

STANDARDIZING THE CREATIVE IMAGINATION SCALE (CIS) ON  
UNDERGRADUATE PSYCHOLOGY STUDENTS AT THE UNIVERSITY OF  
STELLENBOSCH

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**Thesis presented in partial fulfillment of the requirements for the degree of Master of Arts  
(Counselling Psychology) at the University of Stellenbosch**

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December 1999



(i)

### STATEMENT

I, the undersigned, hereby declare that the work contained in this thesis is my own original work, and that I have not previously in its entirety or in part submitted it at any university for a degree.

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(ii)

This work is the result of a research project which is of the same extent as that required for master's thesis.

It is a rule within the Department of Psychology that the report of the research may take the form of an article which is ready for submission for publication to a scientific journal.

## ABSTRACT

The central theme of this thesis is aimed at the standardizing of a hypnotic test. The test is used to measure creativity. Use was made of a convenience sample, with a size of  $N=252$ , consisting of black and white undergraduate psychology students. The following two tests were used: Creative Imagination Scale and the Barber Suggestibility Scale. The Creative Imagination Scale was applied in group context to each student. The Barber Suggestibility Scale was applied individually to each student. In standardizing the test, the psychometric characteristics of the Creative Imagination Scale were determined for the sample as a whole. In conclusion, the research findings proved that the CIS is a valid and reliable measuring instrument for undergraduate psychology students from the University of Stellenbosch, South Africa, and can be used for both black and white cultural groups.

## OPSOMMING

Die sentrale tema van hierdie tesis is gerig op die standaardisering van 'n hipnotiese toets. Die toets word gebruik om kreatiwiteit te meet. Daar is gebruik gemaak van 'n gerieflikheidssteekproef, met 'n grootte van  $N=252$ , wat bestaan uit swart en wit voorgraadse sielkunde studente. Daar is gebruik gemaak van die Kreatiewe Verbeeldingskaal en die Barber Suggureerbaarheidsskaal. Die Kreatiewe Verbeeldingskaal is in groepsverband op elk van die studente toegepas. Die Barber Suggureerbaarheidsskaal is individueel op elk van die kandidate toegepas. Tydens die standaardisering van die toets is die psigometrie eenskappe van die Kreatiewe Verbeeldingskaal vir die steekproef as geheel bereken. Die navorsingsresultate het bevind dat die Kreatiewe Verbeeldingskaal 'n geldige en betroubare meetinstrument is vir beide swart en wit voorgraadse sielkunde studente aan die Universiteit van Stellenbosch, Suid-Afrika.

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after a trance induction procedure, while the CIS can be administered as easily in non-hypnotic situations as in hypnotic situations (Wilson & Barber, 1978).

A further reason for using the CIS is that the label “Creative Imagination Scale” also enables the researcher to test most students in a variety of situations, while the earlier scales that had been labeled as “Suggestibility”, “Susceptibility” or “Hypnotizability” Scales, may restrict researchers to administer it in non-hypnotic situations on students who might resist to hypnotism on religious grounds (Wilson & Barber, 1978, p .94).

Further motivation for using the CIS in the present study was:

- (a) CIS can be validly and comfortably administered in a single 40-minute class session (Gibson & Heap, 1991);
- (b) It is a quick and easy test to administer, score and interpret, especially for a beginner therapist who is gaining experience in the basic principles of adapting hypno-therapeutic methods to the individual characteristics of each client (Gibson & Heap, 1991);
- (c) It can be very helpful to the psychologist to find out just what sort of imaginings come most easily to the individual client, before deciding what techniques of hypnotism will be most appropriate (Gibson & Heap, 1991);
- (d) The total score is of interest in indicating an overall ability for imagination in response to suggestions, while the information obtained by studying the pattern of responses to each item is also of importance as it reveals the individual’s response style to different sorts of imagining in the various sense modalities (Gibson & Heap, 1991); and
- (e) It can be used under clinical or experimental conditions (Wilson & Barber, 1978).

As noted above, there are several reasons why the CIS is a very useful instrument. Due to problems posed by the measurement of hypnotic experiences in South Africa, i.e. that no

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**STANDARDIZING THE CREATIVE IMAGINATION SCALE (CIS) ON  
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**1. INTRODUCTION AND MOTIVATION**

Recent years have witnessed an increase in attempts to both understand and measure experiences and phenomena included under the topic of hypnosis (Siuta, 1987). According to Kurtz and Strube (1996) a variety of scales measuring hypnotic experiences have been developed since the work of Weitzenhoffer and Hilgard (as cited in Kurtz & Strube, 1996) and Shor and Orne (as cited in Kurtz & Strube, 1996) over thirty years ago.

In South Africa, however, the problem posed by the measurement of hypnotic experiences in Psychology, is that although existing measuring instruments are freely available to South African psychologists, they have not been standardized and validated for South African circumstances. In fact, no measuring instrument standardized for South African university students exists. According to Dr. Louise Olivier (Chairlady of the Hypnosis Society of South Africa) and the Human Sciences Research Council (HSRC), hypnotherapists at universities therefore have no other option but to use overseas tests (personal communication, April 20, 1998).

The present study was undertaken to provide standardized psychometric characteristics of a hypnotic experience measurement instrument. Thus, it was necessary to determine which instrument would be most useful for South African students.

According to Wilson and Barber (1978) the existing scales, such as the Stanford Hypnotic Susceptibility Scales and the Barber Suggestibility Scale (BSS), are too authoritarian.

The BSS cannot be easily administered to a group, while the Harvard Group Scale was worded for group administration but requires a preceding trance induction procedure (Wilson & Barber, 1978).

The Creative Imagination Scale (CIS) was developed in the course of a doctoral dissertation (Wilson, 1976). It was published in detail by Wilson and Barber (1978) and was developed to construct an instrument which was worded in a more permissive, less authoritarian manner than existing scales. Moreover, Wilson and Barber (1978) felt that there was a clear need to develop a group administered scale, which, unlike the Harvard Group Scale of Hypnotic Susceptibility, Form A (HGSHS: A) of Shor and Orne (as cited in Wilson & Barber, 1978) could be used not only after a hypnotic induction, but also after some other initial experimental procedures of instructions (“think-with” or task motivational instructions), which are not necessarily related to the induction of hypnosis. Thus, the CIS was designed to be used both in individual as well as group contexts with a variety of preceding instructions. The CIS suggestions are formulated in such a way that they appeal to subjects’ own thinking-imagining process, minimizing possible concerns about relinquishing control to the researcher (Siuta, 1987).

The Creative Imagination Scale (CIS) of Wilson and Barber (1978) was also designed with another goal in mind, which was to provide an instrument to measure creative imagination, which was presumed to be associated with responsivity to hypnotic suggestions (Siuta, 1987). Thus, essentially, the CIS does not measure behavioural responses or subjective experiences during hypnosis; but rather measures creative imagination by asking subjects to imagine carrying out a particular behaviour or to experience what they have imagined (Siuta, 1987).

The Creative Imagination Scale was chosen as the measuring instrument for this experiment because most previous scales designed to measure responses to suggestions, such as the Stanford Hypnotic Susceptibility Scales and the Harvard Group Scale, were constructed to be administered

after a trance induction procedure, while the CIS can be administered as easily in non-hypnotic situations as in hypnotic situations (Wilson & Barber, 1978).

A further reason for using the CIS is that the label “Creative Imagination Scale” also enables the researcher to test most students in a variety of situations, while the earlier scales that had been labeled as “Suggestibility”, “Susceptibility” or “Hypnotizability” Scales, may restrict researchers to administer it in non-hypnotic situations on students who might resist to hypnotism on religious grounds (Wilson & Barber, 1978, p .94).

Further motivation for using the CIS in the present study was:

- (a) CIS can be validly and comfortably administered in a single 40-minute class session (Gibson & Heap, 1991);
- (b) It is a quick and easy test to administer, score and interpret, especially for a beginner therapist who is gaining experience in the basic principles of adapting hypno-therapeutic methods to the individual characteristics of each client (Gibson & Heap, 1991);
- (c) It can be very helpful to the psychologist to find out just what sort of imaginings come most easily to the individual client, before deciding what techniques of hypnotism will be most appropriate (Gibson & Heap, 1991);
- (d) The total score is of interest in indicating an overall ability for imagination in response to suggestions, while the information obtained by studying the pattern of responses to each item is also of importance as it reveals the individual’s response style to different sorts of imagining in the various sense modalities (Gibson & Heap, 1991); and
- (e) It can be used under clinical or experimental conditions (Wilson & Barber, 1978).

As noted above, there are several reasons why the CIS is a very useful instrument. Due to problems posed by the measurement of hypnotic experiences in South Africa, i.e. that no

measurement instrument has been standardized and validated for South African circumstances, it was decided that the CIS would be the most useful instrument to standardize for South African students.

In conclusion, the CIS is a scale that can be easily and quickly administered (a) in either a clinical or experimental setting; (b) to an individual or to a group; (c) with or without a hypnotic induction procedure.

### 1.1 Theoretical Perspective

According to various researchers (McConkey, Sheehan, & White, 1979; Sapp, 1997; Siuta, 1987; Wilson & Barber, 1978), the CIS presents a cognitive-behavioral perspective of hypnosis. Barber (1969), a leading cognitive-behavioral theorist, explained the basic assumptions underlying this theory:

- (a) Both people who are and those who are not responsive to test suggestions have attitudes, motivations and expectancies toward the verbal information they are receiving.
- (b) The person who is very responsive to test suggestions has positive attitudes, motivations, and expectancies toward the verbal information he is receiving. That is, he views his response to the test suggestions as interesting or worthwhile and he wants, tries and expects to experience the suggested effects. Given these positive attitudes, motivations and expectancies, he lets himself think with and imagine those things that are suggested.
- (c) The person who is very unresponsive to test suggestions has negative attitudes, motivations and expectancies toward the verbal information he is receiving. That is, he views his response to test suggestions as not interesting or worthwhile and neither tries to nor expects to experience the suggested effects. Given these negative attitudes, motivations and expectancies, he does not let himself imagine or think with the suggestions; instead, he verbalizes

to himself such statements as “This is silly” or “The suggestion won’t work” (Barber, 1969, p. 121).

