & Young, 2006; Chronis, Gamble, Roberts, & Pelham, 2006; Cooper, Todd, Turner, & Wells, 2007; Diefenbach, Tolin, Hannan, Maltby, & Crocetto, 2006; Pfammatter, Junghan, & Brenner, 2006; Pull, 2007), research into the therapeutic process is currently confusing. This is a particularly important question in the area of cognitive techniques, because these techniques were developed at a time when the inherent experimentalism of behaviour modification was neglected in favour of empirical, evidence-based evaluations. Starting in the 1970s, the diffusion and expansion of the cognitive–behavioural approach coincided with a distancing from principles of learning with a strong experimental

foundation, which had hitherto dominated the conceptualization and development of the discipline. During that time the cognitive–behavioural approach spread rapidly through society, and within this context, the priority was to respond to practical problems in its daily application; this was deemed more important than conceptual clarifications or experimentation. For this reason, the most important criterion for a technique to be considered part of the cognitive–behavioural approach was an empirical one—therapeutic efficacy—without contemplating theoretical derivations or the experimentation supporting the technique (e.g., Franks, 1991, 1997). In fact, as Salzinger (1992) stated, most of the accounts proposed for these techniques were based on unclearly designed constructs (such as those of 'logical errors', 'dysfunctional schemas') and circular explanations.

The study we present focuses on the Socratic method or debate,<sup>1</sup> a therapeutic procedure deemed the key strategy or component to promote changes in dysfunctional cognitions within cognitive restructuring, as proposed in the cognitive therapy for depression (Beck, Rush, Shaw, & Emery, 1979) and the rational emotive therapy (Ellis & Grieger, 1977). The important theoretical and clinical contributions made by Beck and Ellis are undeniable, as is the overwhelming amount of empirical evidence supporting the effectiveness of cognitive restructuring (Antona et al., 2006; Cooper & Steere, 1995; Harvey, Inglis, & Espie, 2002; Moreno, Méndez, & Sánchez, 2000; Sánchez, Alcázar, & Olivares, 1999; Taylor et al., 1997), and cognitive therapy in general (Brestan & Eyberg, 1998; Chambless et al., 1996, 1998; Chambless & Ollendick, 2001; DeRubeis & Crits-Christoph, 1998; Gould, Mueser, Bolton, Mays, & Goff, 2001; Nathan & Gorman, 2007; Terjesen, DiGiuseppe, & Gruner, 2000). However, unlike other techniques within the cognitive–behavioural approach that were based on a long experimentalist tradition, in this case there hardly is any experimental evidence concerning the learning processes underlying the general technique (cognitive restructuring) or its core therapeutic procedure or component (the Socratic dialogue). Just as it is possible, for example, to explain

<sup>1</sup>Various names in the literature refer to this procedure, which is also known as Socratic questioning.

systematic desensitization (Wolpe, 1958) in terms of counterconditioning and reciprocal inhibition, is there any process that explains therapeutic change during the Socratic method?

To complicate the issue, different handbooks on cognitive restructuring (Beck et al., 1979; Bernard, 1991; Dryden, DiGiuseppe, & Neenan, 2003; Ellis & Grieger, 1977; McMullin & Giles, 1981; Padesky & Greenberg, 1995) give general guidelines on how to perform the Socratic method, but probably each therapist uses a different procedure to change his or her patient's beliefs because there is no a unified, single way of applying the therapeutic component. The handbooks we mentioned list a variety of technical procedures (such as *refocusing* or *challenging beliefs*), each of which could be implemented in different ways (e.g., by asking for a thought's underlying logic or for empirical proofs about it), and which implementations may be better is currently unknown. Which steps should be taken to debate an idea, or at what moment the line of argument should be changed, or how many times one has to ensure that the patient has changed his or her thoughts, is equally unknown.

The issue of procedural heterogeneity leads to further questions: What is the success of a given therapeutic component based on? What does 'the real work' when this component is effectively applied? Is there in it anything qualitatively and/or quantitatively different from the processes responsible for the success of other techniques? The literature on processes in cognitive techniques focuses on such questions, but these studies rely on heterogeneous methodologies or approach them from non-behavioural theoretical orientations. This literature includes component analysis studies (Hofmann, Schulz, Meuret, Moscovitch, & Suvak, 2006; Smits, Powers, Cho, & Telch, 2004; Zettle & Hayes, 1987), comparisons of processes across therapies of different theoretical orientations using tools developed with this aim in mind (e.g., the *Psychotherapy Process Q-Set* or *Comprehensive Psychotherapy Intervention Rating Scale*: Ablon & Jones, 1999; Trijsburg & Perry, 2004), content analysis of the therapist's and patient's verbalizations (Stiles & Shapiro, 1995), and studies of cognitive techniques addressing in-session work and the therapeutic relationship (Kanter, Schildcrout, & Kohlenberg, 2005).

