

The “Hidden Observer” and the Effort Intensity in Engaging in a Suggested Behaviour

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Abstract: Experimental groups (with low and high hypnotisability) were selected with the help of the Stanford Hypnotic Susceptibility Scale: Form C [19] from a sample of volunteer students initially selected from the results obtained in the Harvard Group Scale of Hypnotic Susceptibility: Form A [17]. The participants in each hypnotisability group were randomly distributed, after evaluating the effort at baseline and in hypnosis, in the “More Aware” condition (in which they were suggested that the hidden observer is more aware of the effort invested in making the suggestions than the hypnotised part), and in the “No Information/ Control” condition. All the participants were administered the following two suggestions: an ideomotor suggestion (bringing the hands together) and a challenge suggestion (arm stiffness). Orne’s “real-simulator” paradigm was used. Hidden observer was manifested in 66% of the subjects who actually lived the trance when suggested to bring the hands together and in 61% at the suggestion of arm stiffness. The participants who simulated the trance manifested hidden observer to an extent of 66% for both suggestions. It was found that some of the “real” participants who manifested hidden observer response at the hands approaching suggestion did not show the hidden observer response also to the arm stiffness suggestion and vice versa. In the post-experimental interview, the “simulator” participants were demanded the real values of effort intensity and hypnosis level.

Key-Words: hypnosis, hidden observer, suggestion, real-simulator paradigm.

1. Introduction

The experimental approach to the hidden observer phenomenon in the field of hypnosis is a real challenge. The dispute between neo-dissociation and socio-cognitive researchers has also been shown in interpreting the results obtained in the studies aimed at the hidden observer.

Hilgard introduced the hidden observer metaphor as a result of experiments that had showed that a hypnotized subject, although unaware of some sensorial information can, nevertheless, somehow record and process it [6]. Thus, he considered the hidden observer as part of the monitoring function which becomes accessible only through automatic writing or speech. Through the neo-dissociation theory, Hilgard [5] expresses an original viewpoint concerning consciousness, and executive and monitoring functions during hypnosis. Therefore, he talks about a dominant executive I or a central control structure with monitoring and planning functions necessary for the appropriate use of the multiple

subsystems hierarchically ordered. The hypnotist’s suggestions, by themselves, can influence the executive functions and change the hierarchical ordering of the subsystems [6]. Consequently, the executive I is divided in two by creating a veritable scission of the consciousness between the part that responds to the hypnotic suggestions and the normal executive functions, division that is preserved by an amnesiac barrier. This would explain why the hypnotized individuals perceive their behaviour as non-volitional and effortless, since the hypnotic suggestions for a common movement such as bending the arm are carried out by the dissociated part of the executive I. The “hidden observer” does nothing more than to reveal the scission of the consciousness due to hypnotic suggestions. In order to demonstrate the existence of dissociated cognitive subsystems during hypnosis, the hypnotized subject receives the following instruction: “When I place my hand on your sholder, I shall be able to talk to a hidden part of you

that knows things are going on in your body, things that are unknown to the part of you to which I am now talking...You will remember that there is a part of you that knows many things that are going on that may be hidden from either your normal consciousness or the hypnotised part of you.”[13]

The first studies [13,7] showed, by means of the hidden observer procedures, that participants, for whom pain had been substantially reduced by hypnotically suggested analgesia, simultaneously highlighted hidden pain. Research has shown that not all highly hypnotizable participants manifest a hidden observer, but only a percentage between 42% [15] and 50% [8] for the real participants and a percentage between 0% [15] and 75% for the simulators [8].

For the socio-cognitive theorists, the hidden observer phenomenon is “just a result of experimental demands” [18], since the hidden observer reports modify significantly depending on how the instructions are formulated; it is a social construct and not an intrinsic and unsuggested aspect of the hypnotic response. As early as 1977, Coe and Sarbin [1] argued that the hidden observer allowed subjects to report pain that, in fact, they had always felt. Naming the hidden observer a “flexible observer”, Kirsch and Lynn [12] considered that it was far from reflecting a division in the consciousness, being only just another suggested response.