- (d) The three factors (attitudes, motivations and expectancies) vary between negative, neutral and positive. They converge and interact in complex ways to determine to what extent a subject will let himself think with and imagine those things that are suggested. The extent to which the subject thinks with and imagines the suggested effects, in turn, determines his overt and subjective responses to test suggestions.
- (e) Responsiveness to test suggestions is a normal psychological phenomenon that can be conceptualized in terms of social psychology.
- (f) It is unnecessary to postulate a fundamental difference in the state of consciousness of the person who is and who is not responsive to test suggestion.

In summary, the cognitive-behavioral theory postulates that subjects do not think along with and imagine with the suggested themes when they have passive, negative or cynical attitudes, motivations and expectancies toward the test situation (Barber & Wilson, 1977).

The Cognitive-behavioral theoretical model of hypnosis (Barber & Wilson, 1977; Spanos & Barber, 1974) also places major theoretical emphasis on the willingness of subjects to think-along with and imagine suggestions presented in the testing situation. The CIS focuses on this process directly. The wording of the CIS encourages subjects to employ cognitive abilities which makes the CIS a useful instrument for experimental and clinical applications (McConkey et al., 1979).

## 1.2 Literature Study

This literature study chapter can be divided into three categories. The first category focuses on the experimental research which has already been done on the CIS. The second category focuses on the clinical research and applications of the CIS.

The chapter is concluded by a short discussion of the third category, namely the psychometric characteristics of the CIS.

Experimental research. The Creative Imagination Scale has been used in several experimental studies. In the original experiment (Barber & Wilson, 1977), randomized subjects were given instructions to think along with and to imagine those things that were suggested (think-with instructions). They obtained higher scores on the Creative Imagination Scale than randomized subjects who had been exposed either to a control treatment or to a traditional trance induction procedure which comprised primarily of repeated suggestions that the subject was becoming relaxed and drowsy and was entering a hypnotic trance. These results were generally confirmed in two experiments by DeStefano (1977) and Barber, Wilson and Scott (1977).

DeStefano (1977) also found that think-with instructions gave rise to higher scores on the Creative Imagination Scale than a traditional trance-induction procedure or a control treatment. In addition, these results showed that think-with instructions tended to produce higher scores on the Barber Suggestibility Scale than a traditional trance induction procedure.

Barber et al. (1977), used both the Creative Imagination Scale and the Barber Suggestibility Scale and found that, in general, “think-with” instructions were the most effective in raising subjects’ overall level of responsiveness. Barber et al. (1977) also obtained a significant interaction of treatments with scales indicating that a traditional trance induction procedure raises the scores on the more authoritarian Barber Suggestibility Scale but does not raise the scores on the more permissive Creative Imagination Scale.

More recent experiments where the CIS has been administered, are discussed in the following paragraphs:



Wark (1996) administered the CIS in his research when he taught college students better learning skills using self-hypnosis. He administered the Creative Imagination Scale (CIS) on all the students who enrolled in a 10-week course on efficient learning skills in order to report the effects of self-hypnosis. Statistical testing showed that students who had scored highest on the CIS actually had the lowest initial grade point average (GPA). This group of students improved the best during the course and significantly increased their grade point average in the following term.

Kurtz and Strube (1996) explored whether or not the use of combined group and individually administered susceptibility tests improve the predictive power over the use of a single administered test. They examined four scales (which included the CIS) in various combinations. Their results confirmed previous research which found that the CIS is weak in predictive power compared to the Harvard Group Scale of Susceptibility: Form A (HGSHS: A); a conclusion reached previously by Sheehan and McConkey (1982). However, according to Kurtz and Strube (1996) the CIS can benefit when being combined with the Stanford Hypnotic Clinical Scale: Adult (SHCS: A).

Jacquith, Rhue, Lynn and Seevaratnam (1996) tested cross-cultural aspects of hypnotizability and imagination with the CIS, Harvard Group Scale of Hypnotic Susceptibility (Shor & Orne, as cited in Jacquith et al., 1996), the Tellegen Absorption Scale (Tellegen, as cited in Jacquith et al., 1996) and the Betts Vividness of Mental Imagery Scale (Sheehan, as cited in Jacquith et al., 1996) on 133 native Malaysian students at the University of Malaysia. These subjects were compared with a sample of 55 Malaysian volunteer college students enrolled at Ohio University. The means of measures across all samples were comparable, with the exception that the Malaysian students scored lower on the CIS. Jacquith et al. (1996) failed to secure significant correlations between hypnotizability and absorption and waking suggestion in the Malaysian sample tested in Malaysia. In contrast, when Malaysian students resided in the United States, the

correlations between hypnotizability and absorption and waking suggestion were all significant, as was the case with US residents. Jacquith et al. (1996) results imply that culture-based expectancies play a role in mediating the relationship between hypnotizability and measures associated with hypnotizability in Western Cultures.

As noted above, soon after the CIS was constructed, it was used in several research studies for a variety of experimental purposes. Once the CIS had been used in several experimental studies, it was also found to be a versatile instrument that served many clinical purposes. Research within the clinical practice is discussed in the following paragraphs:

Clinical research and applications. The CIS is especially useful when the clinician desires to give his clients practice in responding to interesting and useful suggestions, when the clinician wishes to show his clients what self-hypnosis and modern hypnosis involve, and when the clinician wishes to test the hypnotic responsiveness of his clients in a non-threatening, permissive setting (Wilson & Barber, 1978).

Since the scale contains only 2 items requiring a motor response (arm heaviness and hand levitation), it is also useful in medical and rehabilitation settings, for example with quadriplegic patients. One or more specific test suggestions could also be used to train clients in responding later to the same kind of suggestion during therapy. For example, the age-regression item on the CIS could be used to train subjects before utilizing age-regression in therapy (Kirsch, 1991).

The findings of Stewart and Marks' (1990) research had important clinical applications when it highlighted the importance of favourably influencing the subjects' expectancies and beliefs prior to the hypnotic induction. The effects of actual hypnotizability, assessed by the CIS, and expected hypnotizability on analgesia were assessed in a design in which a high hypnotizability

group and a low hypnotizability group were given incorrect information about their true levels of hypnotizability -whilst other groups of highs and lows were correctly informed. Both actual and expected hypnotizability significantly affected self-reports of cold-pressor pain. Post hoc testing showed that the high CIS/high expectancy' group reported significantly less pain than the other groups, and, in fact, was the only group to show significant analgesia. The research shows expected hypnotic ability to be an important factor in hypnotic analgesia. Direct verbal suggestion about a subject's hypnotizability prior to the hypnotic induction significantly enhanced reported hypnotic analgesia. This finding indicated the special role of favourable expectancies in the hypnotic phenomena.

Spinhoven, Van Dyck, Hoogduin and Schaap (1991) studied the differences in hypnotizability of Dutch psychiatric outpatients according to the CIS and the Stanford Hypnotic Clinical Scale (SHCS). Data on the hypnotic susceptibility of 183 psychiatric outpatients (obsessive-compulsives, agoraphobics, speech anxiety patients and tension headache patients) and 82 normal control subjects were compared. The mean scores of agoraphobic and speech anxiety patients on the SHCS and the CIS did not differ significantly from the mean score of the control subjects.

Hart (1994) studied whether hypnotizability (high versus low) and type of suggestion (direct versus indirect) were related to the hypnotic treatment outcome of generalized anxiety. The CIS was used to assess susceptibility to hypnotic response, by determining whether the subject's final placement was in the high or low hypnotizability cell. Hart's (1994) research concluded that neither hypnotizability nor type of suggestion alone had a significant effect on treatment outcome for generalized anxiety.

The Creative Imagination scale has also been used in sport settings as hypnosis is increasingly being used in a variety of ways to enhance performance in sport (Cox, Cripps, Callow, Pope &



Cann, as cited in Oakley, Norell & Cripps, 1995). Oakley et al. (1995) examined the possibility that hypnotic induction procedures might be used to enhance mood in exercisers/sports persons and that any such elevation of mood might be further enhanced when hypnosis and exercise are combined. The possibility that exercise might increase subsequent hypnotic susceptibility was also investigated.

The subjects were matched for initial hypnotic susceptibility on the basis of the CIS and then tested for hypnotic susceptibility on the Barber Suggestibility Scale (Barber, as cited in Oakley et al., 1995) and depth of hypnotic experience in the Hypnotic Experience Questionnaire of Fellows and Richardson (as cited in Oakley et al., 1995). The Morris Mood Questionnaire of Morris and Salmon (as cited in Oakley et al., 1995) was administered to all the subjects twice, once before and once after the hypnotic procedures, to assess their current mood. Exercise was found not to enhance hypnotic susceptibility or mood. The hypnotic procedures, however, were found to reduce negative mood irrespective of prior exercise.

As noted above, the CIS has proved to be a useful tool in clinical settings. In conclusion, the CIS appears to be a non-threatening, permissively-worded instrument that can be administered as easily to a group as to an individual and as easily with or without a prior hypnotic induction procedure. This makes the CIS a versatile instrument that is harmonious with the present-day clinical use of hypnosis, as it contains all non-authoritatively worded test suggestions that aim to guide the clients in using their own mental abilities to create suggested effects.

