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THE VALIDITY OF THE LECRON METHOD OF EVALUATING HYPNOTIC DEPTH[1]

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In 1953 LeCron proposed a method of evaluating the hypnotic depth of subjects by questioning their "unconscious". He noted: "Under hypnosis . . . the subconscious mind can be directly contacted and led to answer questions," and further . . . "It is the writer's belief that this part of the mind is cognizant at all times of the individual's state and is able to give correct information as to what depth of trance has been reached, if a 'yardstick' is provided by which it can measure," (i.e., the LeCron Measure.) In conclusion, LeCron notes that, "Accuracy of the method is based on a somewhat questionable postulation, but it apparently does give valid results, indicating that the postulation is correct."

LeCron simply accepts the number from 1–100 which the subject's "unconscious" assigns on questioning, as the hypnotic depth of that subject.

According to LeCron, prediction of depth by this method was simpler and faster than those by previous scales, while still being "valid, possibly to an astounding degree of accuracy." A letter from the author provided the additional infomation that, ". . . tests (by producing phenomena) will check out very accurately with almost every subject. It is rare that I obtain an answer that does not seem about right."

Because of the advantages just mentioned, the method has come into widespread use among medical hypnotists.

LeCron's validity check on this scale consisted of comparing the unconscious estimates of 30 subjects with his own evaluation of their depths. LeCron's evaluation was partially based on the subjects' responses to "suggestions of hallucinations, amnesia or tests of the lighter stages" (from the LeCron-Bordeaux Scale, 1947). "More extensive exploration" with the scale was carried out with five subjects. No details are available and no reliability data have been reported.

More precise data, on the validity of the LeCron method as a quick and accurate substitute for traditional depth measuring methods, are

[1] This study was done in partial fulfillment of requirements for the Masters degree, Stanford, 1961. Research was done at the Stanford Laboratory of Human development, under the supervision of Dr. André M. Weitzenhoffer (Adviser) and Dr. Ernest R. Hilgard.

obviously desirable. Thus, it was the purpose of this study to check the relationship between estimations made by the LeCron measure of hypnotic depth and scores secured by the same subject on an objective standardized measure of such depth.[2]

In addition, since attributing the depth estimates to an unconscious origin, is so tenuous[3] we wished to secure data concerning the advantages of requesting estimates from the "unconscious" instead of merely asking for quick conscious evaluations. Because we were most interested in a validity check, we could not secure conclusive data on this point, but suggestive evidence is reported.

Measures

We considered using one of four depth measures, the Davis-Husband, the LeCron-Bordeaux, the Friedlander-Sarbin, or the Stanford Scale of Hypnotic Suggestibility, as the criterion against which to measure the accuracy of the LeCron measure.

Other existing measures of depth could have been used; however, it was the aim of this investigation to replicate as closely as possible, but in a more objective manner, LeCron's original validity check. For this reason, we considered only the four scales noted, all of which measure essentially the same thing. They are most like the measure upon which LeCron appears to have based his validity check.

The Davis-Husband Scale, though mentioned as a scale for which LeCron's will substitute, and the LeCron-Bordeaux scale were rejected because of inadequate standardization, the lack of satisfactory normative data, and lack of information regarding reliability and validity. This left the Friedlander-Sarbin Scale and the Stanford Hypnotic Susceptibility Scale. Both seemed satisfactory for the purposes of the present study, and in fact could probably have been used interchangeably. The equivalence table for the two scales, which is included in the manual for the Stanford Hypnotic Susceptibility Scale, makes it clear that the results to be presently reported would not have been materially altered had the Friedlander-Sarbin Scale been used.

It was felt, nevertheless, that the Stanford scale has some points of

[2] Comparable, if not equivalent, to the objective criteria LeCron used in his own validity check. See LeCron (1953).

[3] Assuming (of necessity) that LeCron and medical hypnotists generally do intend the "unconscious" to which they refer to be the Freudian one, a number of problems arise. (1) LeCron contacts the unconscious merely by instructing it to answer. The ease of such two-way communication seems to be in direct opposition with the Freudian view of the "inaccessible unconscious." (2) The idea that the Unconscious, "a process not affected by the demands of reality, time, order, or logic," can make estimates of depth, also sounds incongruent.

superiority over the Friedlander-Sarbin Scale in procedure (Weitzenhoffer, 1957). In addition, The Stanford Scale was standardized on populations comparable to the one from which our sample was chosen; validity and reliability data are also available.

