IQ AND EQ SCORES VERSUS HYPNOTIC SUSCEPTIBILITY

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Abstract

This research attempted to investigate a significant correlation between IQ and EQ tests and hypnotic susceptibility and suggestibility. Race, educational level and socio-economic status were no determinants in this study which enrolled 30 subjects. The inclusion criteria were the age group of >20 and <60 years of age, partially the gender of the participants, their affirmation of never having been hypnotized before and the English language competence of all subjects which had to be comparable to native speakers, given that all tests were carried out in English.

Based on the analysis of results of medium and SD scores of a sample of 30 individuals, (N:30) divided into three groups, A,B,C (N:10 each), a moderately to highly significant correlation could be shown for both, the results of the IQ test and the hypnotic susceptibility test (Group A: p> 0,0010, Group C: p>0,000), as well as of the EQ test and hypnotic susceptibility test (Group B: p>0,0388, Group C p>0,0063). A moderately positive correlation could also be shown for the results of the IQ test compared to the EQ test (p>0,0781), which, however, did not reach statistical significance.

Based, however, on each test's publisher pre-established average and SD scores, the assessment of the sample's correlation in IQ, EQ and hypnotic susceptibility scores turned out negative, some statistical analysis data including as few individuals as N:2, N:3 (p>0,333) or N:5 (p>0,1817), leading to the conclusion that the present tests should be applied to a bigger sample of > N:100 to assess if initially verified correlations hold on the basis of established medium and SD test scores.

Keywords: IQ scores, EQ scores, Hypnotic susceptibility

Definition of terms and abbreviations

BSS:	The Barber Suggestibility scale
EI	Emotional Intelligence
EQ:	Emotional Quotient
EQ-I	Bar-On Emotional Quotient Inventory
ECI	The Emotional Competency Inventory
HGSHS :	The Harvard Group Scale Of Hypnotic Susceptibility
HIP:	Hypnotic Induction Profile
IQ:	Intelligence Quotient
RRS	Realness Rating Scale
SHSS:	The Stanford Hypnotic Susceptibility Scale
SHALIT:	Stanford Hypnotic Arm Levitation Induction and Test
TEIQue	The Trait Emotional Intelligence Questionnaire
TAS:	The Tellegen Absorption Scale
WAIS:	Wechsler Adult Intelligence Scale
WASI:	The Wechsler Abbreviated Scale of Intelligence

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Introduction

Statement of Goal Achieved

For many years the author had the subjective impression that patients considered intelligent or very intelligent had a greater facility to enter trance or did so faster:

- under the same environmental circumstances (room, chair, light, music, scent, temperature, therapist, approximate schedule, season)
- using the same induction techniques (long, progressive relaxation)
- with complaints other than acute pain but including conditions such as lack of self-esteem, depression, anorexia, sleeplessness, overweight, drug-addiction, panic disorders, phobias

Yet, literature research on this topic yielded no conclusions to the question whether this correlation actually existed or had any scientific foundation. Merely very few authors even mention the topic of intelligence at all in any relation with hypnotic induction. According to M. Ansari (1982), practical experiments and scientific research have proven that people above average intelligence who are capable of concentrating, are more susceptible to hypnosis, that the ability to concentrate, however, was a necessary, but not per se sufficient condition for hypnotic susceptibility. Further, F.L. Marcuse (1959) states that in an empirical study it was found that volunteers for hypnosis possessed higher intelligence, had less anxiety, were more dominant and were less prejudiced in general than non-volunteers. This, according to Marcuse is not surprising since hypnosis depends on the understanding and the cooperation of the subject. An intelligent mind responds to logic and reason and cooperates more during the trance induction procedure. R. Bernhardt and D. Martin (1977) hold that the best subjects tend to be those of average or above intelligence possessed of strong motivation

and the ability to concentrate. W.S. Kroger (1977) also confirms this by saying that some people believe that imbeciles and weak-minded persons make the best hypnotic subjects, which, however, is a misconception because, rather, it appears that people of above average intelligence, who are capable of concentrating, usually make the best subjects.

Though valuable because of the undeniable competence in clinical hypnosis of the mentioned authors, all these statements do not refer to any specific testing in the field, so that a more exhaustive preliminary research had to be carried out in order to determine if any actual juxtaposition of IQ/EQ testing scores and hypnotic susceptibility scale scores was documented in scientific literature. This search was undertaken at all of the following institutions and organizations:

- Medscape,
- Medline plus,
- The National Network of Libraries of Medicine,
- The Cochrane reviews
- The National Institutes of Health (NIH)
- Deutsches Institut für Medizinische Dokumentation und Information (DIMDI)
- Search Medica.fr

None of these publications included references to studies or research-articles on the topic.

To rule out that the idea of a correlation between intelligence and trance facility might be limited to just a few professionals in the field of clinical hypnotherapy due to a number of external circumstances, the author contacted 340 professionals, currently working in the field of clinical hypnosis all over Brazil. A 51% majority of the professionals, who answered, confirmed having noted the existence of such a correlation, thus legitimizing the object of the present research which allowed proving a correlation between general intelligence and

emotional intelligence scores and the facility of hypnotic trance induction or, in other words, hypnotic susceptibility.

Another element that came forth though not being specifically investigated was the depth of trance also measured by the hypnotic susceptibility scale. According to R. James (2004), the importance of trance depth is that in deep trance dissociation occurs; a partial separation between the conscious and subconscious mind. In a light trance, a participant can still analyze, judge and/or distort information, depending on some agenda of his own, if such be his wish. In a deeper trance state, the likelihood is increased that the therapist is accessing the subconscious mind. For most practical purposes, however, the hypnotherapist will be more concerned with establishing that there is sufficient trance depth for therapy, rather than the more academic pursuit of gauging the precise depth of trance attained. There seems to be a consensus of opinion from most learned sources that trance depth might not be such an important concern and that effective therapy can take place providing at least a light stage of hypnosis is established.

Also, it is important to realize that the depth of trance does not refer to an objective or quantifiable state but is characterized by the phenomena available in that state, thereby equating trance depth with suggestibility. For example, eyelid catalepsy is quite easy to obtain and so when this phenomenon becomes available trance depth can be labeled as light. Pain control becomes available as a hypnotic phenomenon only when the subject becomes more suggestible and when this phenomenon becomes accessible a medium trance depth can be diagnosed. Full amnesia or positive / negative hallucination are among the most extreme of hypnotic phenomena and require the greatest suggestibility and so when these become available they can be labeled as a deep trance state.

Relevance to the Field

The author believes that the findings of this study may benefit both, the individual therapist as well as professionals working in clinical or research settings in so far as the results obtained will allow either to gauge beforehand probable induction difficulties and adapt techniques accordingly.

The benefit of the present results may be of considerable advantage for research recruitments of subjects, since the time for producing induction and induction depth are important variables in any research setting that require larger numbers of subjects; mainly when the inductions are done individually, while IQ/EQ testing can be done faster.

Yet another element that incidentally emerged from the investigation was the correlation yielded in scientific literature between low EQ scores and proneness to depression and low EQ scores and lower scoping capacity with stress, allowing the practitioner to reconfirm diagnostic data through the simple application of EQ test.

Barriers and Limitations

Though there exist a number of conditions and statistical prerequisites that must be satisfied as specified under “Tests and testing”, p 19 before any test deserves to be labeled as reliable and though the tests used in this study have long passed these preliminary qualification criteria, the element of subjective interpretation inherent to the hypnotic susceptibility scale as well as the EQ test hold a limitation, insofar as they rely on the individuals capacity to precisely analyze his own states and reactions in a self-report.