The following paragraphs will discuss research done within the psychometric field to determine the psychometric characteristics of the CIS:

Psychometric characteristics: In a study (Kiddoo, as cited in Wilson & Barber, 1978) scores on the Creative Imagination Scale were found to be significantly correlated with scores on four instruments that aim to measure imagination: Tellegen's Absorption Scale (Tellegen & Atkinson; as cited in Wilson & Barber, 1978), the imagery portion of the Individual Differences Questionnaire (Paivio, cited in Wilson & Barber, 1978), the Betts Test of Mental Imagery (Richardson, as cited in Wilson & Barber, 1978), and the Barber Suggestibility Scale (as cited in Wilson & Barber, 1978).

Sheehan, McConkey and Law (1978) concluded that the CIS had a single underlying factor, strongly related to imagery vividness and imagery control. The analysis of the scale by Sheehan et al. (1978) indicated that CIS provided a reliable instrument for assessing individual differences in subjects' capacities to experience the items; it primarily tapped a cognitive (imagery) dimension of response; and it correlated positively with independent tests of imagery function (e.g., Sheehan's version of Betts QMI).

Other studies have qualified the interpretation of the CIS. McConkey et al. (1979) found a correlation of  $r = 0,28$  with the Harvard Group Scale of Hypnotic Susceptibility: Form A (HGSHS: A) when using "think-with" instructions.

McConkey et al. (as cited in Wark, 1996) found that the CIS is a valid and reliable measure of imagery ability, but probably not of the dissociative skills tapped by the Harvard Group Scale of Hypnotic Susceptibility: Form A (HGSHS: A) of Shor and Orne (as cited in Wark, 1996) when subjects are openly inducted into hypnosis.

Monteiro, McDonald and Hilgard (1980) studied the CIS along with the HGSHS: A, (Shor & Orne, as cited in Monteiro et al., 1980), the Stanford Hypnotic Susceptibility Scale form C,

(Weitzenhoffer & Hilgard, as cited in Monteiro et al., 1980), the Tellegen-Atkinson Absorption Scale (Tellegan & Atkinson, as cited in Monteiro et al., 1980) and the Questionnaire Upon Mental Imagery (Sheehan, as cited in Monteiro et al., 1980). They reported a correlation of  $r = 0,55$  between the CIS and the HGSHS: A, using the “think-with” induction. Their analysis of the intercorrelations among these tests of motor response, imagery, absorption and amnesia concluded that the CIS loaded on two subfactors, those tapping ideomotor skills and cognitive illusion (Wark, 1996).

In a companion study, Hilgard, Sheehan, Monteiro and McDonald (1981) concluded that the CIS seemed to be weighed on two factors, (1) hypnotic responsiveness that seems related to ideomotor skill and (2) absorption/imagery that seems related to cognitive illusions. These results support the conclusion that the CIS is a measure of hypnotic-like behavior and imagery (Wark, 1996).

Spanos, Gabora, Jarett and Gwynn (1989) found that the correlation between the CIS and the Carleton University Responsiveness to Suggestion Scale (CURSS) of Spanos, Radtke, Hodgins, Stam and Bertrand (as cited in Spanos et al., 1989) was significantly stronger when the CIS was defined as a test of hypnotizability rather than a test of imagination. Their findings also suggested that the high correlations obtained between different hypnotizability scales might be more strongly influenced by situation specific attitudes and interpretational sets than was usually acknowledged (Spanos et al., 1989).

In a sample of Polish students, Siuta (1987) found a 10-month test-retest  $r = 0,79$  and a Spearman-Brown  $r = 0,50$  on the CIS. He also found a single factor that accounted for 47,9 % of the variance.

Thus, in summary, the CIS appears to be a valid and reliable measuring instrument of assessing hypnotic experiences.

As discussed in this chapter, the CIS has proved to possess reliable and valid psychometric characteristics which makes the CIS a useful instrument in both experimental and clinical settings. In standardizing the CIS, the problem posed by the measurement of hypnotic experiences in South Africa will be addressed. It will provide South African psychologists with a standardized measuring instrument which will enable them to contribute towards the increased attempts in recent years to understand and measure hypnotic experiences, without having to use unstandardized overseas tests which is presently the situation in South Africa. There is currently no existing measuring instrument standardized for South African circumstances.

## 2. RESEARCH METHOD

### 2.1 Subjects

In total 252 undergraduate psychology students ( $M = 20$  years of age) from the University of Stellenbosch in South Africa, participated in the study. Use was made of a convenience sample, consisting of students of the black and white culture groups. The students received no course credits or money for their participation.

### 2.2 Procedure

The initial reliability assessment of the CIS (Creative Imagination Scale) was conducted live on 166 undergraduate psychology students in group format. It was presented by the researcher using the script provided in Wilson and Barber (1978) (see Appendix A). Testing took place in two quiet seminar rooms in the Psychology Department of the University of Stellenbosch, South Africa.

The study was presented to subjects as a test of their imagination with no mention of hypnosis at any time. Some care was taken that the CIS should not be associated with testing for hypnotizability. No instructions were given to the subjects other than saying that this was an “imaginary test”. It was put to each person that he or she would be doing the investigator a small favor by participating. It was emphasized that the testing was for research purposes only and that the results of the tests would have no therapeutic consequences.

After fully explaining the procedure, informed consent was verbally obtained. The test was preceded by a short discussion to establish rapport. The subjects were invited to sit down and enjoy the session. The CIS was administered without prior hypnotic induction or “think with” statements.



Following the administration of the scale, subjects immediately completed a CIS answer form (see Appendix B) which required them to rate how similar their imagined experience was in relation to the suggestion actually having occurred for each of the 10 CIS items. The testing session was completed in 30 minutes of which 20 minutes was administering time and 10 minutes answering time.

Eleven months later, another convenience sample of 86 ( $M = 20$  years of age) undergraduate students were involved in another experiment to determine the concurrent validity (which is to assess the simultaneous relationship between the test and criterion of the CIS (Kaplan & Saccuzzo, 1997). The Barber Suggestibility Scale (BSS) of Barber (1969) was chosen as the criterion measuring instrument.

All the subjects were told that two tests of imagination were to be administered. The subjects were invited to sit back and enjoy the session and fill out a form after the first test of imagination (CIS) about their experiences. No hypnotic induction preceded the CIS or the BSS. Immediately following the administering and answering of the CIS, the BSS was administered live by the researcher using the script provided in Barber (1969). The BSS was administered as presented verbatim in the Appendix C to this monograph. The testing session was completed in 10 minutes of which 7 minutes was administering time and 3 minutes was objective and subjective scoring time.

### 2.3 Measuring instruments

The following two tests were used: Creative Imagination Scale (CIS) and the Barber Suggestibility Scale (BSS).

Creative Imagination Scale (CIS). The CIS was developed in the course of a doctoral dissertation (Wilson, 1976). It was published in detail by Wilson and Barber (1978) and was designed to provide test-suggestions delivered in a less authoritarian manner than those of

existing scales. It was so planned that the CIS could be given with or without a prior induction of hypnosis, either individually or in groups (Wilson & Barber, 1978, pp. 239-242). According to Laidlaw and Large (1997) the CIS is one of the two most commonly used group administered tests.

The CIS contains 10 items involving ideomotor behaviour and imagination (Wark, 1996). The test includes both motor and cognitive items, but is foremost cognitive in nature (Spinoven et al., 1991).

The CIS consists of ten items that are read aloud to the patient, or subject, who sits relaxed in a chair with closed eyes. Each item is a simple description of a scene or situation, and subjects are invited to imagine themselves in that situation as vividly as possible. There is no prior hypnotic induction and it is explained that the purpose of the test is merely to try to establish what kinds of things an individual finds easiest to imagine. When the test has been explained and any questions about it answered, it is simply read out (Rhue, Lynn & Kirsch, 1993).

A Verbatim account of the ten test-suggestions that comprise the Creative Imagination Scale of Wilson and Barber (1978) is presented in Appendix A. The ten test-suggestions, in the order they were presented, can be briefly summarized as follows:

1. *Arm Heaviness*. Starting with the subject's left arm extended and horizontal, with the palm facing up, suggestions were given to guide him/her in imagining that three heavy dictionaries were being placed in her outstretched hand, causing his/her arm to feel heavy.
2. *Hand Levitation*. Starting with the subject's right arm extended and horizontal, with the palm facing down, suggestions were given to guide him/her in imagining that a strong stream of water from a garden hose was pushing against the palm of his/her hand, pushing his/her hand up.
3. *Finger Anaesthesia*. Starting with the subject's left hand in his/her lap, with the palm facing up, suggestions were given to guide him/her in imagining that a local anaesthetic drug had been

- injected into the side of her hand next to the little finger, causing two fingers to feel numb.
4. *Water "Hallucination"*. Suggestions were given to guide the subject in imagining that he/she was drinking a cup of cool mountain water.
  5. *Olfactory-Gustatory "Hallucination."* Suggestions were given to guide the subject in imagining smelling and tasting an orange.
  6. *Music "Hallucination."* Suggestions were given to guide the subject in thinking back to a time when he/she heard some wonderful music and to re-experience "hearing" it.
  7. *Temperature "Hallucination."* Starting with the subject's hands resting in his/her lap, with the palms facing down, suggestions were given to guide him/her in imagining the sun was shining on the top of his/her right hand, causing it to feel hot.
  8. *Time Distortion*. Suggestions were given to guide the subject in imagining that time was slowing down.
  9. *Age Regression*. Suggestions were given to guide the subject in recreating the feelings that he/she experienced when he/she was a child in elementary school.
  10. *Mind-Body Relaxation*. Suggestions were given to guide the subject in imagining that he/she was lying under the sun on a beach and becoming very relaxed.

Items vary in length between 45 seconds and just over 2 minutes and the whole test takes about 20 minutes (Gipson & Heap, 1991). At the end of each item the scene is "cancelled" by an appropriate suggestion such as "Now tell yourself that it's all in your own mind and bring yourself back" (Wilson & Barber, 1978, p. 103).