The experiment carried out by Green et al., [2], which expanded the hidden observer paradigm to a motor response, generated numerous positions among scholars [9, 10, 14, 11], some of them highlighting the shortcomings and limitations of this study.

In our research, two different types of suggestions were used: the suggestion to bring hands together, suggestion that involves an ideomotor response, and the suggestion of arm stiffness, which is a challenge suggestion. The effort intensity evaluation was required across baseline, hypnosis, and hidden observer. The hidden observer will show, in fact, the intentionality in carrying out the movement [11] in the ideomotor suggestion. For the suggestion to bring hands together in hypnosis we predict a low effort (the smaller the self-reported intensity, the more involuntary the behaviour). For the second suggestion, the effort intensity in bending the arm will be high (the higher the self-reported intensity, the more efficient the suggestion of rigidity) due to the intentionality opposing the suggestion of rigidity.

2. Method

2.1 Participants

The participants in the study were 36 volunteer students who received extra credits in the

examinations. The selection was made with the Harvard Group Scale of Hypnotic Susceptibility, Form A [HGSHS: A,17] and the Stanford Hypnotic Susceptibility Scale, Form C [SHSS: C, 19], out of a total of 280 volunteers. Highly hypnotizable participants registered scores over 8 in HGSHS: A ($M = 8.94$, $SD = 1.08$) and over 8 in SHSS: C ($M = 9.35$, $SD = 1.27$). Low hypnotizable participants registered scores of 0 to 4 in HGSHS: A ($M = 2.50$, $SD = 1.26$), and also 0 to 4 in SHSS: C ($M = 1.65$, $SD = 1.11$).

2.2 Procedure

2.2.1 Orne’s real-simulator paradigm

Through the Orne’s real-simulator paradigm [16] applied, low hypnotizable participants were instructed to simulate the behaviour of a highly hypnotizable subject.

2.2.2 Task description

Before starting the experiment, the students had been requested to participate in a short exercise in order to learn how to evaluate the effort intensity in approaching and bending the arms, on a scale from 0 (no effort) to 10 (maximum effort). The participants sat at a desk on which were placed, at the same distance for all participants, two boxes of paper weighing 4 kg each. They were asked to stretch both arms forward and willingly push the boxes until they touched each other and said: “Approaching hands requires a 10 intensity effort.” The second task implied stretching the left arm near the box and dragging it towards the body until the arm flexed. Then, the subject was told: “This is a 10 intensity effort when you are bending the arm.” Although the effort a person makes when lifting weights depends on his/her muscular strength, it was however considered necessary to provide a reference point in self-reporting in order to reduce variance. Zero intensity effort was equivalent to the sensation felt when bringing hands together freely and automatically or while the voluntary bending of the arms, without overcoming any obstacle.

2.2.3 Baseline trial

In awake state, eyes closed, the participant was read the two suggestions and (s)he was asked to provide the assessment of the effort required in fulfilling the suggestions.

2.2.4 Hypnosis trial

First, a classical hypnotic induction procedure: Stanford Hypnotic Susceptibility Scale, Form C [19] was applied; afterwards, the subjects were told: “Since you are deeply hypnotized, you will be able to

bring your hands together more easily and without much effort. You will remain hypnotised until you accomplish the task. Now stretch your hands forward, palms facing one another, without touching. I want you to imagine that an attraction force is exerted between the two hands bringing them closer to one other ... closer ... closer ... closer together ... it won't be as hard as it was when you were not hypnotized."

The suggestion was considered accomplished if after

10 seconds the hands were at least 15 cm closer together compared to the initial position and then the intensity of the effort was evaluated.