Although very little empirical or theoretical work on the Socratic method has been published from a behavioural point of view, a few authors have conducted a behavioural analysis of the processes underlying clinical change in the therapeutic

process in general. Pioneering work by Murray (1956) and Truax (1966), for example, concluded against Rogers' premises that in clinical sessions conducted by Rogers himself reinforcement processes were present. These authors found that certain behaviours of the therapists occurred contingently on those of the patients and that the latter gradually increased in frequency. Unpublished works by Willard Day's group at the University of Nevada, Reno, in the 1960s are also relevant. This work used what was termed the *Reno Methodology*, that is, a detailed behavioural analysis of conversations, most of them from clinical sessions, using the categories of Skinner's (1957) *Verbal Behaviour* and trying to address observations in terms of operant and Pavlovian conditioning. Proposals by Hamilton (1988), Rosenfarb (1992) and Follete, Naugle, and Callaghan (1996), who understand therapeutic change as the shaping of new behaviours through contingencies derived from the therapeutic relationship, are also worth mentioning. Finally, we must not forget the contributions of the contextual or clinical behaviour analysis approach, whose authors have developed clinical frameworks such as functional analytical psychotherapy (Kohlenberg & Tsai, 1991), acceptance and commitment therapy (Hayes, Strosahl, & Wilson, 1999) and dialectic behaviour therapy (Linehan, 1993).

As this broad overview illustrates, no clear explanation of the effectiveness of the Socratic method has yet emerged. As a continuation of work by our group in recent years, the present study takes an initial look at the processes related to therapeutic change when the Socratic method is applied during cognitive restructuring. Previously we had analysed clinical fragments of the Socratic method in a relatively small sample, without computerized tools of analysis (Froján-Parga, Calero-Elvira, & Montaña-Fidalgo, 2006), and we had tested the application of this procedure with a single case methodology (Froján-Parga, Calero-Elvira, & Montaña-Fidalgo, 2009). The current study advances on our previous work by using computer-based registers, which confers more precision to our analysis, and by relying on a larger sample of clinical cases. We hope that this work represents a step forward with respect to the general literature on processes of change during therapy.

We base our study on a behavioural theoretical point of view. Thus, we view a change in *irrational beliefs* or in *cognitive schemas* largely as a change in the language of the person who has a psychological problem, moving from non-adaptive verbalizations to more adaptive ones. Following Poppen (1989),

we hypothesize that the Socratic method aims at modifying the erroneous rules that the patients give to themselves and which consist of oversimplified contingency statements. This author argues that the cognitive debate is a verbal modelling- and reinforcement-based procedure through which therapists challenge the patients' rules. There are also punishment processes, in which the patient is asked to defend 'logically' why s/he holds a given belief (such challenges are punishing). Also, the patient is taught to discriminate and define individual instances of events that occur, instead of formulating simplistic, all-or-nothing contingency statements. Thus, the patient is provided with new rules that allow finer-grain analyses of contingencies, as opposed to the broad overgeneralizations of his/her old rules.

Beyond the controversies that surround the concept of rule-governed behaviour,<sup>2</sup> we take this term merely to describe behaviour that is controlled by other verbal behaviour, and to this extent, we consider Poppen's (1989) approach to be a suitable one for analyzing the current topic. The Socratic method is closely related to people's language and is, therefore, related to the Pavlovian and operant processes that may be involved in the learning and development of verbalization. In 1967, Staats argued that Pavlovian conditioning explains emotional responses to words and their associated meaning. Following Skinner (1957), he also discussed the operant processes through which people may learn language, especially the reinforcement of vocal responses to particular stimuli. Might such conditioning processes be the basis of change underlying the Socratic method? Put differently, when we apply this method, do we modify the conditioned responses related to the emotions and meanings that the person has associated with linguistic terms? Do we reinforce some of the patient's verbalizations and punish others? And, are there other processes involved in this therapeutic procedure?

The current study presents a new way of analyzing the Socratic method, starting with an initial description of what the therapist actually does when applying this method. As Schlinger (1990) has argued, a preliminary analysis of the formal

properties of our object of study does not divert from the analysis of its functional properties; on the contrary, a formal analysis is a necessary first step towards a functional one. In the long run, we aim at analyzing the actual functioning of the therapist-patient interaction in order to explain how and why cognitive restructuring (specifically, Socratic questioning) works.