Immediately following the administration of the Creative Imagination Scale, the subject is given a written questionnaire namely the Self-Scoring Form of the Creative Imagination Scale, to score his/her own subjective experiences. On the Self-Scoring Form, which is presented verbatim in Appendix B, each subject is asked to score his/her experience of each of the ten test-suggestions on a 5-point scale ranging from "Not at all the same" as the real thing (score of 0) to "Almost exactly the same" as the real thing (score of 4) compared to what they would have experienced had the suggested event actually occurred.

CIS scores relate solely to subjective experience and range from 0 to 4. According to Wilson and Barber (as cited in Spinhoven et al., 1991), a score of 0 to 10 indicates low hypnotic capacity, 11 to 20 low medium capacity, 21 to 28 high medium capacity, and 29 to 40 high capacity.

According to Gibson and Heap (1991) the total score is of interest in indicating an overall ability for imagination in response to suggestions. The information obtained by studying the pattern of responses to each item is also of importance in revealing the individual's response style in respect of different sorts of imagining in his or her various sense modalities. The therapist is interested in gaining understanding of what sort of experiences the patient can imagine most easily, as well as the total score on the test (Gibson & Heap, 1991).

A moderate degree of correlation ( $r = 0,28 - 0,60$ ) has been found with other scales related to hypnotic susceptibility. A Pearson correlation of 0,60 ( $p < 0,001$ ) was obtained between the scores on the CIS and the BSS in Kiddoo's study (as cited in Wilson & Barber, 1978), which means the CIS measures approximately the same kind of behaviour as the Barber Suggestibility Scale. Kiddoo also found significant correlations between the CIS and the Tellegen's Absorption Scale; the imagery portion of the Individual Difference Questionnaire and the Betts Test of Mental Imagery. The study of Hilgard et al. (1981) indicated that two separate factors accounted for the response to this test, a hypnotic factor and an imagery factor.

In summary, the above mentioned investigations indicate that the CIS is a reliable and valid instrument in other countries.

Barber Suggestibility Scale (BSS). The BSS was presented verbally to each subject by the author immediately after the administration of the CIS.

The BSS was originally designed in 1960 for an experiment by Barber and Glass (1962). The aim of this experiment was to isolate the factors which determined responsiveness to test-suggestions

associated with hypnosis. To conduct this experiment, Barber and Glass needed a representative series of standardized test-suggestions that (a) could be administered quickly and easily and without special equipment, (b) could be used in a situation defined to the subject either as hypnosis or as a test of imagination, and (c) could be given to both subjects who had and had not been exposed to a hypnotic induction procedure. The BSS was constructed to meet these needs.

The BSS includes eight test-suggestions that are scored both objectively and subjectively and can be administered without special instructions. According to Rhue and Lynn (1991) the eight items in the scale were selected as representative of the types of test-suggestions that are given to hypnotic subjects. The scale includes a hallucination item, a “post”-experimental (or “posthypnotic-like” response), an amnesia item, several “challenge” items (e.g., “Stuck in the chair...you can’t stand up...Try, you can’t”), and several items which ask subjects to imagine certain effects and then suggest certain objective consequences (e.g., “Imagine that the arm is becoming lighter...It’s lighter and lighter, moving up and up”) (Barber, 1969, p. 243).

A Verbatim account of the scale is presented in Appendix C. A brief summary of the items, in the order that they are given, is as follows (Barber, 1969):

1. *Arm Lowering*: Starting with the subject’s right arm extended and horizontal, suggestions are given for 30 seconds that the arm is becoming heavy and moving down. Objective score criterion: 1 point for a response of 10 centimeters or more.
2. *Arm Levitation*: Starting with subject’s left arm extended and horizontal, suggestions are given for 30 seconds that the arm is weightless and is moving up.  
Objective score criterion: 1 point for a response of 10 centimeters or more.
3. *Hand Lock*: Subject is instructed to clasp his hands together tightly with fingers intertwined and place them in his lap. Suggestions are given for 45 seconds that the hands are welded together and cannot be taken apart. Objective score criteria: 0,5 point for incomplete separation of hands after 5 seconds of effort; 1 point for incomplete separation after 15-seconds of effort.

4. *Thirst "Hallucination"*: Suggestions of extreme thirst are given for 45 seconds. Objective score criteria: 0,5 point if subject shows noticeable swallowing, moistening of lips, or marked mouth movements; additional 0,5 point if subject states during the post-experimental interview that he became thirsty during this test.
5. *Verbal Inhibition*: Suggestions are given for 45 seconds that the subject's throat and jaw muscles are rigid and he cannot say his name. Objective score criteria: 0,5 point if subject does not say his name after 5 seconds of effort; 1 point if he does not say his name after 15 seconds of effort.
6. *Body Immobility*: Suggestions are given for 45 seconds that the subject's body is heavy and rigid and he cannot stand up. Objective score criteria: 0,5 point if subject is not completely standing after 5-seconds of effort; 1 point if he is not completely standing after 15-seconds of effort.
7. *"Posthypnotic-like Response"*: The subject is told: "When this experiment is over... I'll click like this and you'll cough automatically...At the moment I click you'll cough." (Barber, 1969, p. 246). Objective score criteria: 1 point if subject coughs or clears his throat post-experimentally when presented with the auditory stimulus.
8. *Selective Amnesia*: The subject is told that, when the experiment is over, he will remember all the tests except the one where he was told that his arm was moving up (Test-suggestion 2), and that he will remember this test only when the experimenter says, "Now you can remember" (Barber, 1969, p. 246). Objective score criterion: 1 point if the subject does not refer to test-suggestion 2, but recalls at least four other test-suggestions and then recalls item 2 in response to the cue words.

The general criteria for objective scores are presented in Appendix D. The maximum objective score obtainable on the scale is 8 points.

The criteria for scoring subjective scores were as follows (Barber, 1969, pp. 247-249): After the researcher states that "the experiment is over", he describes each test-suggestion which the subject had passed with an objective score of either 0,5 or 1 point and asks, "Did you feel (the

suggested effect) or did you go along with the suggestion in order to follow instructions or to please me?" (A verbatim account of these questions, with respect to each of the eight test-suggestions, is given in the Appendix D).

Subjective scores are assigned as follows: 1 point for each test-suggestion passed objectively which the subject states that he had "felt" (Barber, 1969, pp. 248-249).

The maximum subjective score, and also the maximum objective score, obtainable on the scale is 8 points. Administration of the eight-test-suggestions requires approximately 7 minutes. An additional period of 3 to 5 minutes is required to complete the assignment of objective scores and to assign subjective scores.

A series of investigations indicated that the BSS is a reliable and valid measurement instrument. When the scales were administered to the same subjects in the same way on two occasions, test-retest correlations for both objective scores and the subject scores were consistently above 0,80 (Wilson & Barber, 1978). In another study (Barber, as cited in Wilson & Barber, 1978) subjects were tested on the BSS under one of three experimental treatments (no instructions, task motivational instructions and trance induction treatments). The split-half reliabilities of the BSS (determined by correlating odd-numbered items with the even-numbered items) under the no instructions, task motivational instructions and trance induction treatments were 0,79; 0,75 and 0,84 for the objective scores and 0,84; 0,80 and 0,88 for the original subjective scores. In summary, this data indicates that (a) subjects who obtain high (or low) scores when tested on the BSS on one occasion also tend to obtain similarly high (or low) scores when tested on the BSS in the same way on a second occasion and (b) the BSS is a reliably homogenous scale: that is, one part of the scale measures the same thing as another part.

The BSS has been factor analyzed and the results showed that all 8 items on the scale have their largest loadings on the first factor and that the first factor accounts for most of the variance (Barber, 1965). According to Anastasi, Cattell, and Guilford (as cited in Wilson & Barber, 1979)

the above mentioned data indicate that the BSS possesses factorial validity. That is, it primarily measures one dimension (factor) of human behavior which has been labeled as responsiveness to test suggestions of the type traditionally associated with hypnosis.

“Concurrent validity”, defined as a satisfactory correlation of a scale with another accepted scale which measures the same domain (Cronbach, 1960, p. 109) was demonstrated by Ruch, Morgan and Hilgard (as cited in Balthazard, 1991). These investigators obtained correlations of 0,62 to 0,78 between scores on the BSS and the Stanford Hypnotic Susceptibility Scale (Form A) under control and hypnotic induction treatments.

In summary, the above mentioned investigations indicate that the BSS is a reliable and valid instrument in other countries.

#### 2.4 Statistical methodology

The following statistical analytical techniques were used to standardise the CIS:

- (a) Descriptive statistics ( Mean and standard deviation)
- (b) Reliability was assessed by means of two methods, namely the split-half method using the formula of Spearman-Brown and Cronbach’s alpha coefficient.
- (c) Validity was assessed in two ways: Construct validity and concurrent validity. To evaluate concurrent validity, Pearson product moment correlations were calculated between the CIS and the subjective scores of the BSS and the CIS and the objective scores of the BSS. To evaluate construct validity, the scores of the subjects on each of the 10 test items and the total scores on the Creative Imagination Scale were intercorrelated by making use of Pearson product moment correlations.
- (d) T-tests were used for the independent groups to determine normative differences in mean values for the different cultural groups.



### 3. RESULTS

In the first part of this section, the results of the subjects' response to the Creative Imagination Scale (CIS) are reflected by descriptive and inferential statistics. The second series of the analysis is aimed at the reliability and validity of the CIS.

#### 3.1. Descriptive Statistics

Mean, standard deviations and distribution. The means and standard deviations for the South African sample for each of the ten items and for the total scale are presented in Table 1. These results obtained for the South African sample can be compared to those obtained for the New Zealand sample (Laidlaw & Large, 1997), Polish sample (Suita, 1987), Australian sample (Sheehan et al., 1978), as well as to the American sample (Wilson & Barber, 1978). These results are also included in Table 1.

