

## TRANSFORMATION OF INSTRUCTIONS INTO SUGGESTIONS USING OPERANT PROCEDURES

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*Transformation of instructions into suggestions using operant procedures. The aim of this work was to design a behavioural programme for non-suggestible people, in order to develop their receptivity to suggestions. A procedure of successive approximations was used; information on the aim of the suggestions was provided and a series of exercises, with different levels of difficulty, was carried out to form them. The therapist reinforced successful completion of the exercises at all times. The achievements show the effectiveness of the procedure for developing suggestions. Six of the ten subjects responded to some of the suggestions. Moreover, it was confirmed that the change was contingent upon the intervention: no subject showed any change until the specific training for each suggestion was given; in the meantime responses remained at the baseline levels. These results would confirm the importance of situational variables in suggestibility or susceptibility to hypnosis.*

*El objetivo de este trabajo fue diseñar, para sujetos no sugestionables, un programa conductual que incrementase la "receptividad" a las sugerencias. Para ello se utilizó un procedimiento de aproximaciones sucesivas; se proporcionaba información sobre la meta de las sugerencias y se realizaban una serie de ejercicios, escalonados en su dificultad, para formarlas. El terapeuta reforzaba en todo momento los éxitos de estos ejercicios. Los resultados obtenidos señalan la efectividad de este procedimiento. Seis sujetos, de los diez que participaron en el experimento, respondieron a alguna sugestión. Además, se comprobó que la mejoría fue contingente a la intervención: ninguno cambió hasta que no se introdujo el entrenamiento de cada sugestión: mientras, las respuestas se mantuvieron en los niveles de línea-base. Estos resultados confirmarían la importancia de las variables situacionales en la sugestionabilidad o susceptibilidad hipnótica.*

A great deal of attention is currently being given to the subject of hypnosis. In fact, the "rediscovery" of such procedures could be seen as one of the main characteristics in Behaviour Modification of the 1980s (Cruzado, Labrador and Muñoz, 1995).

It is no coincidence that the American Psychological Association has recently published a manual for the clinical use of hypnosis (Rhue, Lynn and Kirsch, 1993).

However, in spite of this proliferation of applications and research interest, hypnosis continues to be shrouded in the mystery of which Clark Hull, as early as 1933, complained (Hull, 1933). The present controversy in this field has its roots in the past, but it has been renewed with modern terminology, coming chiefly from cogniti-

ve and social psychology. The fundamental question hinges on whether we consider hypnosis to be a *special* process, in which subjects *enter* into a kind of *altered state of consciousness* or *trance*, or whether it is a conventional (though exceptional) process, which can be understood in terms of the concepts of social influence. This debate has given rise to the terms "credulous" and "sceptics" with regard to the phenomenon of hypnosis (Sutcliffe, 1960).

For authors belonging to the former group, those defending the idea of hypnosis as an *altered state of consciousness* or *trance*, hypnosis involves a qualitatively different form of consciousness from the normal one. It would be possible to pass into a hypnotic state spontaneously, but it is most commonly attained through a special procedure called *hypnotic induction*. It is also supposed that when the subject *enters* this state he/she stays in it until a convenient formula is introduced for "leaving" it. Whilst in the *trance*, different degrees or levels of profundity can be reached, in each of which the

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subject carries out different hypnotic activities.

This conception of hypnosis is rejected by the “sceptical” authors, also referred to as the *non-state theorists*, who base their explanation of the phenomenon on a series of socio-cognitive variables. Among the most important of these would be expectations on being hypnotised (Kirsch and Council, 1989), demands of the experimental situation (Orne, 1979) and subjects’ interpretation of how they should behave (Spanos, 1986).

Within this controversy, a fundamental question is that of the possibility or otherwise of modifying the susceptibility to hypnosis of a subject. That is, whether it is possible to convert subjects who in principle do not respond to suggestions into subjects who are suggestible, or susceptible to them. For the *state theorists* this would not be possible. No significant changes could be made in this regard, since they believe susceptibility to hypnosis to be a capacity that cannot be learned. For example, a subject who was only slightly suggestible could not be made into a very suggestible subject. For the *non-state theorists*, however, such a challenge would present little difficulty; in fact, some studies have demonstrated the modification of suggestibility (Gorassini and Spanos, 1986; Sach and Anderson, 1967). Nevertheless, these have been the subject of criticism. Sach and Anderson’s study has been accused of possessing a series of methodological limitations, including the failure to include a control condition or to take into account a characteristic effect of suggestions such as the “involuntariness” subjects mention (Bertrand, 1989); the work of Gorassini and Spanos (1986), has not been able to be reproduced in other laboratories, suggesting that a series of “unspecific” –and unidentified– variables may have been responsible for their results (Bates, Miller, Cross and Brighan, 1988).