At this point, the use of functional-sounding labels in our coding system could be confusing for the reader. We want to make it clear that we use these terms in a preliminary or hypothetical fashion, knowing fully well that these functions have not yet been demonstrated to occur in this particular case. Our strategy is similar to that of handbooks proposing examples of reinforcers or punishers based on their assumed function (e.g., Martin & Pear, 2007), or that of the works that list potential reinforcers or controlling stimuli in areas as diverse as enuresis, depression, autism or the application of systematic desensitization (Atkinson et al., 1984; Cautela, 1968, 1970; Cautela & Brion-Meisels, 1979; Cautela & Wisocki, 1971; Wolpe, 1973). In our future work, we will test whether the verbalizations currently coded as 'discriminative', for example, actually evoke patient's verbalizations reinforced by the therapist, or whether the verbalizations currently coded as 'reinforcement' actually cause an increase in the patient's responses on which they are contingent. Meanwhile, we use these labels in a preliminary, hypothetical fashion, while performing a descriptive analysis of what takes place when the Socratic method is applied.

## METHOD

### Sample

In this study, we observed 16 different clinical sessions, involving eight patients, randomly selected depending on the sample availability. From the session recordings, we extracted 18 sequences of Socratic method. Six cognitive-behavioural therapists participated in the study, all of them from a private clinical centre (*Instituto Terapéutico de Madrid*, Madrid, Spain). Two therapists had from 5–10 years of experience working in cognitive-behaviour therapy. One therapist had more than 15 years. The other three therapists had little clinical experience (from 1–5 years of practice or less). All therapists, however, had a similar academic training specializing in cognitive-behavioural therapy and had dealt with cases covering all types of behavioural problems. The therapists did

<sup>2</sup>Skinner's (1966) proposal on rule governed behaviour has resulted in a large amount of research, and at the same time, in numerous controversies. One of them concerns the sensibility or insensibility of rule-governed behaviour to environmental contingencies; other controversies concern the functions of 'rules' and their definition.

Table 1. Segments and participants

Segment			Patient				Therapist		
Segment	Session number (Total number of sessions)	Segment duration (mm:ss)	Case	Sex	Age	Psychological problem	Therapist	Sex	Experience (Years)
1	6 (13)	42:00	1	F	24	Problems of interpersonal relationships	A	F	1–5
2	6 (13)	04:49							
3	10 (13)	33:44							
4	5 (18)	18:06	2	F	32	Relationship problems with partner	B	F	>10
5	6 (18)	20:17							
6	7 (18)	53:57							
7	7 (>70)	25:53	3	F	50	Psychotic disorder	B	F	>10
8	17 (>70)	07:13							
9	18 (>70)	31:19							
10	2 (5)	03:18	4	F	25	Relationship problems with partner	C	M	1–5
11	2 (5)	13:48							
12	5 (14)	06:23	5	F	16	Eating disorder	D	F	5–10
13	6 (16)	08:35	6	F	29	Depression	B	F	>10
14	7 (16)	13:29							
15	8 (9)	10:21	7	F	19	Depression	E	F	5–10
16	4 (9)	16:44	8	M	26	Depression	F	F	1–5
17	5 (9)	35:41							
18	8 (9)	20:53							

F = female. M = male.

not know the specific objectives, hypotheses or design of the study. The patients were between 16 and 50 years old and required therapy because of various psychological problems (problems of interpersonal relationships, relationship problems with partners, psychotic disorders, eating disorders and depression).

A total of 366 minutes were observed. The mean duration of restructuring sequences was 20 minutes and 21 seconds. The longest clip lasted 53 minutes and 57 seconds, while the shortest was 3 minutes and 18 seconds long. Both the therapists' and the patients' verbal behaviour was video-recorded. To safeguard patient privacy, only the therapist's face could be seen; the patient's back was turned to the camera. More specific details about the sample appear in Table 1.

### Variables and Apparatus

#### Therapist's Verbal Behaviour

We studied each therapist's verbal behaviour with a coding system containing seven hypothetical functions (see Table 2, with the definitions of each category), inspired by basic behavioural operations (Catania, 1992) modified and adapted to clinical

settings (Pérez, 1996a, 1996b, 2004).<sup>3</sup> This coding system was developed by the authors (Froján-Parga et al., 2008) and has been used for the analysis of different aspects of the therapeutic process (Froján-Parga et al., 2006, 2009; Froján-Parga, Montaño-Fidalgo, & Calero-Elvira, 2007). Here the coding system was used to analyse the therapist's verbal behaviour during the application of the Socratic method. The observer registered the duration and/or occurrence of the behavioural units in the order in which they were observed, looking at the tape continuously but registering only the moments of behavioural change (transition-activated registers: Quera, 1991, 1997). Although all functions were recorded in the same way, we further distinguished between event and state functions, depending on our analytic purposes. *Event functions* were measured only in terms of frequency. Although they

<sup>3</sup>The operations initially proposed by Catania were: observation of behaviour, presentation of stimuli, consequential operations, signalling or stimulus-control operation and establishing the effectiveness of consequences. In his adaptation to clinical settings, Pérez listed the following: observation of behaviour, presentation of stimuli, disposition of antecedent control, disposition of consequences, establishing motivational functions and function altering by rules.