Table 1

Means and Standard Deviations on the Items of the CIS for South African, Polish, American, Australian and New Zealand Samples

Item	South African		Polish		American		Australian		New-Zealand	
	(n=166)		(n= 111)		(n= 217)		(n= 305)		(n= 128)	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
1. Arm heaviness	2,30	1,15	2,38	1,17	2,2	1,1	1,18	1,09	2,76	1,30
2. Hand levitation	1,67	1,07	1,83	1,11	1,5	1,2	1,63	1,13	1,97	1,42
3. Finger anesthesia	1,80	1,06	1,69	1,22	1,5	1,2	1,58	1,17	1,58	1,48
4. Water "hallucination"	2,09	1,16	1,93	1,28	2,0	1,3	2,02	1,22	1,55	1,48
5. Olfactory-gustatory	2,17	1,21	2,01	1,29	2,2	1,3	2,13	1,24	1,89	1,52
6. Music "hallucination"	2,42	1,20	2,35	1,31	2,7	1,3	2,34	1,29	2,32	1,51
7. Temperature "hallucination"	1,75	1,06	1,99	1,31	1,7	1,2	1,65	1,09	1,87	1,42
8. Time distortion	2,13	1,32	2,34	1,26	1,9	1,4	1,92	1,20	1,89	1,48
9. Age regression	2,37	1,12	2,08	1,28	2,3	1,3	2,35	1,16	2,61	1,39
10. Mind-Body relaxation	2,31	1,17	2,59	1,09	2,7	1,2	2,75	1,10	2,37	1,38
Total scale	21,01	7,09	20,69	7,56	20,8	8,6	20,6	6,9	20,81	10,7



The mean of the South African group was 21,01 (maximum score 40). The standard deviations on the CIS items are relatively low and fluctuate from 1,06 on item 3 (“Finger Anaesthesia”) and item 6 (“Water Hallucination”) to 1,32 on item 8 (“Time Distortion”).

The means and standard deviations for the South African sample for the black and white South African students are presented in Table 2.

Table 2

Means and Standard Deviations on the CIS for Each of the Black and White South African Students

Group	<u>n</u>	<u>M</u>	<u>SD</u>
Black students	16	19,75	7,02
White students	70	16,57	6,78

The mean of the black South African students was 19,75 and the mean of the white South African students was 16,57.

Norms. The norms of the South African sample are presented in Table 3. This includes the number and percentage of South African subjects in each class interval, cumulative percentage, and T standard scores.



Table 3

South African Norms for the CIS

General level	Raw score	Number of subjects	% of subjects	Cumulative percentage	T-score
High	39-40	1	0,60	100,00	76,79
	37-38	0	0,00	99,40	73,62
	35-36	2	1,21	99,40	70,45
	33-34	6	3,61	98,19	67,62
	31-32	7	4,22	94,58	64,8
	29-30	8	4,82	90,36	61,8
Medium high	27-28	9	5,42	85,54	59,16
	25-26	2	12,05	80,12	56,34
	23-24	22	13,25	68,07	53,51
	21-22	17	10,24	54,82	50,69
Medium low	19-20	21	12,65	44,58	47,87
	17-18	9	5,42	31,93	45,05
	15-16	11	6,63	26,51	42,26
	13-14	9	5,42	19,88	39,41
	11-12	11	6,63	14,46	36,58
Low	9-10	4	2,41	7,83	33,76
	7-8	8	4,82	5,42	30,94
	5-6	0	0,00	0,60	28,47
	3-4	1	0,60	0,60	26,00
	0-2	0	0,00	0,00	13,00



All the scores in Table 3 are classified into four categories: high (29 - 40), medium-high (21 - 28), medium-low (11 - 20), and low (0 - 10), according to the criteria specified by Wilson and Barber (1978). In terms of the distribution of the scores, 7,83% of the subjects scored in the low range, 36,75 % of the subjects scored in the medium low range, 40,96% of the subjects scored in the medium high range, and 14,46 % of the subjects scored in the high range.

It is also important to determine if the data for a specific group has been distributed normally or not. In this study it has been determined that the data has a normal distribution for the group as a whole on the CIS (see Figure 1).

Frequency	Stem & Leaf
,00	0 ,
1,00	0 , 4
3,00	0 , 777
8,00	0 , 88888999
8,00	1 , 01111111
8,00	1 , 22223333
11,00	1 , 44444555555
10,00	1 , 6666677777
16,00	1 , 8888999999999999
16,00	2 , 0000000001111111
24,00	2 , 22222222223333333333333333
20,00	2 , 4444444445555555555555
14,00	2 , 66666666777777
6,00	2 , 888999
9,00	3 , 000001111
6,00	3 , 222333
4,00	3 , 4445
1,00	3 , 6
1.00 Extremes	( $\geq 40$ )
Stem width:	10,00
Each leaf:	1 case

Figure 1. Normal distribution of raw scores on the CIS.



### 3.2 Inferential Statistics

The results of  $t$ -tests for independent groups done separately for South Africa with each of the other samples are presented in Table 4.

Table 4

Results of T-tests for the South African Sample with Each of the Polish, American, Australian and New Zealand Samples

Countries	df	t	p
Poland and South Africa	275	-0,36	0,05
America and South Africa	381	-0,26	0,05
Australia and South Africa	469	-0,61	0,05
New Zealand and South Africa	292	-0,19	0,05

No significant differences could be found between the different countries.

A  $t$ -test for independent groups done separately for the black South African sample with the white South African sample are presented in Table 5.

Table 5

Independent Sample Test for Black and White South African Students from the University of Stellenbosch

	df	t	p
Equal variances assumed	84	-1,680	0,05
Equal variances not assumed	21,85	-1,643	0,05



These results indicated that no significant differences exist between these groups.

### 3.3. Reliability

Two methods were used to determine the internal consistency of the CIS, the split-half method using the formula of Spearman-Brown and Cronbach's alpha coefficient. The reliability coefficients of the CIS are presented in Table 6.

Table 6

#### Reliability Coefficients for the CIS

Method	Reliability coefficient
Formula of Spearman-Brown	0,74
Cronbach's alpha coefficient	0,82

The internal consistency of the CIS, as reflected by the coefficients in Table 6, can be described as good.

### 3.4. Validity

Validity was assessed in two ways: concurrent validity and construct validity. The concept of validity refers to whether a test measures what it aims to measure (Anastasi, 1954, p. 358).

Concurrent validity. Concurrent validity can be defined as a satisfactory correlation of a scale with another accepted scale which measures the same domain (Cronbach, 1960, p. 109). Pearson product moment correlations were calculated between the CIS and the subjective scores of the Barber Suggestibility Scale (BSS) and the CIS and the objective scores of the BSS.

The results are presented in Table 7.



Table 7

Correlations between the CIS Total Score and the BBS Total Objective and Total Subjective Scores

CIS	df	r
BBS: Objective Scores	84	0,55**
BBS: Subjective Scores	84	0,39**

\*\* $p < 0,01$

A strong positive correlation of  $r = 0,55$ ;  $p < 0,01$  was found between the CIS and the objective scores of the BBS. A moderate positive correlation of  $r = 0,39$ ;  $p < 0,01$  was found between the CIS and the subjective scores of the BBS.

Construct validity. To evaluate construct validity, the scores of 86 subjects on each of the 10 test items and the total scores on the Creative Imagination Scale were intercorrelated by making use of Pearson product moment correlations. The correlation of each item with the total score on the scale are presented in Table 8.



Table 8

Correlations of the Total Scores in CIS with the Individual Items

Test-suggestions	r
1, Arm Heaviness	0,46**
2, Hand Levitation	0,60**
3, Finger Anesthesia	0,50**
4, Water "Hallucination"	0,68**
5, Olfactory-Gustatory "Hallucination"	0,77**
6, Music "Hallucination"	0,64**
7, Temperature "Hallucination"	0,66**
8, Time Distortion	0,44**
9, Age Regression	0,51**
10, Mind-Body Relaxation	0,70**
Coefficient Alpha Total scale	0,82**

\*\* $p < 0,01$

The results of table 8 indicate that all the items of the CIS correlate significantly with the total scale score.

## 4. DISCUSSION

In the first part of this section, the focus is on the discussion of obtained results. Thereafter follows a critical review of this research study. This chapter is concluded with recommendations for further study.

### 4.1 Discussion of results

#### 4.1.1 Descriptive Statistics

Means. The total means of the samples (see Table 1, p. 25) of the 5 countries are similar: South Africa ( $\underline{M} = 21,01$ ;  $\underline{SD} = 7,09$ ); America ( $\underline{M} = 20,18$ ;  $\underline{SD} = 8,6$ ); Poland ( $\underline{M} = 20,69$ ;  $\underline{SD} = 7,56$ ); Australia ( $\underline{M} = 20,60$ ;  $\underline{SD} = 6,9$ ) and New Zealand ( $\underline{M} = 19,04$ ;  $\underline{SD} = 10,68$ ). The significance here is that the scores of respondents, in terms of creative experiences, are similar in various countries.

The total means of the black and white South African samples (see Table 2, p. 26) are similar: black South African sample ( $\underline{M} = 19,75$ ;  $\underline{SD} = 7,03$ ); white South African sample ( $\underline{M} = 16,57$ ;  $\underline{SD} = 6,78$ ). The significance here is that the scores of respondents, in terms of creative experiences, are similar in black and white cultures.

Norms. The norms of the South African sample are presented in Table 3 (p. 27). This includes the number and percentage of South African subjects in each class interval, cumulative percentage, and T standard scores. Of the South African sample, most respondents scored in the medium high range (see Table 3, p. 27). In terms of the CIS, this indicates that the majority of the subjects are relatively easily influenced by creative suggestions.