The suggestion of arm stiffness was considered achieved if the arm was bent less than 5 cm during the 10 seconds interval. It was formulated as follows: "Since you are deeply hypnotized you will be able to feel the arm as stiff as an iron rod, without bending it. You will remain hypnotised while you are accomplishing the task. Now stretch your left arm forward at shoulder's height. Imagine that your arm becomes stiffer and stiffer ... stiff ... very stiff ... As you imagine it as becoming tougher and tougher, you can actually feel how it gets tough ... Tougher and stiffer ... as if your arm was an iron rod, and thus the elbow cannot be bent ... Tough ... keep it tough, so that it cannot be flexed. An iron arm cannot be bent... You feel it hard as an iron rod ... stiff as an iron rod ... and you know how difficult, how difficult ... if not even impossible it is to bend an iron rod as your arm has just become. Check to what extent it is hard and rigid ... try to flex it ... try ..." . The effort made for bending the arm was assessed, and then were given suggestions for deepening the trance.

2.2.5 Hidden-observer trial: More Aware (MA) and No Information/Control (NIC) instructions

The participant was in hypnotic trance and the idea of hidden observer was introduced. For the More Aware (MA) group the suggestions were: "In a few moments I will put my hand on your shoulder ... when I do this I'll talk to a hidden part of your mind, a part of your mind you normally are not aware of. There might be a part of your mind, other than that I speak now, which is called hidden observer. It is called hidden because it is a part of your mind that you are not aware of, it is only accessible during the special moments of hypnosis, and this part I am talking to will not be aware of what you are telling me. Your hidden observer is more aware of how much effort you put. Your hidden observer is more aware than the hypnotized part of your mind of how much effort you

put. In just a few moments I am going to ask you to bring your hands together and to keep your arm stiff while trying to flex it. Meanwhile, the hidden observer will watch and you will report on how much effort you have put"[2].

Those in the condition No Information/Control (NIC) were told: "Although you are hypnotized, you are aware of everything that happens with your body, and when I put my hand on your shoulder you will be able to tell me exactly what is in fact the level of effort you made to bring your hands together, and also to bend your arm."

The order awake state/ hypnosis was counterbalanced among the participants.

Manifesting a hidden observer means that the value of the reported effort intensity in hidden observer condition is different from the one in hypnosis. For example, if under hypnosis, the subject reported an effort intensity of the level 7 and in hidden observer condition, the subject reported the same intensity, it meant that (s)he did not display hidden observer.

2.2.6 Self-reported depth of hypnosis and simulator verification

Before coming out of hypnosis, the participants were asked to evaluate on a scale from 1 to 10 the level of hypnosis experienced and how they interpreted the hidden observer suggestion. The simulators were required to disclose the true values of effort intensity.

3. Results

The intensity of the effort made in the hidden observer condition was calculated for each participant by the difference between the effort intensity in hypnosis and the effort intensity reported in the hidden observer condition [2]. We have analyzed the data including *all the real and simulator participants, regardless of the presence or absence of hidden observer manifestation.*

We used an ANOVA 3 mixed design model (Trial: baseline vs. hypnosis vs. observer) x 2 (Type of suggestion: arm vs. hand) x 2 (Type of observer: More Aware vs. No Information / Control) x 2 (Hypnotizability: real vs. simulators) where the trial and the type of suggestion were factors within-subjects and hypnotizability and the type of observer, factors between-subjects.

An ANOVA 3 x 2 x 2 mixed variance analysis for *the suggestion of bringing hands together* revealed a

significant main effect of Trial F (2.31) = 76.74, $p =$

.00, $\eta^2 = .706$, but the other main effects, including the main effect of Hypnotizability F (1.32) = 1.99, $p = .168$, $\eta^2 = .059$ and the other interactions, including interaction Trial X Hypnotisability X Type of observer, are not significant ($F_s < 1.93$, all $p_s > .168$).