Table 2. Therapist's verbal behaviour category system\*

Hypothesized function	Formal identification
Discriminative	A verbalization that occasions a patient's verbal or nonverbal behaviour. The therapist then delivers some consequence.
Elicitation	A verbalization that elicits in the patient either an observable emotional response or a verbalization referring to an emotional response.
Reinforcement	A verbalization that shows agreement with, acceptance of and/or admiration for the behaviour shown by the patient.
Punishment	A verbalization that indicates disagreement with, disapproval of, and/or rejection of the behaviour shown by the patient.
Instructional	A guideline offered by the therapist in order to promote a given behaviour outside of the clinical context.
Motivational	A verbalization that highlights the benefits derived from a given behaviour or the costs of maintaining dysfunctional behaviour.
Informative 'Others'	A verbalization that transmits theoretical and/or clinical knowledge to the patient. Any verbalization that could not be included in the above categories.

\*The complete observational guide including the coding criteria is available upon request.

had duration, we were interested only in whether they occurred or not, and how many times: these were the discriminative, elicitation, reinforcement and punishment functions. *State functions*, by contrast, were recorded both in terms of frequency of occurrence and in terms of their duration (coinciding with the duration of the verbalization that expressed them): these were the informative, motivational and instructional functions.

Three independent observers (the second and third author, plus a third collaborator who was also a psychologist specialized in cognitive-behavioural therapy) participated in developing the system for coding the therapist's verbal behaviour by observing many clinical sessions. On the basis of their agreements, the definitions of the functions were modified to try to make them as relevant as possible; the coding criteria were established through examples and counterexamples so as to help selecting the optimal category for any therapist's behaviour to code (Table 2).

Inter-rater reliability for this observational code was evaluated through percentages of agreement (PA) and Cohen's kappa ( $k$ ) coefficients, calculated with The Observer XT 7.0 software (Noldus Information Technology, The Netherlands; Grieco, Loijens, Zimmerman, & Spink, 2007) and a defined tolerance window of one second ( $PA_{O1-O2} = 80\%$ ,  $k_{O1-O2} = 0.72$ ,  $p < 0.001$ ;  $PA_{O1-O3} = 81\%$ ,  $k_{O1-O3} = 0.74$ ,  $p < 0.001$ ;  $PA_{O2-O3} = 77\%$ ,  $k_{O2-O3} = 0.68$ ,  $p < 0.001$ ). According to Bakeman, Quera, McArthur, and Robinson (1997), the obtained values of kappa indicate a very acceptable level of coder precision for an eight category coding system with a high variation in the simple probabilities of each code.

#### *The Observer XT Software*

The Observer XT (version 6.0) software tool was used for data analysis. This tool allowed simultaneous viewing, registering and coding of the videotapes that greatly facilitated subsequent analysis of the results.

#### *Procedure*

First of all we sought the approval of the clinical centre. The therapists and patients were informed about the research aims of the study, and after giving consent, they were video-recorded. This procedure adhered to the standards set by the Research Ethics Committee of the Universidad Autónoma de Madrid. A partially hidden camera was used to record clinical sessions so as to interfere as little as possible with the therapy. Then the second author isolated segments of the video footage in which the Socratic method was being applied. To determine the start and end points of each segment with more precision, we used a guide constructed by our research group in collaboration with three of the therapists who took part in the present recordings (Calero-Elvira, 2009).<sup>4</sup> The researchers had to point out moments at which the therapist tried to change some idea(s) that caused discomfort in the patient. The start of the segment was defined as the moment when the therapist emitted the first verbalization aimed at modifying these ideas, differentiating it clearly from the

<sup>4</sup>This guide, written in Spanish, is being translated into English. A copy is available upon request.

Table 3. Coded segment of the Socratic method (applied by therapist B with patient 2)

• Start

-Ps: To what extent do you think he is being respectful of you and is taking you into account, and when do you start thinking he is not being considerate? (*discriminative*)  
 -Cl: When he says, for example, 'I'm coming' and he doesn't and then I don't know anything about him anymore.  
 -Ps: And does this mean he is not being respectful? (*discriminative*)  
 -Cl: Well, it's thoughtlessness; I don't know what to call it exactly.  
 -Ps: Is that your explanation? So, he is doing it because he is not taking your feelings into account? (*discriminative*)  
 -Cl: I see it that way.  
 -Ps: Good. (*reinforcement*) Is there any other possible explanation? (*discriminative*)  
 -Cl: Maybe he just forgot about it.  
 -Ps: For example. (*reinforcement*) (. . .)