**Distribution.** A further significant finding was that the raw data gave a normal distribution curve that meets the requirements of statistical normality (see Figure 1, p. 27). This means that the calculated statistics are reliable and that the variable, in this case creative imagination, is normally distributed amongst the specific population on whom the questionnaire was standardized.

#### 4.1.2 Inferential Statistics

The results of the  $t$ -tests (see Table 5, p. 29) for the black and white South African culture groups showed that no significant differences exist between black and white South African cultural groups. A possible explanation for this result would be that culture-based expectancies do not play a role in mediating the relationship between hypnotizability and measures associated with hypnotizability in Western Cultures, as implied by Jacquith et al, (1996) research. This finding could imply that the CIS is a measurement instrument that can be used in South Africa, for both black and white cultural groups.

The results of the  $t$ -tests (see Table 4, p. 27) for the independent groups (i.e. America, Australia, Poland, New Zealand and South Africa) showed that the students in the South African study did not perform better or worse than the American, Australian, Polish and New Zealand subjects. This could imply that the CIS is a reliable and trustworthy measure apparatus in South Africa due to the fact that it has been found reliable in many other countries. Possible explanations for this phenomena are:

- (a) The nature and content of the test are not influenced by different groups who have different values.
- (b) It is possible that the different groups measured by the CIS have the same degree of creative abilities.
- (c) The skills related to the performance on the CIS can possibly form part of the frame of reference of members of the different groups.
- (d) Language ability plays no role in the performance on the CIS. Because the CIS and BSS

were taken in English, the majority of students did the test in their second or third language. Students whose home language was not English, were not disadvantaged.

#### 4.1.3 Reliability

The reliability coefficients (see Table 6, p. 30) of the CIS for the South African group as a whole is high. These results support the research of Mc Conkey et al. (as cited in Laidlaw & Large, 1997) and Suita (1987), which confirms that the CIS is a reliable measuring instrument for assessing hypnotic experience.

The reliability coefficients are calculated according to Cronbach's alpha coefficient and Spearman Brown's formula which determines the internal consistency of the measuring instrument. The students' response to the items has been constant to a large extent. The CIS has an internal item consistency which indicates that the items are fairly homogeneous and this leads to a steady performance from item to item. Each item measures the same general factors as all the other items for the group as a whole. In the event of the CIS being administered on the same students on different occasions at different times, their performances should be more or less the same.

#### 4.1.4 Validity

Concurrent validity. The subjective and objective scores of the BSS correlate significantly with the CIS (see Table 7, p. 31). According to the statistics the CIS has concurrent validity. This means the CIS and BSS measure the same abilities and skills. These results confirm a conclusion reached by a previous research study by Kiddoo (as cited in Wilson and Barber, 1978) namely, the CIS measures approximately the same kind of behaviour as the Barber Suggestibility Scale.

There is a stronger correlation between the students' performance on the subjective scores of the BSS and the CIS as between the objective scores of the BSS and the CIS.

Possibly these results can be attributed to the fact that the scores of the CIS and the subjective scale of the BSS are both subjective, while the scores of the objective scale are purely focused on perceived behaviour. The CIS might be more valid in terms of subjective measures than objective measures.

Construct validity. In the calculation of the intercorrelations between the items of the CIS (see Table 8, p. 32), it was found that all the items correlated significantly with the total score of the CIS. This indicates that all the CIS items measure the same construct. The construct validity of the test as a whole for the group is thus confirmed and supports previous research done by Laidlaw and Large (1997); Sheehan et al. (1978); Suita (1987) and Wilson and Barber (1978), which is that the CIS possesses construct validity.

In conclusion, the present research findings proved that the CIS is a valid and reliable measuring instrument for undergraduate psychology students from the University of Stellenbosch, South Africa, that can be used for both black and white cultural groups.

#### 4.2 Critique of present study

- (a) In the statistical analysis, minimal use is made of the obtained biographical data from the biographical questionnaire. Only age and cultural grouping was considered.
- (b) The normative group is not nationally representative.
- (c) No research was reported which involved retesting over a period of time.

#### 4.3 Recommendations

- (a) More attention should be given to the biographical information which has been obtained. Information on different home languages and different fields of study could be used to answer questions such as the following: “Does responsiveness on the CIS vary as a function of cultural background? Are science (e.g. B.Sc.) students more responsive on the



items than art (e.g. B.A. Music or Drama) students?”

- (b) It is of the utmost importance that the CIS is standardized to cater for all the different ethnic and population groups on whom it will be used in South Africa. A larger representative sample of the different groups in South Africa is recommended. The sample population on whom the questionnaire was standardized was not representative of the broader South African population, but only on undergraduate students. The fact that this group only consisted of undergraduate students means that this group represents only one specific developmental group, namely the youth. Therefore these results can not be generalized to include older or younger persons.
- (c) Investigations on test-retest reliability is recommended to indicate whether subjects who obtain high (or low) scores on the CIS on one occasion also tend to obtain similarly high (or low) scores in the same way on a second occasion.

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## APPENDIX A

Creative Imagination Scale (CIS)

1 *Arm Heaviness*. “By letting your thoughts go along with these instructions you can make your hand arm feel heavy. Please close your eyes and place your left arm straight out in front of you at shoulder height with the palm facing up.”

(Begin timing.) “Now imagine that a very heavy dictionary is being placed on the palm of your left hand. Let yourself feel the heaviness. Your thoughts make it feel as if there is a heavy dictionary on your hand. You create the feeling of heaviness in your hand by thinking of a large heavy dictionary. Now think of a second large heavy dictionary being placed on top of the first heavy dictionary. Feel how very heavy your arm begins to feel as you push up on the dictionaries. Push up on the heavy dictionaries as you imagine the weight; notice how your arm feels heavier as you push up on them. Now tell yourself that a third big heavy dictionary is being piled on top of the other two heavy dictionaries in your hand and your arm is very, very heavy. Let yourself feel as if there are three heavy dictionaries on the palm of your hand and your arm is getting heavier and heavier and heavier. Feel your arm getting heavier and heavier and heavier, very, very, very heavy, getting heavier and heavier and heavier ...very heavy” (Approximately 1’20” since beginning of timing).

“Now tell yourself that your hand and arm feel perfectly normal again and just let your hand and arm come back down and relax.”

2. *Hand Levitation*. “By directing your thoughts you can make your hand feel as if it is rising easily, without effort. Keep your eyes closed and place your right arm straight out in front of you at shoulder height with the palm facing down.”

(Begin timing.) “ Now picture a garden hose with a strong stream of water pushing against the palm of your right hand, pushing up against the palm of your hand. Think of a strong stream of water pushing your hand up. Let yourself feel the strong stream of water pushing up against the palm of your hand, pushing it up. Feel the force of the water, pushing your hand up. Feel it pushing against the palm of your hand. Tell yourself that the force of the water is very strong and, as you think about it, let your hand begin to rise. Feel your hand rising as you imagine a strong stream of water pushing it up, and up, and up, higher and higher. Tell yourself that a strong stream of water is pushing your hand up and up, raising your arm and hand higher and higher as the strong stream of water just pushes it up, just rises and pushes and just pushes it up, higher and higher.” (End of timing: about 1’10’’).

“Now tell yourself its all in your own mind and just let your hand and arm come back down and relax.”

3. *Finger Anesthesia.* “ By focusing your thinking you can make your fingers feel numb. Please place your left hand in your lap with the palm facing up. Keep your eyes closed so you can focus fully on all the sensations in the fingers of your left hand.”

(Begin timing.) “Now, try to imagine and feel as if Novocain has just been injected into the side of your left hand next to the little finger so that your little finger will begin to feel like it does when it “falls asleep.” Focus on the little finger. Become aware of every sensation and the slight little changes as you think of the Novocain slowly beginning to move into your little finger, just slowly moving in. Notice the slight little changes as the little finger begins to get just a little numb and a little dull. The little finger is becoming numb as you think of the Novocain moving in slowly.”

“Now think of the Novocain moving into the second finger next to the little finger. Tell yourself that the second finger is getting duller and duller, more and more numb as you think of how the Novocain is beginning to take effect.”

“Tell yourself that these two fingers are beginning to feel kind of rubbery and are losing feelings and sensations. As you think of the Novocain moving in faster, the fingers feel duller and duller...more and more numb...dull, numb and insensitive. As you think of the Novocain taking effect, the two fingers feel duller and duller...more and more numb, more and more insensitive...dull, numb, rubbery and insensitive.” (End of timing: about 1’50’’).

“Now tell yourself its all in your own mind and you’re going to bring the feeling back; bring the feeling back into the two fingers.”

4. *Water “Hallucination.”* “Keep your eyes closed. By using your imagination constructively you can experience the feeling of drinking cool, refreshing water.”

(Begin timing.) “First, imagine you’ve been out in the hot sun for hours and you’re very, very thirsty and your lips are dry and you’re so thirsty. Now, picture yourself on a mountain where the snow is melting, forming a stream of cool clear water. Imagine yourself dipping a cup into this mountain stream so you can have a cool, refreshing drink of water. As you think of sipping the water tell yourself its absolutely delicious as you feel it going down your throat...cold and beautiful and delicious. Feel the coolness and beauty of the water as you take a sip. Now, think of taking another sip of water and feel it going over your lips and tongue, going down your throat, down into your stomach. Feel how cool, refreshing, delicious and beautiful it is as you take another sip...so cool...cold...sweet...beautiful...delicious and refreshing. Think of taking another sip now and feel the cool water going into your mouth, around your tongue, down your throat and down into your stomach...so beautiful and cool and wonderful...absolutely delicious...absolute pleasure.” (End of timing: about 1’30’’).

5. *Olfactory-Gustatory “Hallucination.”* Keep your eyes closed. By using your imagination creatively, you can experience the smell and taste of an orange.”