The English language competence of all subjects had to be comparable to native speakers or they had to be bilingual. This element constituted only for 30% of the participants

an initial challenge since they were not brought up in a bilingual family setting, had, however spent a prolonged period (4-11) years in an English speaking country. It may therefore be assumed that the mastery of the English language, as tested in a pre-talk before proceeding to the tests involved in the present study, by itself represents an element that tends to favor the results on the IQ and EQ scores since it stands for an already accomplished complex intellectual learning process.

Also, in the normal therapy setting, IQ and EQ testing preliminary to hypnotic induction is all but probable. The study, however, allows the experienced hypnotherapist to have an immediate perception of possible induction difficulties by gauging through a set of disguised, yet simple questions asked during the introduction talk with his patient if the latter seems to fit the below average, average or above profile scores on the tests.

Finally, the number of subjects enrolled in the present test was limited to 30 individuals, strongly fostering the need for large scale data.

Elements Investigated

The present work attempted to investigate the hypothesis that the higher the IQ and/or EQ scores, the higher the hypnotic susceptibility. For this purpose the presently available test batteries and their validation in three distinct areas:

- IQ testing
- EQ testing
- Hypnotic susceptibility testing

had to be examined thoroughly so as to permit a reasonable choice among the various tests. No absolute consensus exists on any of these tests due to variable aspects more closely investigated in the different tests of each group; thus making the choice a question of

individual interpretation and preference by the author, who included an extensive overview of all these test batteries in the Literature Review section, allowing the reader to get familiar with each individual instrument.

Review of Literature

Hypnosis: A Short Historical Survey

Historically, hypnosis has been used for thousands of years in the form of group rituals, such as mass chanting or meditation to a steady drum beat and in sleep temples where the Hindus took their sick to be cured by hypnotic suggestion; it was, however, initially brought into the realm of scientific interest through the 18th century Austrian physician F. A. Mesmer and his so called animal magnetism. (1734-1815).

Mesmer's healing technique, mesmerism, and how the application of magnets, and later just his hands, could work on the subtle fluids within the body and have a healing effect on them, attracted many followers in various areas amongst which the religious and scientific ones. It was the period when hypnosis was coined as an art of entertainment in the form of stage hypnosis. Thus mesmerism fell into disrepute due to its many associations with occultism and various kinds of obvious charlatanism.

In 1843, the British surgeon, J. Braid made a clear transition to mesmerism by recognizing that certain psychological phenomena, yet to investigate, such as the human imagination were at work when a subject was hypnotized. In his early scientific approach, Braid initially believed that hypnotic induction created a specific condition in the nervous system that was linked to cures by suggestive phenomena. He, however, later rejected this and other physiological explanations and held on to the concept of mental factors exclusively. Around this period, a scission arose between scholars interested in the subject of scientific

investigation and as a complement to medical treatment and those who saw hypnosis merely as a means of personal fulfillment, or as a subject worthy of esoteric investigations of religious or magical nature.

The neurological explanation of hypnosis was also strongly rejected by the French neurologist J. M. Charcot (1825-1893), who stated that the best hypnotic subjects were hysterical subjects and that hypnosis was thus a manifestation of hysteria. His view was rejected by the end of the 19th century, however, two legacies of the neuropathological theories of Charcot and his followers, the "Paris school" of hypnosis have remained; the cortical inhibition theory and the dissociation theory of which neither can explain hypnosis on its own. The process of post-hypnotic suggestion was first defined in this period and Charcot managed to prove notable improvements in sensory acuity and memory of subjects under hypnosis.

Dr. J. Esdale (1805-1859), a medical officer for the British East India Company reported a large number of surgeries performed painlessly, with the mesmeric trance as the only anesthetic agent.

The deaths of Braid and Esdaile diminished the interest in hypnosis and experimentation was only revived in the 1880s, mainly in continental Europe, where new translations of Braid's work circulated and led, in the early 20th century, to the foundation of the Nancy school under A. A. Liébault (1864-1904) and H. Bernheim, who elaborated a theory of hypnotic suggestion based on ideomotor action which held that ideas suggested to a subject automatically lead to actions, which are then experienced by him as not consciously provoked. The Nancy school was notable in its affirmation that there was no need for hypnotic rituals but that suggestion as a useful psychological process was at the core of the technique.

The First International Congress for Experimental and Therapeutic Hypnotism took place in Paris, France 1889 with, among the attendees, Charcot, Liebault, Bernheim and Freud.

Sigmund Freud had deep interest in hypnosis for much of his life. He initially studied under Charcot but then adopted Nancy school's emphasis on suggestion, having shown that patients often remembered repressed memories in a beneficial process under hypnosis. Freud's limited, authoritarian style of induction made him a poor hypnotist and in 1896 he dismissed hypnosis as an unnecessary tool in his professional practice.

Starting in the 1920's and 30's, hypnosis as it exists today in medicine is due to the efforts of pioneers in the experimental study of clinical hypnosis. Among the early researchers were C. Hull and his student, M. Erickson. Erickson emphasized the complex subjective inner processes at work in hypnosis, while Hull held on to the measurable correlates and standardized procedures. Erickson's theories and teachings based on the principles of indirect strategic therapy and suggestion, led to the foundation of many schools of applied psychology with unclear distinctions between hypnosis and other forms of therapy, like the strategic model of therapy by J. Haley's or Neurolinguistic Programming (NLP)

Additionally, in the late 1950's and early 1960's, intense experimental research was done by scientists such as T.X. Barber, M.T.Orne, J.P Sutcliffe, W. Kroger, E.R. Hilgard, A Weitzenhoffer and R.E. Shor which largely influenced the present scientific view of hypnosis as an adjunct to medicine.

Hypnosis Today

With the recognition of hypnosis by the British Medical Association (BMA) in 1955 and the American Medical Association (AMA) in 1958, the medical use of hypnosis gained the respectability that had previously inhibited many scientists to more closely investigate the possibilities of this treatment modality. Over the following decades, undeniable proof was gathered that hypnosis can, among many other applications, significantly help improving performance, health, confidence, sports, concentration, recall and creativity; chronic or acute pain control; overcoming habits, addictions, fears and phobias, past traumas; and very significantly, stress reduction. Compared with traditional therapeutic modalities, the results of a relatively brief series of hypnotherapy sessions are often faster and more effective and lasting. Currently many researchers like M. Ansari (1982), define hypnosis as a particular altered state of selective hyper-suggestibility brought about in an individual by the use of a combination of relaxation, fixation of attention and suggestion; or like Weitzenhoffer and Hilgard (1959) state, hypnosis is largely a question of willingness of the subject to be receptive and responsive to ideas and to allow these ideas to act upon him without interference, whereby by ideas, suggestions are to be understood.

Various areas directly related to the use of hypnosis in medicine like hypnotic analgesia either for pain control or for surgery purposes have been investigated closely: In one research, V.W. Cangello (1961) followed up 81 patients with cancer whereby 90% (73 women) of this group who seemed to be at least moderately hypnotizable, were induced into a hypnotic state. Of this subgroup, the clinical assessment was, that almost 70% achieved good to excellent relief of chronic pain. For the 22 patients for whom narcotics had been prescribed for pain control, 63% showed an immediate decrease in medication usage to 50% or less of base levels; this reduction lasted for a week in 54%, and for 1 to 3 months in 18%, with no reinforcement of the hypnosis.

Also in 1961, however, in the field of obstetrics, R. August reported on 850 cases, in which hypnosis was attempted. Of these, 58% required no medication at all, 38% required only minor analgesics such as Demerol, and 4% abandoned hypnosis entirely in favor of local or general anesthetics.

In dentistry, B.E. Gottfredson (1973) found that 56% of hypnotizable patients were able to complete their procedure without any chemical analgesic at all, and this figure was 75% for those of relatively high hypnotizability.