• Course

-Ps: I mean, different people have different ways of behaving and I don't think it is a tragedy that we have that diversity (. . .) People normally measure behaviour in relation to what they themselves do, ok? However, we have to be flexible enough to understand that everyone else has different ways of carrying out the same behaviour (. . .) (*informative*) So, in this case, he tells you he is going to meet you to go biking, he doesn't call, and an hour and a half later, when you've gotten tired of waiting, and know that he's left for lunch because he's told you so, he calls to tell you 'I'm sorry, my work took longer than I thought and I'm still here but in an hour I'll be ready to go.' So, you are waiting for another hour, an hour and a half, and my question is at what point is he being disrespectful to you? (*discriminative*)  
 -Cl: When he says, for example, 'I'm coming over.' And then, it's maybe 10 p.m. and he hasn't arrived or called and I've been waiting since 7 p.m. that evening. To me, that is thoughtlessness. It's so typical of him.  
 -Ps: Good (*reinforcement*) and let's get to that point. The hours have passed; and you are seeing this in relation to the hours that have passed since he did do something he told you he would. Explanation: he has forgotten it. (*informative*). Don't tell me 'I wouldn't forget it,' can someone forget something like this, is it possible? (*discriminative*)  
 -Cl: Yes, it is significant to me, but I guess he could forget about it.  
 -Ps: Good (*reinforcement*), other explanations? (*discriminative*)

• End

-Ps: More explanations? (*discriminative*)  
 -Cl: He just forgot it.  
 -Ps: Exactly! That is, he has forgotten about it (*reinforcement*) (. . .)  
 -Ps: I mean, forget your immediate reaction, stop and say to yourself: 'Let's see, it is true that he is not calling and it's true that I'd call and I'd like him to call. However, it's also true that he is absent-minded, and is really busy. Perhaps he is thinking to himself: 'I have to call her, I have to call her, but is just postponing it.' (*Instructional*) Or perhaps he doesn't remember it and he is absolutely amused; I mean, 20 000 things can happen (*informative*). Think to yourself: 'What I have to do, when he calls, is to communicate my happiness that I'm talking to him, because that is what I want and because he is thinking of me.' (*instructional*) It is not worthwhile to think: 'No, I wanted him to think of me five hours ago, now I don't want it' because in that case you'll never get any improvement. (*motivational*) Does that make sense? (*discriminative*)  
 -Cl: Yes, yes, perfect.  
 (. . .)

previous stage of thought assessment. The end of the segment was defined as the moment when the therapist stopped debating the idea and moved on another in-session activity. Using these criteria, 18 complete sequences exemplifying the Socratic method were selected to form the observation sample, which was converted from a VHS to an MPEG format to be processed with The Observer XT.

In the second research phase, a psychologist trained in the category system (the second author, who also participated in the development of the coding system) observed, coded and registered the 18 sequences of Socratic method using the observational guide cited above (see Table 3 for an example of how a segment was codified). From the data on category frequency and duration obtained through The Observer, we obtained descriptive statistics for

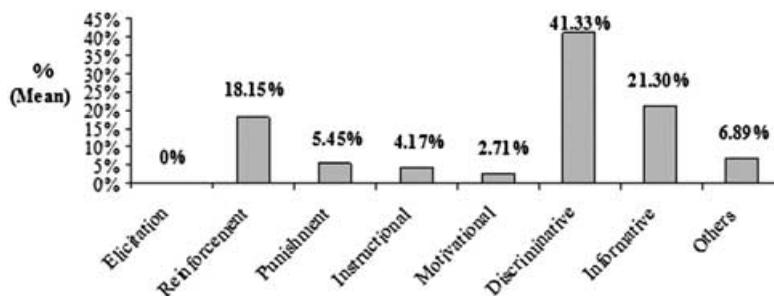


Figure 1. Mean frequency of each hypothesized function compared with the total

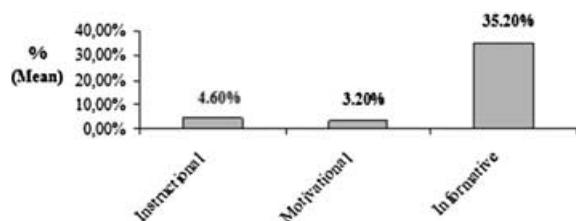


Figure 2. Mean duration of each hypothesized state function compared with the total duration of fragments

each event and state functions. We computed the mean frequency of each function (event or state) relative to the frequency of all registered functions, and the mean duration of the state functions relative to the duration of each debate fragment in the total sample. At a qualitative level, we examined the therapist's verbal behaviour in each of the 18 segments while looking for possible sequences and transitions among functions.