(Begin timing.) “Picture yourself picking up an orange and imagine that you’re peeling it. As you create the image of the orange, feel yourself peeling it and let yourself see and feel the orange skin on the outside and the soft white pulp on the inside of the skin. As you continue peeling the orange, notice how beautiful and luscious it is and let yourself smell it and touch it and feel the juiciness of it. Now think of pulling out one or two of the orange sections with your fingers. Pull out part of the orange and bite into it. Experience how juicy, luscious and flavorful it is as you imagine taking a deep, deep bite. Let yourself smell and taste the orange and notice that it’s absolutely delicious.

Let yourself feel how delicious, beautiful, and luscious it is. Just the most beautiful, juicy orange...absolutely juicy and wonderful. Let yourself taste and smell the juicy orange clearly now as you think of taking another large bite of the delicious, juicy orange.” (End of timing: about 1’30’’).

6. *Music “Hallucination.”* “Keep your eyes closed.” (Begin timing.) “Now think back to a time when you heard some wonderful, vibrant music; it could have been anywhere, and by thinking back you can hear it even more exquisitely in your own mind. You make it yourself and you can experience it as intensely as real music. The music can be absolutely powerful...strong...exquisite...vibrating through every pore of your body...going deep into every pore...penetrating through every fiber of your being. The most beautiful, complete, exquisite, overwhelming music you ever heard. Listen to it now as you create it in your own mind.” (End of timing; about 45’’).

(15 second pause) “You may stop thinking of the music now.”

7. *Temperature “Hallucination.”* “Keep your eyes closed and place your hands in your lap with the palms facing down and resting comfortably on your lap. By focusing your thinking you can make your right hand feel hot.”

(Begin timing.) “Picture the sun shining on your right hand and let yourself feel the heat. As you think of the sun shining brightly, let yourself feel the heat increasing. Feel the sun getting hotter and feel the heat penetrating your skin and going deep into your hand. Think of it getting really hot now...getting very hot. Feel the heat increasing. Think of the sun getting very, very hot as it penetrates into your hand...getting very hot. Tell yourself, ‘The rays are increasing...the heat is increasing...getting hotter and hotter.’

Feel the heat penetrating through your skin. Feel the heat going deeper into your skin as you think of the rays of the sun increasing and becoming more and more concentrated...getting hotter and hotter. Feel your hand getting hot from the heat of the sun. It's a good feeling of heat as it penetrates deep into your hand...hot, pleasantly hot, penetrating your hand now. It's a pleasantly hot feeling, pleasantly hot.” (End of timing: about 1'15”).

“Now tell yourself it's all in your own mind and make your hand feel perfectly normal again.”

8. *Time Distortion.* “Keep your eyes close. By controlling your thinking you can make time seem to slow down.”

(The following is to be read progressively more and more slowly, with each word drawn out and with long, i.e., 2-6 second, pauses between statements.) (Begin timing.) “Tell yourself that there's lots of time...more and more time between each second. Time is stretching far, far out...stretching out more and more...lots of time. There's so much time...lots of time. Every second is stretching out. There's lots of time between each second...lots of time. You do it yourself, you slow time down.” (End of timing: about 1'40”).

(The following is to be read at a normal rate.) “And now tell yourself that time is speeding back up to its normal rate again as you bring time back to normal.”

9. *Age regression.* “Keep your eyes closed. By directing your thinking you can bring back the

feelings that you experienced when you were in elementary school - in first, second, third, fourth, or fifth grade.”

(Begin timing.) “Think of time going back, going back to elementary school and feel yourself becoming smaller and smaller. Let yourself feel your hands, small and tiny, and your legs and your body, small and tiny. As you go back in time feel yourself sitting in a big desk. You may feel some marks on the desk top, or maybe it’s a smooth, cool surface. There may be a pencil slot and perhaps a large yellow pencil. Feel the under side of the desk and you may feel some chewing gum. Observe the other children around you, and the teacher, the bulletin board, the chalkboard, the cloak room, and the windows. Smell the eraser dust or the paste. You may hear the children and the teacher speaking. Now just observe and see what happens around you.” (End of timing: about 1’20”).

(15 seconds pause) “Now tell yourself its all in your own mind and bring yourself back to the present.”

10. *Mind-Body Relaxation.* “Keep your eyes closed. By letting your thoughts go along with these instructions you can make your mind and body feel very relaxed.”

(The following is to be read slowly.) (Begin timing.) “Picture yourself on a beautiful, warm summer day lying under the sun on a beach of an ocean or lake. Feel yourself lying on the soft, soft sand or on a beach towel that is soft and comfortable. Let yourself feel the sun pleasantly warm and feel the gentle breeze touching your neck and face. Picture the beautiful clear blue sky with fluffy little white clouds drifting lazily by. Let yourself feel the soothing, penetrating warmth of the sun and tell yourself that your mind and body feel completely relaxed and perfectly at ease...peaceful, relaxed, comfortable, calm, so at ease, at peace with the universe...completely relaxed...relaxed, peaceful, lazy, tranquil...calm...comfortable. Your mind and body are completely relaxed...completely relaxed...calm, peaceful, tranquil, flowing with the universe.”

(End of timing: about 2'05"). "Now as you open your eyes let yourself continue to feel relaxed and yet perfectly alert...peaceful, alert and normal again. Open your eyes."



## APPENDIX B

Self-Scoring Form for the Creative Imagination Scale

Please answer each item as honestly as possible. There are no right or wrong answers. Read the statements below describing the possible responses for each item. Then, circle the number (0,1,2,3, or 4) which closely corresponds to the statement matching your experience.

1. In the first test you were asked to imagine that one, two, and then three dictionaries were being piled on the palm of your hand. Compared to what you would have experienced if three dictionaries were actually on your hand, what you experienced was:

0	1	2	3	4
0%	25%	50%	75%	90+%
Not at all the same	A little the same	Between a little and much the same	Much the same	Almost exactly the same

2. In the second test you were asked to think of a strong stream of water from a garden hose pushing up against the palm of your hand. Compared to what you would have experienced if a strong stream of water were actually pushing up against your palm, what you experienced was:

0	1	2	3	4
0%	25%	50%	75%	90+%
Not at all the same	A little the same	Between a little and much the same	Much the same	Almost exactly the same



3. In the third test you were asked to imagine that Novocain had been injected into your hand and it made two fingers feel numb. Compared to what you would have experienced if Novocain had actually made the two fingers feel numb, what you experienced was:

0	1	2	3	4
0%	25%	50%	75%	90+%
Not at all the same	A little the same	Between a little and much the same	Much the same	Almost exactly the same

4. In the fourth test you were asked to think of drinking a cup of cool mountain water. Compared to what you would have experienced if you were actually drinking cool mountain water, what you experienced was:

0	1	2	3	4
0%	25%	50%	75%	90+%
Not at all the same	A little the same	Between a little and much the same	Much the same	Almost exactly the same

5. In the fifth test you were asked to imagine smelling and tasting an orange. Compared to what you would have experienced if you were actually smelling and tasting an orange, what you experienced was:

0	1	2	3	4
0%	25%	50%	75%	90+%
Not at all the same	A little the same	Between a little and much the same	Much the same	Almost exactly the same



6. In the sixth test you were asked to think back to a time when you heard some wonderful music and to re-experience hearing it. Compared to what you would have experienced if you were actually hearing the music, what you experienced was:

0	1	2	3	4
0%	25%	50%	75%	90+%

Not at all the same	A little the same	Between a little and much the same	Much the same	Almost exactly the same
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7. In the seventh test you were asked to picture the sun shining on your hand making it feel hot. Compared to what you would have experienced if the sun were actually shining on your hand, what you experienced was:

0	1	2	3	4
0%	25%	50%	75%	90+%

Not at all the same	A little the same	Between a little and much the same	Much the same	Almost exactly the same
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8. In the eighth test you were asked to imagine time slowing down. Compared to what you have experienced if time actually slowed down, what you experienced was:

0	1	2	3	4
0%	25%	50%	75%	90+%

Not at all the same	A little the same	Between a little and much the same	Much the same	Almost exactly the same
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9. In the ninth test you were asked to think back to a time when you were in elementary school. Compared to the feelings you would have experienced if you were actually in elementary school, the feelings you experienced were:

0	1	2	3	4
0%	25%	50%	75%	90+%
Not at all the same	A little the same	Between a little and much the same	Much the same	Almost exactly the same

10. In the tenth test you were asked to picture yourself lying under the sun on a beach and becoming very relaxed. Compared to what you would have experienced if you were actually relaxing on a beach, what you experienced was:

0	1	2	3	4
0%	25%	50%	75%	90+%
Not at all the same	A little the same	Between a little and much the same	Much the same	Almost exactly the same

## APPENDIX C

Barber Suggestibility Scale (BSS)

As discussed in this paper, the BSS can be administered under a variety of experimental conditions: with and without Hypnotic Induction, with and without Task Motivational Instructions, by means of a tape-recording or by oral presentation, etc. With the exception of one study (Barber & Calverley, 1965) the scale has been administered to subjects with their eyes closed. The BSS is administered and scores as follows:

*Eight Test-suggestions*

1. *Arm lowering.* “Hold your right arm straight out in front of you like this.” (Guide the subject to extend the right arm directly in front of body at shoulder height and parallel to the floor.)”  
“Concentrate on your arm and listen to me.”

(Begin timing) “Imagine that your right arm is feeling heavier and heavier, and that it’s moving down and down. It weighs a ton! It’s getting heavier and heavier. It’s moving down and down, more and more, going down and down, more and more: it’s heavier and heavier, going down and down, more and more, more and more.” (End 30 seconds) “You can relax your arm now.” (If necessary, ask the subject to lower the right arm.)

Objective score criterion: 1 point for response of 10 centimeters or more. (Response is measured by placing a ruler near the subject’s hand at the beginning of the suggestions and noting degree of displacement at the end of the 30-second suggestion period.)