J. Hilgard and S. LeBaron (1982) offered hypnosis to 63 children who were receiving bone marrow aspirations required for treatment of leukemia. Of the 24 who accepted the referral, 19 proved to be at least moderately hypnotizable. After one single session of training, 10 of these patients were able to reduce felt pain during the procedure by at least three points on a 10-point scale; with a single additional training session, the success rate rose to 15 of 19 when the procedure was repeated about six weeks later. None of the five less hypnotizable subjects reported substantial relief of pain on either occasion.

Although science is still a long way from knowing exactly what hypnosis is, two recent developments could prove to be most important. First is the research into split brain patients, which has led to considerable insight into how the brain functions and processes information. It also provides some insight as to the meaning of consciousness and altered states of consciousness. Even more recently has been that of brain imaging. Pictures of the brain as it performs various tasks or functions have recently been carried out in three ways.

1. By aligning atomic particles in the brain tissue by means of magnetism and then bombarding them with radio waves, called magnetic resonance imaging (MRI)

2. By an adaptation of the previous procedure by showing up areas of greatest brain activity, called functional magnetic resonance imaging (fMRI).
3. By taking pictures which show the greatest "fuel intake" when performing various tasks or functions by positron emission topography (PET).

In particular, at the beginning of the twenty-first century PET scans were used in studies of hypnotized individuals at Stanford University. These scans showed quite clearly that something happens in the brain when a person is hypnotized which does not happen ordinarily.

Relying on research done in the clinical field, we may affirm that hypnotic analgesia is efficient and specific: this statement is supported by a large number of methodologically sophisticated studies conducted by many independent researchers; it is not merely a placebo; in those who are hypnotizable, it is superior to both placebo and alternative psychological treatments. Based on the available evidence, it seems safe to estimate that approximately 50% of unselected patients can obtain significant pain relief from hypnosis.

Apart from its specific use in analgesia, hypnosis has also scientifically proven to be effective in a variety of other medical as well as psychological conditions, including subject areas such as: eating disorders, anxiety, phobia, obsessive disorders, sexual dysfunction, stress, skin problems, memory enhancement, drug dependence, allergies and many more. Considering that in the current environment of healthcare, in which consumers are seeking effective alternatives to the chemical interventions that are the standard of care, hypnosis has an excellent opportunity to gain more and more ground. It is a type of complementary medicine that works, and which, as before mentioned, rests on an impressive base of clinical research. But this same environment also offers hypnosis a new challenge: to be not simply effective, but cost-effective as well. When healthcare professionals are told nowadays about

hypnosis, they believe the evidence, but they ask whether it is reimbursable by managed care or private health insurance. In the United States and some parts of Europe, like Germany, some health plans now pay for complementary treatments, given that there is evidence of their effectiveness. But this practice is likely to continue only as long as the treatments in question are cost-effective as well. The available evidence strongly indicates that adjunctive hypnosis can improve the quality of care, by reducing patient anxiety and the number of adverse events; and that it is cost-effective, by reducing the length of procedures and the use of expensive medications. Now that healthcare consumers have become interested in "natural" alternatives to conventional medicine, and demanding that their health plans pay for them, the time is ripe for a new look at hypnosis and its multiple application options, with quality of care and cost-effectiveness in mind.

General Data on Tests and Testing

In order to be able to choose from a profusion of different tests available at a great number of apparently scientifically reliable sources, a certain number of prerequisites or test quality definitions have to be observed so as to warrant that the results obtained have validity and are replicable. Among these conditions, medical research defines the following:

- Reliability. Indicates how well repeated measurements of the same relatively stable phenomenon will give the same result, also known as precision. Reliability may be measured for one observer or for more than one observer.
- Sensitivity. Identifies the proportion of people who test positive in a group of people known to fulfill the condition, or the proportion of people who are true positives compared with the total number of people who actually fulfill the condition. When the

observation or test is negative in persons who fulfill the condition, the result is termed false negative. Good observations or tests have a sensitivity of more than 90%, and help rule out result deviations because there are few false negatives. Such observations or tests are especially useful for screening.

- Specificity. Identifies the proportion of people who test negative in a group of people known not to fulfill a condition, or the proportion of people who are "true negatives" compared with the total number of people not fulfilling the condition. When the observation or test is positive in persons who do not fulfill the condition, the result is termed false positive. Good observations or tests have a specificity of more than 90% and help "rule in" the condition because the test is rarely positive when the condition is absent, and there are few false positives.
- Predictive Value. Indicates how well a given symptom, sign, or test result—either positive or negative—predicts the presence or absence of the condition to be fulfilled.

Hypnotic Susceptibility

The use of standardized hypnotic susceptibility measurements became common in the 60ties. Most practitioners today tend to view hypnotic susceptibility as a relatively stable characteristic that varies across individuals. This point of view and the realization of individual variability in the ability to experience hypnosis are not new ideas. Laurence & Perry, (1988) demonstrated that Mesmer had long ago emphasized the individual's receptivity to hypnotic process and Waite (1960) showed how Braid described the remarkable differences of different individuals in the degree of susceptibility to the hypnotic experience . The importance of within-individual variability in hypnotic susceptibility is also found in Braid's comments that individuals are affected differently, and that even the same individual could react differently at different times to hypnosis. Differential responses to hypnosis were also

recognized by Freud in his attempts to determine which patients would be the most responsive to hypnotic training. Freud, like others at this time, was unable to identify reliable correlates of hypnotizability. Freud (1966, p.106) reveals his dissatisfaction in his observation that "We can never tell in advance whether it will be possible to hypnotize a patient or not, and the only way we have of discovering is by the attempt itself". This view is reflected in the methodology of current standardized scales of hypnotizability which use direct measures of hypnotic responses to determine level of hypnotizability.

What is most important, differential treatment outcome, associated with individual differences in the way individuals respond to hypnosis, has been observed by practitioners for a very long time because hypnotic susceptibility is often a relevant factor when hypnosis is used as an adjunct to medical procedures. Bowers (1979) suggested that hypnotic ability is important in the healing or improvement of various somatic disorders. In 1982, he has also provided evidence that therapeutic outcomes with psychosomatic disorders correlated with hypnotic susceptibility, even when hypnotic procedures were not employed. Brown, (1992) shows that significant relationships have been found between hypnotizability and the reduction of chronic pain, chronic facial pain, headaches, and skin disorders (like warts, chronic urticaria, and atopic eczema) with hypnotic techniques. Weckramaskera, 1979,1994; Weckramaskera, Pope, & Kolm, (1996) provided support for the interaction of negative emotions and hypnotic ability as a mediator of symptoms and disease. A recent article by Ruzyla-Smith, Barabasz, Barabasz & Warner (1995), measuring the effects of hypnosis on the immune response, found significant increases in B-cells and helper T-cells only for the highly hypnotizable participants in the study. This report not only suggests that hypnosis can modify the activity of components of the immune system, but also highlights the importance of individual variability in response to hypnosis.

In terms of modification of hypnotizability, initial hypnotic susceptibility level may be a factor in the resulting degree of modification. In a paper discussing the issue of hypnotizability modification, Perry (1977) presented a number of studies employing a range of less susceptible individuals for modification training. Overall, the attempts to modify hypnotizability were unsuccessful in these studies. Perry suggested that successful modification tends to be more common in medium susceptible individuals. It may be that the medium susceptible individual, having already demonstrated a certain degree of hypnotic ability, possesses the underlying cognitive framework essential to the hypnotic experience. This line of reasoning could explain the differential responses of low susceptible and medium susceptible individuals to hypnotizability modification training. The high susceptible individual could also prove to be less responsive to modification strategies compared to the medium susceptible individual.