Subjects

The *Ss* consisted of eighty-seven 1959–1960 Stanford University undergraduates, 46 men and 41 women. The majority of *Ss* received credit in an Introductory Psychology course for their participation, but all were volunteers in regard to being hypnotized. One-third of the *Ss* had never been previously hypnotized, ⅓ had received only waking suggestions, and ⅓ had received hypnotic suggestions, in a session prior to the experimental one. Thus, some *Ss* had previous experience, making our group more like the LeCron sample than naive *Ss* would be, (although previous experience is not stated as a requirement for accurate depth-assessment by LeCron.) For our analysis, such differences are of no importance.

Procedure

1. When *Ss* reported to the experimental room, rapport was established by the method described in Form B of the Stanford Scale of Hypnotic Suggestibility.

2. *Ss* were then hypnotized using the Induction Method, Form B, of the Stanford Scale.

3. The LeCron Scale was explained[4], and an estimate of depth secured, as follows:

"Now that you are relaxed and comfortable, I'm going to explain something to you. As you may know, there are different degrees of hypnosis. There are no abruptly separated *stages* of hypnosis; such stages as seem to exist merge into one another. Your subconscious mind (or what is sometimes called the unconscious) can determine accurately how deeply hypnotized you are at any time. That is, it can pick out the point or place where you are. In a moment I'm going to ask your subconscious to tell me how deeply hypnotized you are. In order to help your subconscious mind to do this, I want you to imagine a scale, a sort of yardstick with a hundred divisions going from 0 to 100. On this yardstick 0 indicates you are not at all hypnotized and 100 means you are 100% hypnotized. If you are hypnotized less than this you will then fall somewhere on the scale between 0 and 100.

[4] LeCron reported no standardized instructions or questioning procedures either in his article or in a personal communication, but we felt that it would be essential in this sort of investigation. Consequently, all instructions to the subjects were read from a prepared form, constructed by merely reordering the general directions provided in LeCron's article (1953).

"Let us agree that 1–20% indicates a light trance, 20–40% means you are hypnotized to a medium degree, 40–60% signifies you are deeply hypnotized; in a sleep-like state; and 60–80% is a still deeper state. Finally, somewhere in the range of 80–100% should be chosen by your subconscious if you are in a very deep state—a kind of suspended animation.

"If anytime during the time you are hypnotized I ask: "How deep are you?" you are to say out loud the first number between 0 and 100 which pops into your mind. This will be your subconscious answer. You do not have to consider your answer. Your subconscious *knows* the proper answer and can quickly reply with the right figure . . . All right, now relax (5 sec. pause). How deep are you?"_____.

4. The Stanford Scale was then continued until all the items to be performed in the hypnotic state were completed. At this point (Item 10A, Form B) the subject was told:

"Remember earlier when I explained to you that your subconscious knows how deeply hypnotized you are and can respond *automatically* with the proper figure? You gave me the depth you were experiencing earlier. Now have your subconscious give me your present depth . . . How deep are you?"

5. The *S* was awakened, post-hypnotic test measures taken and the *S*'s memory restored. Then the *S* was asked to consciously evaluate the depth to which he had been hypnotized:

"Now using the scale I explained to you earlier, 1–20 indicating a light trance, 20–40 a medium one, 40–60 a deep one, 60–80 still deeper and 80–100 a very deep state, I will soon ask you to make a conscious evaluation of how deeply hypnotized you were throughout most of the experiment. Of course you remember your earlier estimates, but I would like you not to consider these in making your final *judgement*. . . . How deeply hypnotized were you?"_____

Results

The main purpose of this project was to check the relationship between *S*s estimates of hypnotic depth by the LeCron method and their scores on the Stanford Scale of Hypnotic Suggestibility. LeCron had merely reported "astoundingly great accuracy" in subjects' unconscious evaluations of their depths, as measured by conventional depth measures. Table 1 shows that the correlation between these two evaluations are not so high as LeCron suggests.

From Table 1, it can be seen that the Third, *conscious* estimate is a better predictor of scores on an objective test (SSHS) than the First estimate secured from the "unconscious." This improvement is not simply due to the fact that the conscious evaluations are averages of the total hypnotic session; the conscious evaluation is also significantly more accurate than the *mean* of the unconscious estimates ($p < .01$).