2. *Arm Levitation.* “Keep your eyes closed and put your left arm straight out in front of you in the same way. Concentrate on your arm and listen to me.”

(Begin timing) “Imagine that the arm is becoming lighter and lighter, that it’s moving up and up. It feels as if it doesn’t have any weight at all, and it’s moving up and up, more and more. It feels as if it doesn’t have any weight at all, and it’s moving up and up, more and more. It’s as light as a feather, it’s weightless and rising in the air. It’s lighter and lighter, rising and lifting more and more. It’s lighter and lighter and moving up and up. I doesn’t have any weight at all and it’s moving up and up, more and more. It’s lighter and lighter, moving up and up, more and more, higher an higher.” (End 30 seconds) “You can relax your arm now.” (If necessary, ask the subject to lower the arm.)

Objective score criterion: 1 point for response of 10 centimeters or more during 30-second suggestion period.

3. *Hand Lock*. “Keep your eyes closed. Clasp your hands together tightly, and interlace the fingers.” (If necessary, the experimenter states, “Press your hands together, with palms touching.” and assist the subject to interlock the fingers and to bring the palms together.) “Put them in your lap. Concentrate on your hands and hold them together as tightly as you can.”

(Begin timing) “Imagine that your hands are two pieces of steel that are welded together so that it’s impossible to get them apart. They’re stuck, they’re welded, they’re clamped. When I ask you to pull your hands apart, they’ll be stuck and they won’t come apart no matter how hard you try. They’re stuck together; they’re two pieces of steel welded together. You feel as if your fingers were clamped in a vise. Your hands are hard, solid, rigid! The harder you try to pull them apart the more they will stick together!

It’s impossible to pull your hands apart! The more you try the more difficult it will become. Try, you can’t.” (10-second pause) “You can unclasp your hands now.”

Objective score criteria: 0,5 point for incomplete separation of the hands after 5-second effort; 1 point for incomplete separation after 15-second effort.

4. *Thirst "Hallucination."* "Keep your eyes closed." (Begin timing) "Imagine that you've just finished a long, long walk in the hot sun. You've been in the hot sun for hours, and for all that time you haven't had a drink of water. You've never been so thirsty in your life. You feel thirstier and thirstier. Your mouth is parched, your lips are dry, your throat is dry. You have to keep swallowing and swallowing. You need to moisten your lips. (3-second pause) You feel thirstier and thirstier, drier and drier. Thirstier and thirstier, dry and thirsty. You're very very thirsty! Dry and thirsty! Dry and thirsty! (End of 45 seconds) "Now, imagine drinking a cool, refreshing glass of water." (5-second pause)

Objective score criteria: 0,5 point if the subject shows swallowing, moistening of lips, or marked mouth movements; additional 0,5 point if the subject indicates during the "postexperimental" questioning that he or she became thirsty during this test (e.g., "I felt dry," "I was parched," "I felt somewhat thirsty"). (See "postexperimental" questions for final scoring criteria on this test.)

5. *Verbal Inhibition.* "Keep your eyes closed. (Begin timing) "Imagine that the muscles in your throat and jaw are solid and rigid, as if they're made of steel. They're so solid and so rigid, that you can't speak. Every muscle in your throat and mouth is so tight and so rigid that you can't say your name. The harder you try to say your name the harder it becomes. You can't talk! Your larynx has tightened up, your throat and jaw feel as if they are in a vise.

Your throat is clamped so tightly that you can't talk; you can't say your name. The harder you try the harder it will be. It's useless, the words won't come out; you can't speak your name; it's impossible to talk! The harder you try to say your name the harder it will become. Try, you can't!" (End 45 seconds)(5-second pause) "try harder; you can't." (10-second pause) "You can say your name now."

Objective score criteria: 0,5 point if the subject does not say name after 5-second effort; 1 point if subject does not say name after 15-second effort.



6. *Body Immobility*. “Keep your eyes closed.” (Begin timing) “Imagine that for years and years you’ve been sitting in that chair so long that you’re stuck to it! It’s as if you’re part of the chair. Your whole body is heavy, rigid, solid and you weigh a ton. You’re so heavy that you can’t budge. It’s impossible for you to stand up, you’re stuck right there! Your body has become part of the chair. When I ask you to stand up you won’t be able to do it! You’re stuck tight. The harder you try the tighter you’ll be stuck and you won’t be able to get up. You’re heavy in the chair! Stuck in the chair, you can’t stand up. You’re so heavy and stuck so tight. You can’t stand up; you’re stuck. Try, you can’t.” (End 45 seconds) (5-second pause) “Try harder; you can’t.” (10-second pause) “You can relax (or sit down) now.” (The subject is considered not standing if he or she rises slightly from the chair without straightening into an erect posture. In this event, the experimenter says, “Try to stand fully erect, you can’t”, instead of “Try harder, you can’t.”)

Objective score criteria: 0,5 point if the subject is not standing fully erect after 5-second effort; 1 point if not standing fully erect after 15-second effort.

7. *“Posthypnotic-like” Response*. (The auditory stimulus consists of tapping once on the metal back of a stop watch with a fountain pen.) (Begin timing) “When the experiment is over in a few minutes and your eyes are open, I’ll click like this (experimenter presents auditory stimulus) and you’ll cough. When your eyes are open, I’ll click (stimulus is presented) and you’ll cough. When I click you’ll cough.” (End of 30 seconds)

Objective score criterion: 1 point if the subject coughs or clears throat “postexperimentally” when presented with the auditory stimulus.

8. *Selective Amnesia*. “Your eyes are still closed but I’m going to ask you to open them in a minute. When they’re open I’m going to ask you to tell me about these tests.” (Begin timing) “You’ll remember all the tests and be able to tell me about them, all except for one.



There's one that you'll completely forget about as if it never happened! That's the one where I said your arm was becoming lighter and moving up and up. You'll forget all about that and when you try to think about it, it will slip even further away from your mind. You will forget completely that I told you that your arm was becoming lighter. This is the one test that you cannot remember! You will remember that I said your arm was heavy and all the other tests will be perfectly clear but the harder you try to remember that I told you your arm was rising the more difficult it will become. You will not remember until I give you permission by saying, "Now you can remember, " and then, and only then, you will remember that I said your arm was rising!"  
(End 45 seconds)

Objective score criterion: 1 point if the subject does not refer to the Arm Levitation item (Test-suggestion 2) but recalls at least four other items then recalls Test-suggestion 2 in response to the cue words.

*"Postexperimental" Objective Scoring of Test-suggestions 4, 7, and 8*

"Open your eyes, the experiment is over."

Scoring of Test-suggestion 7. The "posthypnotic-like" Response item (item 7) is scored at this point. The experimenter presents the auditory stimulus after the subject has opened his or her eyes and before conversation commences.

Scoring of Test-suggestion 8. The experimenter next asks: "How many of the tests can you remember?" The experimenter prompts the subject by asking, "Were there any others?" "Can you think of any more?" and "Is that all?," until the subject mentions at least four of the test-suggestions. If the subject verbalizes the Arm Levitation item during the recital, he or she receives a score of zero on Test-suggestion 8 (Selective Amnesia). If the subject does not include the Arm Levitation item in the enumeration, the experimenter finally states, "Now you can remember," and, if the subject still does not verbalize the Arm Levitation item, "You can remember perfectly well now!"

The subject receives a score of 1 point on Test-suggestion 8 (Selective Amnesia) if he or she mentions at least four of the test-suggestions, but does not mention the Arm Levitation item before given the cue words, and verbalizes the Arm Levitation item when given the cue words, "Now you can remember," or, "You can remember perfectly well now!"

Final Scoring of Test-suggestion 4. The Objective scoring of Test-suggestion 4 is completed when the subject refers to this item during the recital. At this point the experimenter asks: "Did you become thirsty during this test?" If the subject answers, "Yes" to this question he or she receives the additional 0,5 point on Item 4. If the subject answers, "Yes" but adds a qualifying statement, e.g., "I had been thirsty to begin with," he or she is asked: "Did the imaginary glass of water help quench your thirst?" If the subject now answers, "Yes" he or she receives the additional 0,5 point.

The maximum Objective score obtainable on the BSS is 8 points.

## APPENDIX D

Subjective scores of Barber Suggestibility Scale (BSS)

Immediately after the Objective scores have been assigned, the experimenter mentions each test-suggestion that the subject has passed with an Objective score of either 0.5 or 1 point and asks the subject if he felt the suggested effect or if he went along with the suggestion to follow instructions or to please the experimenter. Specifically, the following questions are asked (with respect to those test-suggestions that the subject has passed with an Object score of either 0.5 or 1 point):

1. "When I said that your right arm was heavy and was coming down, did your arm feel heavy or did you just let it come down in order to follow instructions or to please me?"
2. "When I said that your left arm felt light and was rising, did your arm feel light or did you raise it deliberately in order to follow instructions or to please me?"
3. "When I said that your hands were stuck and you couldn't take them apart, did you actually feel that you couldn't take your hands apart or did you keep your hands together in order to follow instructions or to please me?"
4. "When I said that you were becoming very thirsty, did you actually become very thirsty or did you just act as if you were thirsty in order to follow instructions or to please me?"
5. "When I said that you couldn't say your name, did you actually feel that you couldn't speak your name or did you just go along with the suggestion in order to follow instructions or to please me?"
6. "When I said that you were stuck in the chair, did you feel that you were stuck and unable to stand up or did you just go along with the suggestion to follow instructions or to please me?"
7. "When I clicked and you coughed, did you feel that you coughed automatically or did you cough deliberately in order to follow instructions or to please me?"
8. "Did you actually forget that I had said that your arm was rising or did you just act as if you had forgotten in order to follow instructions or to please me?"

A Subjective score of 1 point is assigned for each test-suggestion passed objectively which the subject testifies that he had “felt.” The maximum Subjective score obtainable is 8 points.