Thus, as Kihlstrom (2000), sums it up, the single most important fact about hypnosis is that there are individual differences in response to hypnotic suggestion. Unfortunately, hypnotizability cannot be predicted by the usual kinds of paper-and-pencil questionnaires, but must be assessed directly by means of performance-based assessments of hypnotizability analogous to intelligence tests. These long observed differences in individual response to hypnosis eventually led to the development of the first viable measures of hypnotizability.

Hypnotic Susceptibility Tests

The Stanford and Harvard scales of hypnotic susceptibility

Among these there is the Stanford Hypnotic Susceptibility Scale, Forms A and B (SHSS:A and SHSS:B) by Weitzenhoffer and Hilgard (1959). The introduction of the Stanford Hypnotic Susceptibility Scale, Form C (SHSS:C) by Weitzenhoffer and Hilgard (1962)

represented an improved version of the two earlier forms; it was comprised of a greater proportion of more difficult cognitive items. Some consider that the SHSS:C is still on of the best measures of hypnotic susceptibility in current use and is often the criterion by which other measures of hypnotizability are evaluated (Perry, Nadon, & Button, 1992). This instrument is essentially an ascending scale which begins with relatively easy hypnotic induction procedures and progressively moves to more difficult trance challenges. A recent study by Kurtz & Strube (1996), comparing a number of hypnotic measures, also described the SHSS:C as a standard of susceptibility tests. This study also addressed the idea of using multiple measures of hypnotic susceptibility in order to improve predictive power over using a single administered test. Even Kurtz & Strube (1996) concluded that the use of multiple measures of susceptibility was not warranted, and that the "rational" choice for a single measure of hypnotic susceptibility would be the SHSS:C. Most of these tests begin with a standardized hypnotic induction procedure followed by a series of suggestions for imaginative experiences. The subject's response to each of these suggestions is scored according to an objective behavioral criterion. Following a standardized hypnotic induction, the hypnotized individual is given suggestions pertaining to the following list:

Table 1: List of test items on the SHSS: C

Item Number	Test Suggestion and Responses
0	Eye Closure (not scored)
1	Hand Lowering (right hand)
2	Moving Hands Apart
3	Mosquito Hallucination
4	Taste Hallucination
5	Arm Rigidity (right arm)
6	Dream
7	Age Regression (school)
8	Arm Immobilization

9	Anosmia to Ammonia*
10	Hallucinated Voice
11	Negative Visual Hallucination (Three Boxes)
12	Post-Hypnotic Amnesia

*In more modern experiments, a scent such as peppermint has been used in place of ammonia for Item 9. When these scales are administered to unselected samples, they yield a roughly normal distribution of scores: while relatively few subjects are entirely refractory to hypnosis, what Hilgard referred to as "hypnotic virtuosos" comprise only about 10%-15% of the population.

The various Stanford scales of hypnotic susceptibility have served the field of hypnosis extremely well for more than 30 years. Nonetheless, over the years certain modifications seemed desirable, so that part of the original authors sanctioned a group version of the SHSS, Form A, known as the Harvard Group Scale of Hypnotic Susceptibility, Form A (HGSHS:A), Shor & Orne, (1962) whereas the Form B though also in existence, roughly parallels the Stanford Form B. Later, A. H. Morgan and J. R. Hilgard adapted the Stanford scales for clinical testing of adults and children, and E.R. Hilgard proposed that the SHSS, Form C be tailored for special purposes, so that some of the screening purposes of the Stanford Profile Scales of Hypnotic Susceptibility, Forms I and II, could be accomplished without additional testing.

The HIP and SHALIT

Another clinical test for hypnotizability, involving a novel Eye-Roll sign, hypothesized to be a measure of biological capacity for hypnosis, combined with a more traditional trance induction test, was announced in 1970 with evidence from 2,000 consecutive patients who had had their trance states graded on the 10-minute Hypnotic

Induction Profile (HIP) H. Spiegel, (1972). The HIP manual was published the same year H. Spiegel & Bridger, (1970), and has been revised twice since then, H. Spiegel, (1974) and H. Spiegel & D. Spiegel, (1978).

The HIP was developed on a clinical population of psychiatric outpatients for the purpose of enabling the clinician to rapidly assess the relevance of hypnosis in the treatment of various psychiatric problems for a given patient. Spiegel emphasized the brevity of the HIP as making it a convenient and appropriate means for clinicians to assess hypnotizability systematically.

In the HIP, stress is placed upon the Eye-Roll (ER) sign as a measure of a physiological or structural, rather than a psychological trait which is "responsible for a person's potential to experience trance H. Spiegel, (1977). Spiegel's data indicate a relationship between a positive (1.0 to 4.0) or zero ER and the presence or absence of clinically useable hypnotizability. However, this relationship is complicated by the hypothesized decline in hypnotic capacity resulting from the impairment of concentration often associated with serious psychiatric illness. Spiegel's data suggest that when the ER is a false positive indicator of hypnotizability there is likely to be a higher incidence of severe psychopathology, H. Spiegel, Fleiss, Bridger, & Aronson, (1975).

The second part of the HIP concerns itself with a trance induction test and, when the ER is not considered, measures phenomena which have long been recognized as belonging to hypnosis: involuntary motor responses, concentrated or divided attention, and dissociated subjective experiences. The HIP was devised for the clinical purpose of identifying which psychotherapy patients could be expected to obtain the most benefit from hypnotic strategies. The longer laboratory scales of hypnotic responsiveness, whereas the SHSS:A and SHSS:C were devised as research instruments. Whatever one's theory about hypnosis, the domain that

defines what is commonly accepted as hypnotic performances and experiences is hardly controversial Hilgard, (1973). While the reliability coefficient reported seems too low to make this instrument a measure of choice in experimental work, to Spiegel its adequacy for susceptibility is more important than obtaining an accurate or the most sensitive measure possible.

Comparable to the HIP, the SHALIT Stanford Hypnotic Arm Levitation Induction and Test developed by Hilgard, Crawford, and Wert (1979), is a brief test designed for clinical usage. It scores the amount coefficient of 0.88, and it correlates 0.63 with a 10-item abbreviation of the SHSS form A. Thus, it is probably a useful scale for clinical work although not sensitive enough for experimental usage because it is limited to a single factor measurement, an ideomotor task. Quite a number of researchers hold that a major concern with the use of standardized susceptibility scales has been that likely failure of the more difficult items might produce negative expectations in the subject concerning the efficacy of hypnosis.

The Barber suggestibility scale

Different from the foregoing instruments, the Barber Suggestibility Scale does not depend on the induction of a hypnotic state under standardized conditions. It does not claim to be a test of hypnotic susceptibility but of suggestibility, the ability of a subject to produce hypnotic-like behavior whether or not previously subjected to a hypnotic induction procedure. In order to understand the need for this scale and why it was developed, it is necessary to describe Barber's theoretical orientation toward hypnosis.

Barber believes that the concept of a hypnotic state is not useful in the study of hypnotic phenomena. He advocates as did Hull before him that psychologists should study what

precedent conditions or independent variables are necessary and sufficient to produce responses or dependent variables, such as catalepsy, analgesia, hallucinations and so on, that are normally labeled hypnotic behavior. For instance, he notes that in most hypnotic induction procedures, at least four specific kinds of independent variables are confounded under the label hypnotic induction:

1. The situation is defined to the subject as hypnosis
2. Suggestions of drowsiness, eye closure, and sleep are made
3. The subject is told that it will be easy to respond to suggestions
4. The subject is motivated to make the suggested responses

Barber has investigated the effect of each of these factors individually in producing the kinds of behavior commonly labeled as hypnotic. He calls instructions including items 3 and 4 only task motivational; he finds that by themselves they are just as effective as hypnotic induction in eliciting hypnotic like behavior on the BSS. Because of his theoretical and methodological orientation, Barber and his students like to put quotes around the terms “hypnosis” and “hypnotic”, leading some of his critics to mistakenly conclude that his position denies the existence of hypnotic phenomena. This criticism is inaccurate; his position is not that the phenomena are not real but that the hypnotic state is not a useful explanatory concept to account for them.