## RESULTS

The most frequent event functions during debate (Figure 1) were the hypothesized discriminative (41.33%) and reinforcement (18.15%) function. In contrast, elicitation did not appear in the sample and punishment did so only at a very low percentage (5.45%). The most salient of the state functions (Figure 2) was the informative function, with an average frequency of 21.30% and a mean duration of 35.20%, representing on average one third of the total duration of the observed segments. The motivational and instructional functions had a low frequency of occurrence (instructional: 4.17%; motivational: 2.71%) and a very short duration compared to the overall duration of the segments (instructional: 4.60%; motivational: 3.20%).

Figure 3 is an example of a graphical representation provided by The Observer XT showing the sequences of hypothesized functions of the therapist's verbal behaviour during that Socratic method fragment.<sup>5</sup> As Figure 3 shows, in the first stage only the hypothesized discriminative, reinforcement and punishment functions appear. The informative function is introduced only later and gradually becomes more important as the debate progresses. The instruction function follows a similar course and represents a high proportion of the final part of the sequence. The motivational function appears at a lower proportion than the informative function and the former usually alternates with the latter (Figure 3). After this phase of alternating information and motivation functions, a sequence similar to the initial one takes place, with the therapist uttering verbalizations with discriminative, reinforcement and punishment functions. In the following segments, the informative (or motivational) function alternates with discriminative and reinforcement functions.

We found a similar structure in 14 of the 18 debate sequences, regardless of the therapist involved. Accordingly, the data could be summarized in a descriptive model of the therapeutic process with three phases: the start, course and end phase (Figure 4). The *start phase* began when the patient emitted a dysfunctional verbalization or when the therapist decided to apply the Socratic method to modify any previously assessed verbalization (this second option was less common). The therapist then started a sequence of discriminative verbalizations, usually in the form of questions, trying to modify the patient's initial verbalization. At this moment, some of the patient's verbalizations were

<sup>5</sup>The remainder of the graphical representations are not included in this section due to lack of space. A copy of them is available upon request.