This work proposes the use of an operant procedure to modify susceptibility to hypnosis. Given that operant techniques have been seen to be effective in the implantation of new behaviours, it is reasonable to suppose that they may be equally useful in this field, and thus contribute to throwing light on some questions that have previously arisen. We take as a starting point the pioneering program of Sach and Anderson (1967), but here using a single-case experimental design, which allows us to confirm whether the effectiveness of the training is contingent upon the effect of the operant procedure. The final objective is to determine which variables of the hypnotic situation can convert an instruction into a suggestion.

## METHOD

### Subjects

We selected 10 subjects (from a sample of 89) who scored zero on a standardised scale of susceptibility to hypnosis, the *Carleton University Responsiveness to Suggestions Scale* (Spanos *et al.*, 1983a). That is to say, subjects were people who were not at all suggestible. Seven were women and the other three men. Their mean age was 19 years, with standard deviation 0.9. Their participation was rewarded with some credits for one of the subjects studied on their course. None of them had any previous experience with hypnosis.

### INSTRUMENTS

*Carleton University Responsiveness to Suggestions Scale* (Spanos *et al.*, 1983a). This is a standardised scale of susceptibility to hypnosis that consists of seven suggestions (Table 1).

Table 1 Suggestions, dimension to which they correspond and criteria for making the “Objective” responses on the CURSS scale		
Suggestion	Dimension	“Objective” criterion
“Raising the arm”	Ideomotor	Raising the arm at least 15 cm
“Arms Moving Apart”		Separating the hands by at least 15 cm
“Arm Rigidity”	Challenge	Not bending the arm by more than 5 cm
“Arm Imobility”		Not raising the arm from the table more than 3 cm
“Musical experience”	Cognitive	Moving the head to the rhythm of music
“Visual experience”		Moving a book that does not exist
“Momentary memory loss”		Not remembering the suggestions made

For each one of these we took three measures:

- *Objective’ Score (O)*. This refers to the movements or ‘visible responses’ the subject must make for each suggestion. The score given refers to whether this response *does* or *does not* occur, according to a pre-established ‘objective’ criterion (Table 1).
- *Involuntariness’ Score (I)*. This refers to the degree of automaticity or ‘involuntariness’ that the subject attributes to the action. It is measured using a questionnaire (an example, for the first item, is shown in Table 2). Responses are considered ‘involuntary’ when answer c or d is given.

Table 2 Questionnaire on the experience of involuntariness for the item “raising the arm”
1. Raising the arm. You were told your arm was light and was rising. During this suggestion my arm felt like it rose by itself.
I experience this: a) Not at all. b) To a slight degree. c) To a moderate degree. d) To a great degree.
<b>Remember:</b> If you think you raised your arm voluntarily or didn’t feel it move by itself, you should answer (a).

- *O-I Score*. This corresponds to suggestions actually carried out by the subject, –that is, those which fulfil both the ‘Objective’ and the ‘Involuntariness’ criteria.

The results found using this scale correlate significantly with other standardised scales of susceptibility to hypnosis (Spanos *et al.*, 1983b), and their responses have a temporal stability ranging from two weeks to three months (Spanos *et al.*, 1983c).

*University of Oviedo programme for the development of hypnotic responses*. In accordance with the logic of behaviour modification, and specifically the mentioned work of Sach and Anderson (1967), this is constituted by a procedure involving a series of exercises that train the skill required (using reinforced practice).

## PROCEDURE

The programme was carried out on an individual basis, and its design was one of *multiple baseline between intra-subject behaviours*. This design, coming from operant logic, is new in the area of the modification of susceptibility to hypnosis. Most commonly used in this field are group designs which, offering a total pre- and post-treatment score, do not indicate how the change was produced, nor if it was or was not specific to the particular suggestion.

The logic followed is described as a procedure of successive approximations. First, the objective to be attained is defined, demonstrating the objective action involved, and explaining it to occur “involuntarily”. Reference is made to similar situations in everyday life (which nevertheless are not considered to be hypnotic responses). This is followed by the practice of a series of exercises related to the required actions (be it an ideomotor action, a challenge of the “can/can’t do” type, an imaginary experience or a distraction to facilitate forgetting). Once the exercises for each suggestion have been demonstrated, subjects are instructed about what they have to do in order to carry them out without thinking what they are doing. The emphasis is placed (according to the nature of the task) on paying attention to (or being distracted by) the proprioceptive sensations associated with the action and in thinking of images related to the execution of the task. The ‘proprioceptive sensations’ are developed through the contrast involved in removing a weight from the arm (for example, a book that was being held) and feeling the corresponding lightness, creating a reciprocal resistance of claspings-separating, feeling the touch of a particular object on the hand, or experiencing a perceptual post-effect (depending, of course, on the suggestion). With respect to the images, those usually employed in suggestion tasks were used. The aim of the procedure is to give ins-

tructions so that the required actions occur automatically, and attention is focused on the suggestions themselves (and alternatively on proprioceptive sensations). Finally, there is a complete trial, incorporating everything that has been trained. The experimenter adheres to the criteria of differential reinforcement of the actions in accordance with the required responses. The suggestions trained were the following:

- *Raising the arm*. The subject is asked to feel his/her arm is ‘light’, like a gas balloon, and that it is rising little by little. This suggestion is classed as ‘ideomotor’.
- *Separating hands*. Subjects were asked to interlock the fingers of their hands. Once they had done this, they were told that they could not separate them, even if they tried. They were given 15 seconds to attempt to do so. This suggestion is categorised as ‘challenge’.
- *Visualisation of a book*. It is suggested to the subject that there is a book on the table, and that he/she must make it move. This suggestion is considered as ‘cognitive’.
- *Forgetting the suggestions*. It is suggested to subjects that, when we ask them to remember the suggestions presented in the session, they will be unable to do so. The subject is provided with paper and pencil and given one minute to try to remember them. This suggestion is also classed as ‘cognitive’.

The procedure was carried out in four sessions (of 45-70 minutes each), separated by two days. Before each session the suggestibility of the subjects was again assessed (applying the four training items), in order to establish a baseline. This assessment was repeated at the end of the session. When the procedure had finished, the complete CURSS (therefore including untrained items) was applied. This final assessment was carried out by a different experimenter in a separate session, though in the same place. A further assessment was made after three months.

## RESULTS

In the first place, the effectiveness of this procedure for modifying susceptibility to hypnosis was confirmed. Specifically, with respect to the post-treatment assessment (Figure 1), six subjects developed some suggestibility.

Also, for each suggestion the change was contingent upon the intervention. That is, the change only occurred after training each of the suggestions, while the rest of the responses remained at baseline levels (Figure 2). However, the suggestions were not all similar in terms of being developed. The suggestion to which subjects responded most was ‘raising the arm’ (Subjects 1, 2, 3, 4). Next came that of the ‘challenge’ (Subjects 1, 2), followed by ‘visualisation’ (Subject 3) and ‘forgetting’ (Subject 1) (Figure 2).

It should be observed that the first suggestion was nei-

her 'immediate' nor stable after the intervention for all subjects. In fact, in Subjects 1 and 4 it was developed with a "delay" with respect to the intervention. Similarly, the subject that responded to the suggestion of 'visualisation' (Subject 3) did not maintain this result in the following assessment (Figure 2).

With regard to the follow-up, practically the same results were found as in the post-treatment assessment. Of the six subjects that changed as a result of the intervention, only one responded to one suggestion less after three months (Subject 5) (Figure 1).

## DISCUSSION AND CONCLUSIONS

As we said earlier, there is disagreement as to whether hypnosis is a special process (Bowers and Davidson, 1991; Hilgard, 1992) or whether, on the contrary, it can be explained in the same way as non-hypnotic behaviours (Sarbin and Coe, 1972; Spanos, 1986). It is in favour of the latter view that this work was intended to provide evidence. In particular, we aimed to discover whether it was possible to increase the susceptibility to hypnosis of subjects who were not in principle suggestible, by means of an operant procedure.