Since Barbers theory holds that hypnotic phenomena are produced by some antecedent events that should be isolated, it follows that a test of hypnotic-like behavior that does not depend on the prior induction of a hypnotic state, is needed to test these factors. Hence, the BSS can be used to elicit hypnotic-like responses either with or without a prior induction procedure.

As a result of his research, Barber reports that in addition to task-motivational instructions, the tone of the operator’s voice and the subjects attitudes and motives such as the

pre-test instructions and what the subject is told regarding the purpose of the study, affect results on the test. Variables that do not seem to affect suggestibility measures are whether the subject's eyes are open or closed, whether instructions are given personally or by tape recording, and the personality of the subject as measured by most standardized test instruments.

The types of items on the BSS are similar to those given on standardized tests of susceptibility; the main difference is that the instructions make no mention of hypnosis. Items tested include the following:

1. Arm Lowering
2. Arm Levitation
3. Hand Lock
4. Hallucination of thirst
5. Verbal inhibition
6. Body immobility
7. Posthypnotic-like response
8. Selective amnesia

Following the test and the objective scoring, the subject is asked if he really felt the effect suggested or just went along to please the examiner. The subject is given a subjective score of 1 for each item that he says he really experienced. Thus, subjects get both objectives and subjective scores on this scale, each having a maximum value of 8, Barber and Wilson (1978-1979).

A short experimental scale of hypnosis

In 1996, Page R.A. and Handley G.W. developed an abbreviated version of the HGSHS:A that was intended to be used to predict hypnotic susceptibility while minimizing the possible production of negative expectations that might be generated by the failure of difficult items

in full standardized scales, and could be used as a screening device to investigate other experiential indices like depth reports or absorption. They did so, by carrying out 2 studies which yielded the following results:

> …Study 1 revealed that retrospective realness ratings of two Harvard Group Scale of Hypnotic Susceptibility, Form A (HGSHS:A) items, arm rigidity and eye catalepsy, correlated most highly with full HGSHS:A scores (R= 0.62 when presented in the full 12-item scale). Study 2 indicated that the predictive power of these items was reduced somewhat when they were administered as a stand-alone scale (R = 0.54). Results suggest a scale combining these two items would provide a quick and convenient quantitative index predictive of susceptibility that could be employed in both clinical and experimental settings….

Such an abbreviated scale, so the authors, could then be used in combination with any induction to predict susceptibility in settings where hypnosis is to be part of a treatment regimen, or be used in experimental settings as a screening device to investigate the relationship of variables of interest in hypnosis research such as imagery, Glisky, Tataryn, & Kihlstrom, (1995). In the two studies this research bases on, the subjects of first group was administered a tape-recorded version of the HGSHS:A in group sessions and then completed the HGSHS:A response booklet. Following this, the subjects retrospectively rated each item for how real it seemed to be by completing a 12-item Realness Rating Scale (RRS) modelled after that of Barber and Wilson (1978/1979) for the Creative Imagination Scale. The RRS was a 5-point scale, with zero being not at all like a real experience and 4 being almost exactly the same as a real experience. In the second study the subjects were administered, again by tape recording, the HGSHS:A induction, followed by items 6 and 10. Following dehypnosis, they completed a two-item response booklet (similar to that for the full HGSHS:A) and the two item RRS. The results established:

> ….the predictive power of realness ratings for HGSHS:A items 6 and 10 when the entire HGSHS:A has been administered and either realness ratings for all items or only these two have been solicited. Results of Study 2 show that, although the predictive power of the arm rigidity and eye catalepsy items did drop somewhat when given apart

> from the remaining HGSHS:A items (i.e., either preceding or following the entire HGSHS:A), it remains sufficiently high enough to suggest that a scale combining the realness ratings of these two items would provide a quantitative index of the quality of a subject's hypnotic experience that could prove valuable in both laboratory and clinical settings.
>
> Such a scale would have several advantages. First, its brevity means that it is not very time consuming, an important factor in both settings. Second, the items are convenient and easily administered (requiring no special training), and since they are not part of an induction procedure, could conceivably be preceded by any standardized (or individualized) induction and used with large groups or individually. Third, the realness ratings are self-scored; if the behavioural scores are included, the scoring criteria are straightforward and readily available in the HGSHS:A manual. Fourth, the scale provides a good preliminary indication of *S*s' hypnotic susceptibility. Finally, if the behavioural scores are also employed, the result is an index that taps both subjective and behavioural aspects of hypnotic experience…..

Intelligence and the intelligence quotient

The pursuit of an efficient and accurate way to compare cognitive abilities in humans is not new. As long ago as 2200 B.C., Chinese emperors used large-scale "aptitude" testing for the selection of civil servants, but it was by the end of the 19th century, that the foundation was laid for how we assess intelligence today. Some scientists sought to predict individuals' intellectual capacity through tests of sensory discrimination and motor coordination. Although the belief that such capacities were necessarily correlated with intelligence was eventually determined to be unfounded, the interest in measuring intelligence by quantifying traits assumed to be correlated began at that time.

Alfred Binet and Theodore Simon published what could be considered the precursor of most modern-day intelligence measures. Although their main purpose at the time was to diagnose

mental retardation, the basic characteristics of their assessment are still used in today's intelligence tests. Thus for example, the Binet-Simon Intelligence Scales (1905) presented items in order of difficulty, and took into consideration the typical developmental abilities of children at various ages. The test also had fairly standardized instructions for how it was to be administered.

Standardized tests have a straightforward set of criteria that the examiner must follow. These criteria dictate the way that the test is administered as well as scored; the wording of questions, what responses are acceptable, etc. The goal of standardization is to control all of the elements involved in the testing process and can even extend to instructions about the testing environment, such as where the test should take place and who can be present.

It is useful to look at the way in which scores from common standardized measures are represented. On a norm-referenced test, scores show where an individual's results fall in relation to all other results obtained. Standardized measures are designed so that the scores of the norm group, which is selected so that it has people of all types of abilities, are distributed like a bell or normal curve. The curve is largest in the middle because most people perform somewhere near the average. The distribution is much smaller to the left and the right, signifying that fewer students have exceptionally low or high scores. By convention, overall intelligence test scores are usually converted to a scale in which the mean is 100 and the standard deviation is 15. (The standard deviation is a measure of the variability of the distribution of scores.) Approximately 95% of the population has scores within two standard deviations of the mean, i.e., between 70 and 130. For historical reasons, the term "IQ" is often used to describe scores on tests of intelligence. It originally referred to an "Intelligence Quotient" that was formed by dividing a so-called mental age by a chronological age, but this procedure is no longer used. Individuals rarely perform equally well on all the different kinds

of items included in a test of intelligence. One person may do relatively better on verbal than on spatial items, for example, while another may show the opposite pattern. Nevertheless, subtests measuring different abilities tend to be positively correlated: people who score high on one such subtest are likely to be above average on others as well. The usual distribution follows the

A great many other factors may influence the result on the different test instruments, but it would be beyond the scope of the present work to look into them in detail. Among them:

- The measurement of multiple forms of intelligence
- Cultural variations
- Developmental progression i.e. Piaget's and Vygotsky's theories
- Stability
- School-performance
- Years of education
- Social status and income
- Job performance
- Individual life experience
- Sex differences / hormonal changes
- Causal factors

Because there are many ways to be intelligent, there are also many conceptualizations of intelligence. The most influential approach, and the one that has generated the most systematic research, is based on psychometric testing. This tradition has produced a substantial body of knowledge, though many questions remain unanswered. We know for instance, much less about the forms of intelligence that tests do not easily assess: wisdom, creativity, practical knowledge and social skill. Nevertheless, for the purpose of clinical and

experimental settings, tests with a maximum of generally accepted reliability have to be used, such as the ones mentioned below.