Pairs comparisons using the Bonferroni correction revealed that, under the MA hidden observer condition, the intensity of the effort when the *real participants* were required to bring hands together was significantly higher at baseline ($M = 4.67$, $SD = 1.22$) compared to hypnosis ($M = 2.33$, $SD = 1.32$) and the intensity in the hidden observer condition ($M = .11$, $SD = 1.69$), while the effort intensity in hypnosis and in hidden observer condition does not differ significantly ($p > .05$). For the same category of participants, from the NIC hidden observer condition, the intensity ($M = -.67$, $SD = 1.66$) in hidden observer is significantly lower both compared to the intensity at baseline ($M = 4.78$, $SD = 2.77$), and compared to the intensity in hypnosis ($M = 2.00$, $SD = 1.50$). In hypnosis, the effort intensity is significantly lower compared to the baseline.

In the *simulator participants*, in the MA hidden observer condition, the effort is significantly lower in hypnosis ($M = 1.89$, $SD = 1.36$) than at baseline ($M = 6.56$, $SD = 2.30$), but not compared to the hidden observer ($M = -.33$, $SD = 1.12$). Compared to the baseline, the reported effort intensity when bringing the hands together is significantly lower in the hidden observer condition. For the simulators in the NIC hypnosis condition ($M = 2.56$, $SD = 2.96$), the effort is significantly lower compared to the baseline ($M = 5.78$, $SD = 3.35$); also, between baseline and the hidden observer condition ($M = .56$, $SD = 1.81$) the difference is significant; between the effort in hypnosis and the effort in the hidden observer there is no longer a significant difference.

Similarly, an ANOVA 3 X 2 X 2 design for *the arm stiffness suggestion* indicated a significant main effect of Trial F (2.31) = 75.90, $p = .00$, $\eta^2 = .830$, the other main effects and interactions were insignificant ($F_s < 2.06$, all $p_s > .135$), while the main effect of Hypnotizability is significant at baseline F (1,32) = 3.92, $p = .056$, $\eta^2 = .109$.

The *real participants* in the MA hidden observer condition show no difference between the effort intensity at baseline ($M = 6.11$, $SD = 2.32$) compared to hypnosis ($M = 7.89$, $SD = 1.90$), but in hidden observer condition ($M = -.11$, $SD = 1.17$) the effort intensity is significantly lower than at baseline and

compared to the state of hypnosis. On the other hand, in the NIC condition, the intensity in the hidden observer ($M = -.56$, $SD = 2.83$) is significantly lower than in hypnosis ($M = 7.33$, $SD = 2.12$), but also compared to the baseline ($M = 4.44$, $SD = 2.79$), while in hypnosis it is significantly higher compared to baseline and to the hidden observer.

For the *simulator participants*, the situation is reversed: there is no significant difference between baseline ($M = 4.44$, $SD = 2.70$) and hypnosis ($M = 6$, $SD = 2.69$) in the NIC condition, while in the MA condition, the effort intensity is significantly increased in hypnosis ($M = 6.67$, $SD = 2.50$) compared to the baseline ($M = 3.22$, $SD = 2.05$). In both conditions, in hidden observer condition ($M = .22$, $SD = 1.30$ MA group, namely $M = -1.33$, $SD = 2.65$, NIC condition) the intensity is significantly lower compared both to hypnosis and the baseline.

During the post-experimental interview, the simulator participants were asked to specify the veritable intensity of the effort. Thus, the U Mann-Whitney test revealed that in hypnosis, at the suggestion of bringing the hands together, low hypnotizable participants reported significantly more effort than the highly hypnotizable participants ($U = 4$, $N_1 = 12$, $N_2 = 8$, p two-tailed $p = .00$) with no significant differences at baseline and in hidden observer condition ($p_s > .43$). At the suggestion of flexing the arm, in hypnosis, the low hypnotizable participants have made significantly less effort in flexing the arm than the highly hypnotizable participants ($U = 10.5$, $N_1 = 11$, $N_2 = 6$, p two-tailed $p = .021$). Between the baseline and the hidden observer no significant differences were recorded ($p_s > .79$).