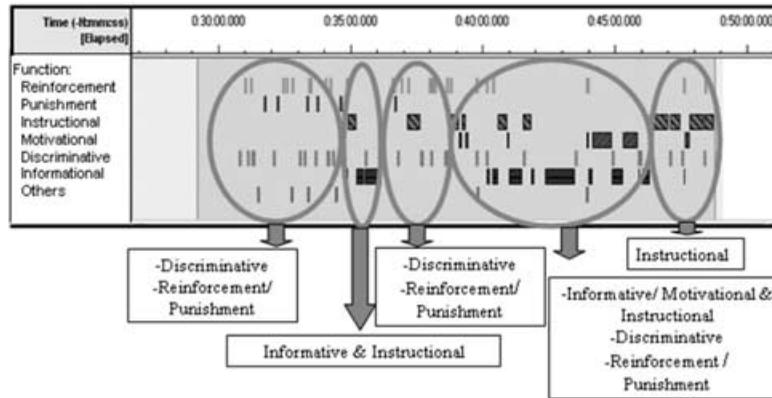


Figure 3. Graphical representation of a Socratic method fragment

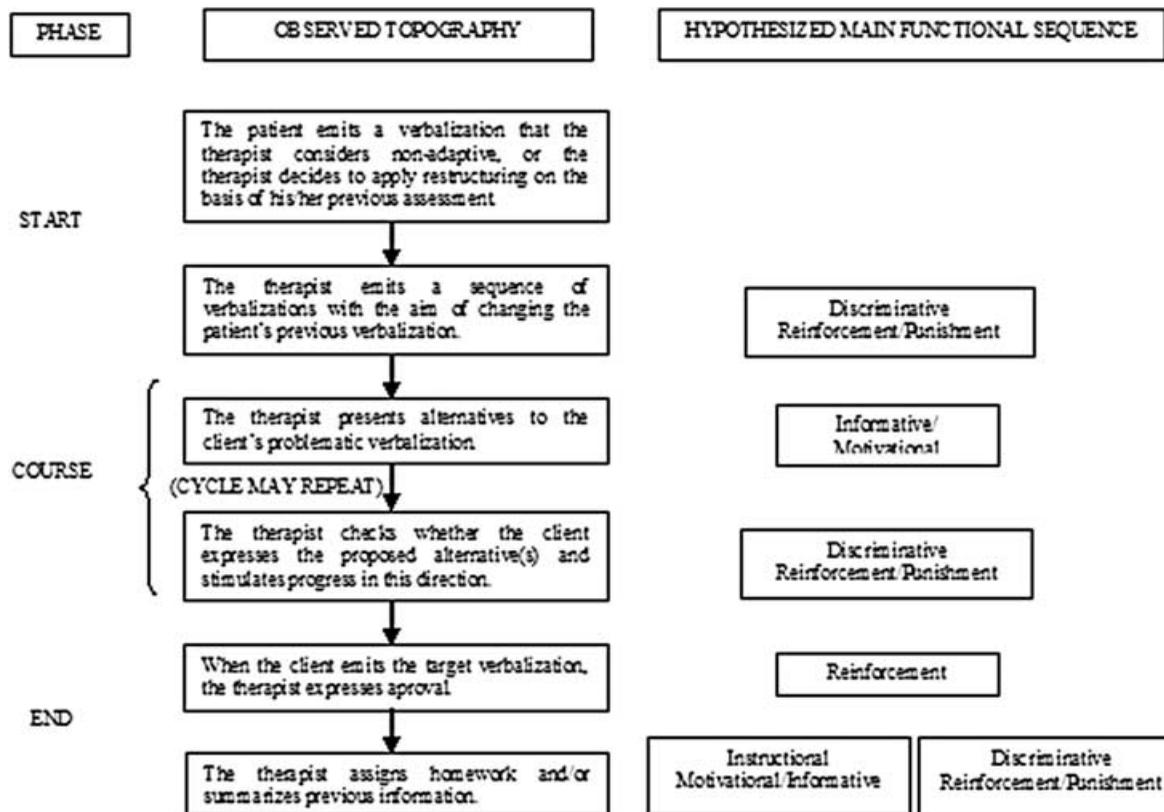


Figure 4. Tentative model of cognitive restructuring

followed by the therapist's verbalizations with hypothesized reinforcement or punishment functions, depending on whether the patient's verbalization was nearer or farther, respectively, from the target verbalization (i.e., the verbalization that the

therapist wanted the patient to emit at the end of the procedure).

The *course phase* began when the therapist provided the patient with verbalizations alternative to those which caused the debate (this phase presum-

ably occurred because the patient did not verbalize them spontaneously after the previous series of questions). In this phase, these therapist's verbalizations had an informative function, in some cases mixed with the motivational function. On some occasions, the therapist highlighted the positive consequences of change in a patient's behaviour by using the motivational function; on fewer occasions, the therapist highlighted the negative consequences of maintaining current behaviour. These alternative verbalizations sometimes coincided with the target verbalization, but more often than not they were only partial, successive approximations to this final objective. These verbalizations were usually followed by questions formulated by the therapist (discriminative function) to check whether the patient agreed with the new proposal. Reinforcement or punishment were also used step by step to modify the patient's behaviour in direction of the target verbalization.

The final phase (*end phase*) started when the patient agreed with the target verbalization. Then the therapist usually, but not always, emitted a strong acceptance signal (hypothesized reinforcement function), often followed by homework assignment (instructional function), which at this time was very specific and detailed. In the earlier phases of Socratic questioning, informative and motivational functions summarized what had been discussed over the course of the debate, but in this final phase these summaries were much more frequent. The therapist also gave frequent explanations about the usefulness of the assigned homework (informative or motivational function), often followed by questions (hypothesized discriminative function) to check the patient's understanding, and some final reinforcement or punishment functions to address any unresolved issue.

In 4 of the 14 recordings that were used to elaborate the model, these three phases (start, course and end) were repeated in successive cycles because during the application of the Socratic procedure different verbalizations were debated. All three phases took place repeatedly in order to restructure each of the patient's verbalizations.

## DISCUSSION

We have presented a new analysis of the use of the Socratic method during cognitive restructuring, starting with an initial description of what the therapist does when this method is applied (Figure 3). The research started here may benefit

the applied area because clinical psychologists often are unable to specify the concrete steps to be taken during the Socratic method (as contrasted to other techniques such as systematic desensitization, for example). If we elaborate a consistent model of the systematic application of the Socratic method, and if therapists know how and why the method works, benefits may be expected both in the application of the method in the hands of non-expert psychologists and in the work of experts who will be able to correct possible errors and may be more effective in varying their therapeutic strategies (c.f. Critchfield, Henry, Castonguay, & Borkovec, 2007).

This report clearly is only a first step in this direction. The present work aims only at an exhaustive and detailed description of the therapist's verbal behaviour. In future studies we plan to extend our descriptive analysis to the patient's behaviour. Once the therapist's and the client's verbal actions are described in an empirically adequate fashion, studying how far the appearance or presence of one is related to the appearance or presence of the other can proceed. This is essentially a functional analysis of the therapist-patient interaction. From our point of view, however, a preliminary descriptive approach to the clinical phenomenon is needed in order to formulate a theoretical account of therapeutic change. We will not be able to understand how and why people change in therapy unless, prior to that, we know what happens during the clinical intervention.