IQ tests

General overview of existing tests

Table 2: List of recognized tests

Test	Age Range	Description
Stanford-Binet Intelligence Scale, Fifth Edition (SBIS-V)	2 – 90+	An update of the SB-IV. In addition to providing a Full Scale score, it assesses Fluid Reasoning, Knowledge, Quantitative Reasoning, Visual-Spatial Processing, and Working Memory as well as the ability to compare verbal and nonverbal performance.
Wechsler Intelligence Scale for Children, Fourth Edition (WISC-IV)	6 – 16-11	An update of the WISC-III, this test yields a Full Scale score and scores for Verbal Comprehension, Working Memory, Perceptual Reasoning, and Processing speed.
Woodcock-Johnson III Tests of Cognitive Abilities	2 – 90+	This test gives a measure of general intellectual ability, as well as looking at working memory and executive function skills.
Cognitive Assessment System (CAS)	5 - 17	Based on the "PASS" theory, this test measures 'Planning, 'Attention, 'Simultaneous, and 'Successive cognitive processes.
Wechsler Adult Intelligence Scale (WAIS)	16 - 89	An IQ test for older children and adults, the WAIS provides a Verbal, Performance, and Full Scale score, as well as scores for verbal comprehension, perceptual organization, working memory, and processing speed.
Comprehensive Test of Nonverbal Intelligence (CTONI)	6 – 18-11	Designed to assess children who may be disadvantaged by traditional tests that put a premium on language skills, the CTONI is made up of six subtests that measure different nonverbal intellectual abilities.
Universal Nonverbal Intelligence Test (UNIT)	5 - 17	Designed to assess children who may be disadvantaged by traditional tests that put a premium on language skills, this test is entirely nonverbal in administration and response style.
Kaufman Assessment Battery for Children (KABC)	2-6 to 12-5	This test measures simultaneous and sequential processing skills, and has subscales that measure academic achievement as well.
WASI	6-89	Wechsler Abbreviated Scale of Intelligence: it yields three scores: verbal, performance, and full scale IQ

The Stanford-Binet intelligence scale

The Stanford-Binet Intelligence Scales, Fifth Edition (SB5) is a contemporary assessment with a tradition, which began in 1916 when Lewis Terman completed his American revision of the Binet-Simon Scale (1905, 1908). Through various editions, this assessment has become widely known and is acknowledged as the standard for intelligence measurement.

As a battery of cognitive tests, the SB5 advances the assessment of strengths and weaknesses in the cognitive processes of students who may be evaluated for learning disabilities. The SB5 supports early prediction of emerging learning disabilities in children as young as four years old. Author research has identified special predictive composite scores for identifying both Reading and Math disabilities. As a battery of cognitive tests, the SB5 advances the assessment of strengths and weaknesses in the cognitive processes. The SB5 provides comprehensive coverage of five factors of cognitive ability:

- Fluid Reasoning
- Knowledge
- Quantitative Reasoning
- Visual-Spatial Processing
- Working Memory

The test also helps to diagnose a wide variety of developmental disabilities and exceptionalities and may be useful in:

- Clinical and neuropsychological assessment
- Early childhood assessment
- Psychoeducational evaluations for special education placements

- Adult social security and workers' compensation evaluations
- Providing information for interventions such career assessment, industrial selection, and adult neuropsychological treatment
- Forensic contexts
- Research on abilities and aptitudes

Total testing time is 45–90 minutes, depending on the subject's age and the number of subtests given. Raw scores are based on the number of items answered, and are converted into a standard age score corresponding to age group, similar to an IQ measure.

The Wechsler scales

For the purpose of the present work, 3 of the tests developed by David Wechser that have no bearing on the data to be gathered, will not be described in detail. These are the:

- Wechsler Preschool and Primary Scale of Intelligence (WPPSI)
- Wechsler intelligence Scale for Children (WISC)
- Wechsler Adult Intelligence Scale-Revised as a Neuropsychological Instrument (WAIS-R NI)

Chronologically the Wechsler scales were developed in below order:

- The first was the Wechsler-Bellevue Intelligence Scale (Wechsler, 1939).
- Replaced 1955 by the Wechsler Adult Intelligence Scale (WAIS).
- 1981 revision is referred to as the WAIS-R.

- 1997, subsequent revision was conducted in the US and the present scale is the 3rd edition, known as the WAIS-III. The WAIS-III measure is appropriate throughout adulthood and for use with those individuals ages 16-89 years of age (this is an expanded age range for adults 74-89, reflecting the increased average life expectancy).

- 1999, Wechsler Abbreviated Scale of Intelligence (WASI) was developed to be a short and reliable measure of intelligence in clinical, psycho-educational, and research settings. WASI is individually administered and is designed for use with individual aged 6 to 89 years. WASI has four subtests: vocabulary, block design, similarities, and matrix reasoning. WASI yields three scores: verbal, performance, and full scale IQ. It takes 30 minutes to administer. An estimate of general intellectual ability can be obtained by using a two-subtest form including vocabulary and matrix reasoning. The two-subtest form takes 15 minutes to administer. WASI is linked to the Wechsler Intelligence Scale for Children, Third Edition and to the Wechsler Adult Intelligence Scale, Third Edition.

- 2008, Wechsler Adult Intelligence Scale, Fourth Edition (WAIS-IV) an assessment of cognitive ability that yields a norm-based score that can be used for a variety of psychological purposes from qualification for special services to identification and treatment of psychological disability. The WAIS-IV was revised, based on four years of national and clinical research, to update normative data, strengthen theoretical foundations, reduce administration time, enhance psychometric properties, and improve developmental appropriateness. It was modified to adapt more easily to day-

to-day workflow with reduced administration times and more user-friendly instructions. At the same time, the assessment's clinical utility has been broadened by including new and enhanced subtests, clinical studies and validity studies. Carol Watson, president of the clinical assessment/North America at Pearson holds that "these enhancements were developed to provide the most advanced measure of cognitive ability and results that psychologists can trust."

The WAIS-IV is intended for use with adults ages 16 to 90. The assessment measures cognitive ability using a core battery of 10 unique subtests that focus on four specific domains of intelligence:

- verbal comprehension,
- perceptual reasoning,
- working memory,
- processing speed.

The WAIS-IV features a normative sample of 2,200 adults and was stratified by age, gender, education level, ethnicity, and region to provide the highest reliability of results. Thirteen special group studies included in the data were also conducted with specific clinical populations. WAIS-IV administration involves the use of two stimulus books, two response booklets, one record form and an administration manual. The assessment is individually administered by a trained psychologist using a combination of verbal and performance tasks. Once completed, the assessment may be hand scored using paper and pencil forms or electronically scored using the new WAIS-IV Scoring Assistant software which automatically converts raw scores to scaled scores and provides score analysis in the form of tables and graphs.