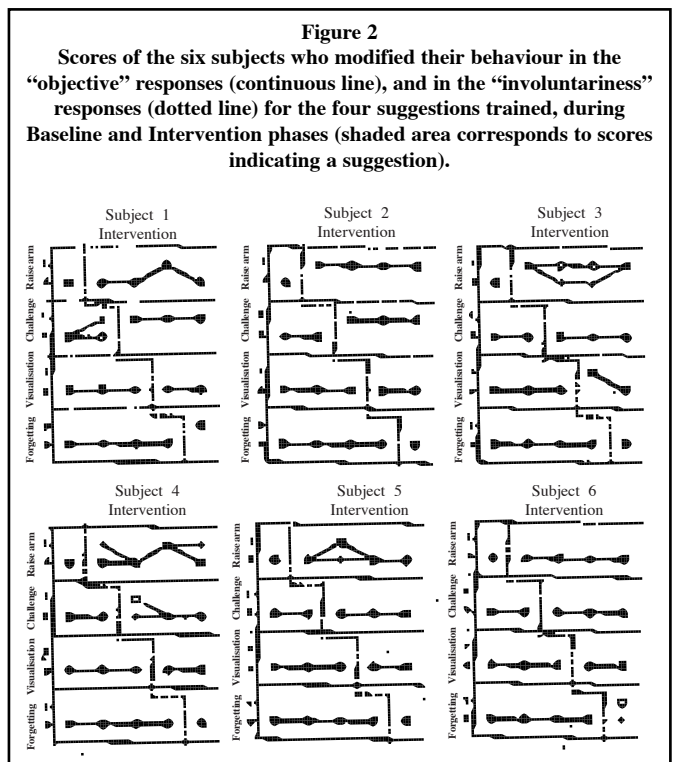
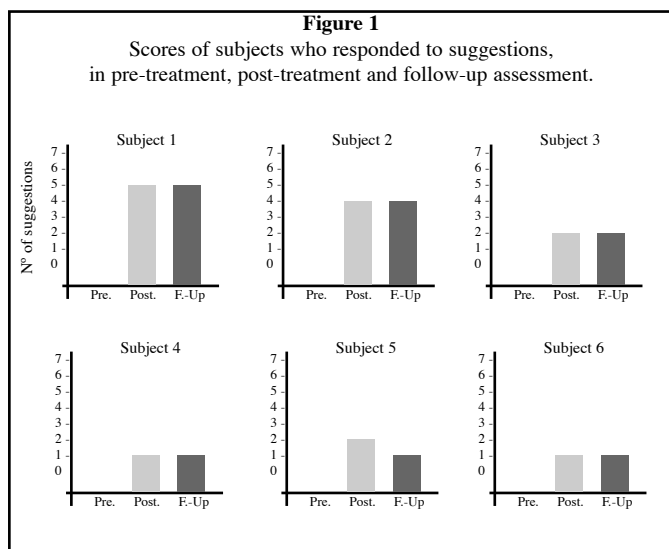
The results obtained show that, of the ten subjects participating in the experiment, six modified their hypnotic behaviour or, which amounts to the same, developed some kind of capacity for suggestion (Figure 1). With regard to the way the change was produced, it was observed that this was contingent upon the intervention. That is, in no case was a suggestion formed until direct intervention took place (Figure 2). However, it was also found that not all suggestions were formed equally easily. Thus, the simplest of the four was 'raising the arm', followed by 'separating hands', and finally by 'imaginary experience' and 'forget-

ting suggestions'. These results would suggest that there are different degrees of difficulty in the suggestions, due probably to their different requirements and the different involvement with or 'commitment' to the role of the 'hypnotised subject' implied in carrying them out (Coe and Sarbin, 1971).

With regard to the follow-up, there were scarcely any variations with respect to the post-treatment assessment (Figure 1). This is probably due to the fact that, in the interim, it is unlikely that the subject was involved in similar hypnotic situations, so that, in fact, these responses are not *extinguished*.

In sum, the results of this study demonstrate that the development of a suggestion is sensitive to the procedure described, which consisted of the linking of exercises that train each suggestion, which is considered, in turn, as a relatively independent ability (rather than a general aptitude). Thus, it can be said that reinforced practice of the required actions leads to the execution of the hypnotic behaviours when the appropriate 'instructions' are given. It remains to fit these instructions into the operant logic followed, but this presents neither conceptual nor empirical difficulty. In this respect, the 'instructions' would

be understood as *intensified mands*, in the sense established by Skinner (1957, p. 392). Thus, we would have to take into account, for example, that in the hypnotic situation the requests are not made directly, but in an indirect or impersonal way (in the form of *tacts*). For example, in the



case of 'raising the arm', the subject is not told "raise your arm", but rather "your arm is rising little by little", which disguises a *mand* as a *tact*, at the same time suggesting passivity (Cangas, Pérez and Errasti, 1994). Subjects are also told to focus their attention solely on the instructions they are given and to be aware of proprioceptive sensations, which would otherwise go unnoticed.

The decisive question is that subjects have the *subjective experience of involuntariness* corresponding to the objective response to the instruction (the instruction thus being a suggestion). This raises the question of the *construction of hypnotic involuntariness*, which implies sophisticated use of language, through which the subject interprets the "hypnotised" role, or how instructions are converted into suggestions (Pérez Alvarez, 1996, pp. 485-487).

It remains to be seen, however, in future studies, whether it is possible to increase the effectiveness of this programme, above all for the more difficult suggestions, and to make a more detailed analysis of the aspects involved in such training. This work represents merely a first approach to the topic, which aims to demonstrate how an *instruction* can be transformed into a *suggestion*.

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