To understand how the Socratic method works it is in turn important, from our perspective at least, to consider the patient's verbalizations as operant actions (including verbal rules) that needs modifying. Does the Socratic method involve shaping the patient's verbal behaviour? Our results suggest a gradual change in the patient's verbalizations or rules during therapy. This change could be related to the differential reinforcement of the patient's verbalizations that approximate the therapist's objective and with the punishment of the verbalizations that go against this objective (Poppen, 1989), but an evaluation of this hypothesis must await a full functional analysis of the Socratic method. Notice that apart from the discriminative, reinforcement and punishment functions possibly involved in a shaping process, in the fragments we analysed the therapist also relied on informative, motivational and instructional functions. Future studies need to perform a more molecular analysis of the effects of these functions, describing the stimulus-response-consequence sequences that occur when

the therapist informs, motivates and gives instructions to the patient. Indeed, work in progress by our research group aims at analyzing these 'macro-functions' (information, motivation and instruction) in terms of subcomponents, which might involve establishing operations (Schlinger, 1993, 2008a, 2008b) or verbal discriminative functions.

According to different authors (Dimidjian et al., 2006; Pérez, 2007), behavioural components may be responsible for the success of so-called cognitive therapy (at least in the case of depression), because when both treatments are studied separately, purely behavioural strategies seems to be at least as effective as the cognitive components. As these authors suggest, more research is needed to shed light on these questions. Without overlooking the crucial role of the so-called 'behavioural activities' in cognitive therapy, we believe that what has traditionally been known as the 'cognitive part' could be explained in behavioural terms and is especially relevant for the treatment of problems in which thoughts play an important role. It is necessary to analyse the patient's problematic behaviours functionally in order to determine which aspects need to be treated and through which therapeutic techniques. The latter may be targeted at motor or verbal behaviours, but in either case we need to know which mechanisms are the operative ones—aside from knowing which components within each treatment have the greater impact.

Although the explanation we are tentatively proposing about Socratic questioning differs from that presented by Beck and Ellis, the way the Socratic method has been developed in this sample is similar to what can be seen in the transcriptions included in their manuals, with the exception of one difference: in many of the fragments we analysed, the target verbalization was presented at the patient at the outset. Similarly, at certain moments in the debate the current target verbalization or therapeutic objective to be achieved, was proposed explicitly to the patient (in the form of what we have called *alternative verbalizations*). This seems much more directive than the process of 'guided discovery' initially proposed by Beck and latter by authors such as Overholser (1993) or Padesky and Greenberg (1995). The more directive way of applying the Socratic method is what we have found in the studied sample. Might this option be more effective in therapeutic terms? In theory it might, if we hypothesize that the Socratic method involves a shaping process. This hypothesis might be evaluated by comparing empirically the effectiveness of these two ways of performing debates

within a larger sample of clinical cases and using different indicators of effectiveness. That would be an interesting objective for future research.

A number of limitations to the present work should be noted. First, the category system still needs to be improved: we need more clearly defined categories, as well as more specific coding rules so that the reliability of the coding system can be improved. The elicitation function, for example, did not appear in our study and should perhaps be removed from the category system. In the application of the Socratic method the issues discussed are frequently difficult for the patient, and we could expect the therapist's behaviour to have some elicitation function with respect to emotional reactions. Recall, however, that the patient's face could not be seen in our recordings, which may make it impossible to identify his or her emotional reactions and therefore to detect the therapist's elicitation function.

Another category worth mentioning is the 'others' category, which could and did take place at any time during the Socratic debate, in the form of questions unanswered by the patient, of verbalizations by the therapist interrupted by the patient, and, in a few cases, of unrelated comments by the therapist. In any case, this category does not seem to be clinically relevant in the application of the Socratic method.

An important issue for future research is to develop subcategories for the informative, motivational and instructional functions that currently include a wide variety of therapist's verbal responses, so that the different categories included in the system will be more homogeneous in terms of level of analysis. We expect our future work to be based upon this initial research, however, as we have reached an acceptable level of coder precision for the current categories. Also, as stated before, it is important to elaborate a category system for the patient's verbal behaviour, so that the interaction between therapist and patient can be analysed functionally.

On a methodological level some improvements are also necessary: the size of the study sample needs to be increased. When enough data are available, a lag sequential approach could be used to evaluate statistically the sequences of functions that we have identified through qualitative analysis (Rosenfarb, 1992; Follete et al., 1996).

Several important issues should be addressed by future research: Does the application of the Socratic method differ depending on the therapist's more or less extensive clinical experience? If we were

to discover differences among application variants or styles, could these variants be more or less effective? What is the role of homework in Socratic questioning? Does its application differ depending on the therapist's theoretical orientation? And if so, which therapists are more effective? We believe that optimal levels could be reached in psychological treatment if we were to focus specifically on interventions instead of diagnostic groups, handbooks and theoretical models.

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