Emotional intelligence

Emotional intelligence's roots span more than 2,000 years, right back to Aristotle who spoke of emotions and he held that, for instance, the emotion "anger" had a distinctive cognitive component, social context, behavioral tendency, and recognition of physical arousal, so Solomon, (2000). In 1852, Darwin stated that emotions served two purposes:

- Energize adaptive behavior
- Provide a communication system

Darwin indicated that there is an intelligent nature of emotions. Thorndike and Stein (1937) found that social intelligence is the "ability to understand and manage people" . Wechsler (1943) stated that there are non-intellective factors in intelligence that may explain why people succeed in life.

The systematic study of emotional intelligence, however, is often dated to the early 1990s, when scientific articles suggested that there existed an unrecognized but important human mental ability to reason about emotions and to use emotions to enhance thought. Journalistic accounts of emotional intelligence in books and magazines of the mid-1990s explained the concept to an interested public, however, not without introducing some crucial inaccuracies and much has been learned about emotional intelligence since those early writings.

The ability based or four branch EI model

The ability based or four branch model of emotional intelligence describes four areas of capacities or skills that collectively describe many of areas of emotional intelligence Mayer

and Salovey (1997). More specifically, this model defines emotional intelligence as involving the abilities to:

- accurately perceive emotions in oneself and others
- use emotions to facilitate thinking
- understand emotional meanings, and
- manage emotions

By the late 1980's, psychologists, evolutionary biologists, psychiatrists, computer scientists, and others, had identified a number of human capacities involved in identifying and understanding emotions. These human capacities, involving emotional information processing, had been examined in scores of research articles.

One means of organizing the many research contributions was to divide them into different areas according to the nature of the abilities they examined. In 1990, Salovey and Mayer proposed that these abilities made up a unitary “emotional intelligence”. The authors further suggested that emotional intelligence and the research that pertained to it could be divided into three broad areas and further sub-areas. After further reviews, the need to add an additional area became evident and the full four-branch model was published in 1997 as follows:

- Perceiving Emotion: The initial, most basic, area has to do with the nonverbal reception and expression of emotion. Evolutionary biologists and psychologists have pointed out that emotional expression evolved in animal species as a form of crucial social communication. Facial expressions such as happiness, sadness, anger, and fear, were universally recognizable in human beings. Emotions researchers, evolutionary biologists, specialists in nonverbal behavior, and others, have made tremendous

inroads into understanding how human beings recognize and express emotions. The capacity to accurately perceive emotions in the face or voice of others provides a crucial starting point for more advanced understanding of emotions.

- Using emotions to facilitate thought: This second area appeared every bit as basic as the first. It was the capacity of the emotions to enter into and guide the cognitive system and promote thinking. For example, cognitive scientists pointed out that emotions prioritize thinking. In other words: something we respond to emotionally, is something that grabs our attention. Having a good system of emotional input, therefore, should help direct thinking toward matters that are truly important. As a second example, a number of researchers have suggested that emotions are important for certain kinds of creativity to emerge. For example, both mood swings, and positive moods, have been implicated in the capacity to carry out creative thought.

- Understanding emotions: Emotions convey information: Happiness usually indicates a desire to join with other people; anger indicates a desire to attack or harm others; fear indicates a desire to escape, and so forth. Each emotion conveys its own pattern of possible messages, and actions associated with those messages. A message of anger, for example, may mean that the individual feels treated unfairly. The anger, in turn, might be associated with specific sets of possible actions: peacemaking, attacking, retribution and revenge-seeking, or withdrawal to seek calmness. Understanding emotional messages and the actions associated with them is one important aspect of this area of skill. Once a person can identify such messages and potential actions, the

capacity to reason with and about those emotional messages and actions becomes of importance as well. Fully understanding emotions, in other words, involves the comprehension of the meaning of emotions, coupled with the capacity to reason about those meanings. It is central to this group of emotionally intelligent skills.

- Managing emotions: Finally, emotions often can be managed. A person needs to understand that emotions convey information. To the extent that it is under voluntary control, a person may want to remain open to emotional signals so long as they are not too painful, and block out those that are overwhelming. In between, within the person's emotional comfort zone, it becomes possible to regulate and manage one's own and others' emotions so as to promote one's own and others' personal and social goals. The means and methods for emotional self-regulation has become a topic of increasing research.

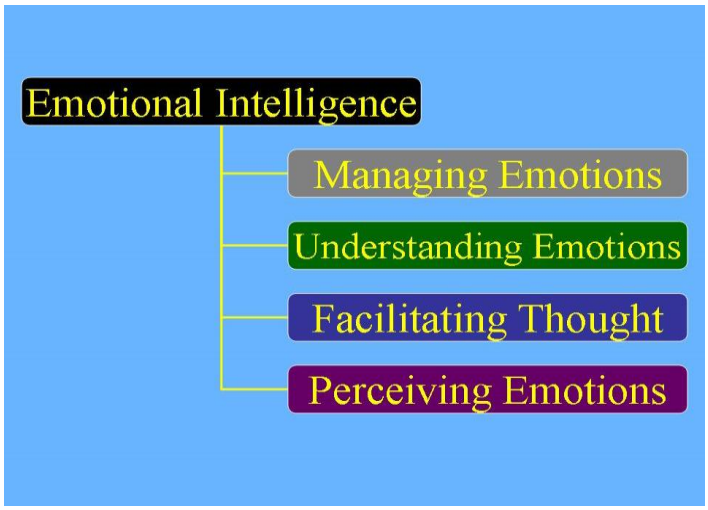

Figure 1: The four branch Model of EI according to Mayer and Salovey

The scientific advantages of the unitary, more cohesive, ability-model definition are many. The definition does not include personality characteristics as achievement orientation or

initiative found in the mixed models for the simple reason that those attributes are conceptually distinct and are not directly related either to emotion or intelligence.

The ability or four-branch definition emphasizes that emotional intelligence involves the ability to reason with and about emotions, and the capacity of emotion to enhance thought. The clarity of conceptualization and terminology surrounding the ability definition of EI ensures that scientists and researchers can:

- clearly communicate to others what they are measuring/studying
- clearly integrate what is being studied with other variables (such as achievement motivation) that have their own research programs within the scientific literature
- clearly distinguish what is being measured from other valuable and important personality variables
- employ measures like psychological tests based on the definition with reasonable certainty that such measures will assess the same attribute because it is clearly defined
- respect the known value of other personality variables such as, for example, above mentioned teamwork, and the need for achievement as independent and important predictors of positive outcomes in their own right

The mixed EI model

The first formal model of emotional intelligence, the 1990 model, was the one Daniel Goleman relied on in his popularization of the field, although his representation of the model was broader and more expansive than Mayer and Salovey's.

Dr. Goleman's book, the best seller "Emotional Intelligence: Why It Can Matter More Than IQ", is a lively, entertaining journalistic account that covers many interesting studies. His enlargement of the EI model, however, had the effect of suggesting that nearly every human style or capacity that was not IQ itself was a part of emotional intelligence. In his 1998 model, for instance, Goleman included 25 characteristics of EI, from emotional self-awareness to such diverse qualities as teamwork and collaboration, service orientation, initiative, and achievement motivation

The problem with this idea is that those different psychological qualities are separate and independent from one another, both conceptually and empirically, thus they would not seem to correlate. Moreover, most of them have little to do directly and specifically either with emotion or intelligence. Mixing them together created considerable conceptual confusion. Today, such models are called "mixed models" as they mix many attributes unrelated to emotion, intelligence, or emotional intelligence with the emotional intelligence concept.

The Trait EI model

A conceptual distinction between the ability based model and a trait based model of EI was proposed by Petrides et al. (2000a, 2004, 2007). To these authors, Trait EI is "a constellation of emotion-related self-perceptions located at the lower levels of personality". Thus trait EI refers to an individual's self-perceptions of his emotional abilities whereby the definition of EI encompasses behavioral dispositions and self perceived abilities and is measured by self-report. The authors hold that Trait EI should be investigated within a personality framework. The conceptualization of EI as a personality trait leads to a construct that lies outside the taxonomy of human cognitive ability. This is an important distinction in as much as it bears

directly on the operationalization of the construct and the theories and hypotheses that are formulated about it.