As far as *the level of hypnosis* is concerned, the test t for independent samples showed no significant differences between real ($M = 7.44$, $SD = .92$) and simulator participants ($M = 7.22$, $SD = 1.66$) $t(34) = .495$, $p > .05$. When the simulated value was replaced with the real value disclosed in the post-experimental interview, it was found that the level of hypnosis reached by the low hypnotizable participants ($M = 5.50$, $SD = 2.64$) was significantly lower than that of the high hypnotizable participants ($M = 7.44$, $SD = .92$), $t(34) = 2.95$, $p = .006$.

4. Conclusions and discussions

The results revealed differences between the general trend of an effort intensity, in the hidden observer (MA & NIC), which is significantly lower than in the other two experimental conditions – baseline and hypnosis. When suggested to approach hands, the

effort intensity for both the real and the simulator participants in the MA observer condition was similar to the one in hypnosis. When suggested to keep the arm stiff, the real participants in MA condition and the simulators in NIC condition presented similar values of effort intensity at experimental baseline and in hypnosis conditions. This may be explained by the fact that high hypnotizable participants respond to suggestions even in the awake state.

The two ways of formulating suggestions referring to the hidden observer (MA & NIC) do not create differences between the real and the simulator subjects of the two groups in the hidden observer condition (MA & NIC). This confirms the fact that both the hidden observer metaphor and the call from the conscient part of the brain induce a dissociative state conscious-unconscious. The relatively significant percentage of real participants manifesting hidden observer (66%) is explained by the permissive manner in which suggestions were made. Replacing the simulated values with the real values of the effort showed no differences between baseline, hypnosis and hidden observer in low hypnotizable participants. They are neither influenced by the hypnotic ritual nor by the suggestions given. Between baseline and hidden observer no differences between the low and highly hypnotizable participants were noticed when reporting the real values. Differences arise between the two categories of subjects while reporting the effort in the state of hypnosis. The hypnotic induction and the suggestions result in changes in the effort intensity reported by highly hypnotizable participants.

The results should be interpreted in the light of its limitations. The participants in this study had also previously participated in two other experiments and some of the simulators did not show other real values of effort intensity because they got used to the state of relaxation. Some of the real participants manifested the hidden observer to one suggestion, and others to the other suggestion. This could be explained by the fact that the suggestions involve different mechanisms, being of different types: bringing hands together is an ideomotor suggestion, while bending the arm is a challenge suggestion. This means that the nature of the disclosed hidden observer depends on the type of suggestion given. This confirms Hilgard's view [4] that the instructions of the hidden observer are not aimed at creating a scission in the consciousness (e.g. hidden observer), but at revealing the scission caused by the suggestions in our study: bringing hands together and arm stiffness. Both suggestions involve involuntary phenomena, but, in the real participants, the lower the effort intensity in hypnosis - when suggested to bring the hands together - the more involuntary was perceived the hands

approaching, indicating the dissociation of the executive I. At the suggestion of arm stiffness, the result was the opposite: the stiffer the arm, the higher the effort made to bend it, when the arm was not bent by the participant.

The previous studies showed the flexibility of the hidden observer, i.e. the fact that its reports depended on the clues given in the instructions, fact that can not be questioned [11]. In our study, this unquestionable argument has not been revealed: between condition MA and the (NIC) control condition there are no differences in reporting the effort. Additionally, Green et al. [2] did not obtain significant differences among participants in the control condition and in the Less Aware (LA) condition. Therefore, we did not even consider this condition (LA). The difference is that in the control condition (NIC), Green et al. [2] provided information on a hidden observer; in our study, participants were not given information about a hidden observer, but the conscious part of the mind was involved.

The hidden observer is just a metaphor [10] and recently, even neurophysiological studies [3] concluded that psychological dissociation in hypnosis shares common features with the implicit dissociation of Hilgard's hidden observer.

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