TABLE 1

Relationship between *Ss* Scores on the SSHS and "Unconscious" Estimates of Depth at Different Times During the Same Hypnotic Session (N = 87)

LeCron Estimate	Product-Moment *r*	Spearman Rank-Order[1]
Mean[2] of unconscious estimates	.32	.30
First unconscious estimate—immediately after hypnosis	.23	.21
Second unconscious estimate—immediately before awakening	.39	.37
Third, conscious estimate—secured after *S* awakened	.46	.44*

[1] Corrected for ties.

[2] The mean of estimates was computed as LeCron (1953) suggests, before correlation with the SSHS.

* Correlations of Average and Second Estimates significant at $p < .01$; $p < .03$ for the First Estimate *r*s, and $p < .001$ for the Third, Conscious Estimate *r*s.

The *difference* between the First and Third correlations, and the First and Second are significant at $p < .001$.

Finally, product-moment correlations between the *Ss*' average unconscious estimates of depth, and conscious estimate later in the scale is .84. This is significant at the $p < .001$ level. The estimates are thus very much alike, in relative order.

Discussion

The results in Table 1 reveal that the LeCron "unconscious" measure was not so good a substitute for the standardized depth measures as LeCron suggested in his 1953 article, and that the claim of "outstandingly great accuracy" needs qualifications.

There are a number of reasons for expecting a lower correlation than LeCron had suggested.

Firstly, nearly half the subjects (on being questioned after the session) commented in some way that the scale was at least consciously ambiguous. The defining points of the LeCron scale are only minimally descriptive, and it was naturally difficult for subjects to translate their sensations, even if clear, into a numbered scale, with only "deep" or "very deep" as landmarks. LeCron, of course, avoids this criticism by claiming the scale is clear to the unconscious.

Secondly, the unconscious measure may be mainly a description of the *S*'s subjective feeling-state, which may not be perfectly related to his scorable behavior. LeCron of course, does not claim to be estimating such "feelings", but merely to be providing a quick substitute for traditional measures.

Further, it was not clear from LeCron's statements whether the unconscious can be reached by his method in all states of consciousness, or only in hypnosis. If we assume that, (1) the unconscious is reached best in hypnosis, and (2) hypnotic experience is on a continuum, it is probable that contact with the "unconscious" gets increasingly bad as one is less deeply hypnotized. Thus, *Ss* who can reach only the hypnoidal state or less, perhaps would not be able to make "good" unconscious estimates of depth.

There is one factor, however, which might be expected to *increase* the relationship between "unconscious" estimates and behavior. This is the possibility that spoken estimates might serve as a "commitment to a depth", and thus later hypnotic behavior would tend to be consistent with this early estimate.

It should be noted that a number of factors are confounded with the difference between estimates requested from the unconscious vs. the conscious. (1) In all cases, the conscious estimate came after the unconscious one. This also meant that maximum experience with hypnotic suggestions always occurred by the final (conscious) estimate. (2) The *S* was always hypnotized for the unconscious estimate, while conscious ratings occurred immediately after dehypnosis.

Though this confounding is obviously undesirable, it was necessary because of other design requirements in the Master's study, and was partially justified in view of the fact that, (1) there is evidence (Krueger, 1931) that *Ss* still show increased suggestibility for a number of minutes after dehypnosis, though "awake". This makes the pre- and post-hypnotic conditions slightly more equivalent. (2) Lack of conscious experience (in this instance with the SSHS) would not be considered by LeCron to negatively effect unconscious judgments, and thus the unconscious measure would not be at any disadvantage by coming earlier, and (3) two of the tests in the scale are post-hypnotic ones, which means any final estimate *must* be made in the waking state. Numerous advantages of the SSHS, discussed earlier, made the retention of this measure desirable. (4) Finally, in spite of all these differences, the mean-unconscious and conscious measure correlated .84. Such a figure would be an acceptable reliability measure for a single test; this high correlation indicates that the estimates from the two "sources" had much in common, in spite of the confounded elements.

An experiment designed to secure definitive information concerning the "unconscious nature" of such estimates, would, of course, want to eliminate such confounding, but our main intention was to secure validity data on the LeCron measure. We hoped merely to secure suggestive

evidence concerning the advantages of requesting information from each source.

Summary

The main purpose of this investigation was to check the degree to which the LeCron method was in fact "a substitute for more traditional but time consuming measures." The correlations between the LeCron measure and the Stanford Scale of Hypnotic Suggestibility were low (Mean of estimates .32), though significant.

The mean of estimates requested from the "unconscious" correlated .84 with those made by the "conscious." This suggests the two may not have been so independent as LeCron thought.

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