Petrides and his colleagues favor such tests as The Trait Emotional Intelligence Questionnaire (TEIQue) which is an open-access measure that was specifically designed to measure the construct comprehensively and is currently available in 15 languages. The TEIQue provides an operationalization for Petrides' model that conceptualizes EI in terms of personality. The test encompasses 15 subscales organized under four factors:

- Well-being
- Self-control
- Emotionality
- Sociability

The psychometric properties of the TEIQue were investigated in a recent study on a French-Speaking Population, where it was reported that TEIQue scores were normally distributed and reliable. The researchers also found TEIQue scores were unrelated to nonverbal reasoning which they interpreted as support for the personality trait view of EI and as opposed to a view as a form of intelligence like in Mayer and Salovey's model.

EQ tests

Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT)

This test relies on a series of emotion-based problem-solving items that are consistent with the model's claim of EI as a type of intelligence, the test being modeled on ability-based IQ tests. By testing a person's abilities on each of the four branches of emotional intelligence, it generates scores for each of the branches as well as a total score.

What is central to the four-branch model is the idea that EI requires attunement to social norms. Therefore, the MSCEIT is scored in a consensus assessment, whereby the shared knowledge that forms cultural consensus can be assessed in much the same way as expertise or general intelligence. Thus higher scores indicate higher overlap between an individual's answers and those provided by a worldwide sample of respondents. Although developed as an ability test, the MSCEIT is very different from standard IQ tests in that its items do not have objectively correct responses. Among other problems, the consensus scoring criterion means that it is impossible to create items or questions that only a minority of respondents can solve, because, by definition, responses are deemed emotionally 'intelligent' only if the majority of the sample has endorsed them. This and other similar problems have led cognitive ability experts to question the definition of EI as a genuine intelligence. The Canadian company Multi-Health Systems administers the MSCEIT test. It contains 141 questions but it was found after publishing it that 19 of these items did not give the expected answers. This has led Multi-Health Systems to remove answers to these 19 questions before scoring.

The Emotional Competency Inventory (ECI), 1999

The ECI is a multi-rater instrument that provides self, manager, direct report, and peer ratings on a series of behavioral indicators of emotional intelligence, based on the emotional competencies identified by Goleman (1998). The ECI encompasses 20 competencies, organized into four clusters: Self-Awareness, Social-Awareness, Self-Management, and Social Skills according to Boyatzis, Goleman, Rhee, (1999). Previous research has shown the ECI to have high levels of internal consistency Boyatzis & Burckle (1999).

Emotional and Social Competency Inventory (ESCI), 2007.

The ESCI measures 12 competencies organized into four clusters: Self-Awareness, Self-Management, Social Awareness, and Relationship Management.

Self Awareness

- Emotional Self-Awareness: Recognizing one's emotions and their effects

Self Management

- Emotional Self-Control: Keeping disruptive emotions and impulses in check
- Adaptability: Flexibility in handling change
- Achievement Orientation: Striving to improve or meeting a standard of excellence
- Positive Outlook: Persistence in pursuing goals despite obstacles and setbacks

Social Awareness

- Empathy: Sensing others' feelings and perspectives, and taking an active interest in their concerns
- Organizational Awareness: Reading a group's emotional currents and power relationships

Relationship Management

- Coach and Mentor: Sensing others' development needs and bolstering their abilities
- Inspirational Leadership: Inspiring and guiding individuals and groups
- Influence: Wielding effective tactics for persuasion
- Conflict Management: Negotiating and resolving disagreements
- Teamwork: Working with others toward shared goals. Creating group synergy in pursuing collective goals

The Emotional Intelligence Appraisal 2003

A survey suite that measures emotional intelligence (EQ) using the four main components of D. Goleman's (2002) EQ model. The aim in developing the Emotional Intelligence Appraisal was to provide a quick, valid, and intuitive assessment of EQ that is readily available and based on the prevailing model. The test is referred to as a survey suite because it comes in 3 Editions: The Me Edition (self-report), The MR Edition (360º feedback) and The Team Edition (the collective EQ of an intact work group)

According to the authors, T. Bradberry and J. Greaves, the assessment was first released to the public in January of 2003. However, research and validation for the Emotional Intelligence Appraisal began early in 2001, with an attempt to capture emotional intelligence without an excessive number of questions needed to achieve statistical and face validity. Research conducted worldwide during the last decade reveals that emotional intelligence is no more than one or two constructs. Therefore, an assessment should not require a large number of questions to measure it.

The four main skills are measured via 28 questions. A brief description of the four survey components follows:

- Self-Awareness (6 items)
- Social Awareness (5 items)
- Self-Management (9 items)
- Relationship Management (8 items)

The survey questions describe critical aspects of each skill that indicate the presence of this skill in the behavior of the individual being assessed. The frequency with which an individual demonstrates behaviors related to a skill are the best measure of that skill. Therefore, the

questions of the Emotional Intelligence Appraisal™ are structured using a 6-point frequency scale:

1- Never

2- Rarely

3- Sometimes

4- Usually

5- Almost Always

6- Always

The average administration time online is 7 minutes for the Emotional Intelligence Appraisal. The self-scoring version averages 15 minutes for the user to take the assessment and score his or her results. All scores on the three editions of the Emotional Intelligence Appraisal are norm converted on a 1 to 100 point scale, with a mean of 75 and standard deviation of 10. The internal consistency reliability for the Emotional Intelligence Appraisal ranges from .85 to .91; this is considered to be a strong indication that the test is reliable.

BarOn's Emotional Quotient Inventory , (EQ-i)

Bar-On developed one of the first measures of EI that used the term *Emotion Quotient*. He defines emotional intelligence as being concerned with effectively understanding oneself and others, relating well to people, and adapting to and coping with the immediate surroundings to be more successful in dealing with environmental demands. Bar-On holds that EI develops over time and that it can be improved through training, programming, and therapy. Bar-On hypothesizes that those individuals with higher than average E.Q.'s are in general more successful in meeting environmental demands and pressures. He also notes that a deficiency in EI can mean a lack of success and the existence of emotional problems. Problems in coping with one's environment are thought, by Bar-On, to be especially common among those

individuals lacking in the subscales of reality testing, problem solving, stress tolerance, and impulse control. In general, Bar-On considers emotional intelligence and cognitive intelligence to contribute equally to a person's general intelligence, which then offers an indication of one's potential to succeed in life. Some doubts have been expressed about this model in the research literature relative to the validity of self-report as an index of emotional intelligence and in scientific settings , Kluemper, (2008).

The Bar-On Emotional Quotient Inventory (EQ-i) is a self-report instrument that measures the model's five composite scales: intrapersonal, interpersonal, stress management, adaptability, and general mood (Bar-On, 2007). The Bar-On EQ-i was the first test to measure emotional intelligence and the first to be peer reviewed according to its author Bar-On, (2004). It is a widely used measure of emotional intelligence. The instrument has an internal consistency of .97 and also a 3-month test re-test reliability of .79 and a 6 month test re-test reliability of .72 to .80. The EQ-i has a built-in correction factor that reduces the effects of response bias such as "faking good" and "faking bad" answers. The instrument is related to personality traits and tests of cognitive intelligence. The instrument has a 36% overlap with other measures of emotional intelligence.

The Trait Emotional Intelligence Questionnaire (TEIQue)

As has been shown above, over the past 15 years, emotional intelligence (EI) has received considerable attention within scientific research. Petrides and Furnham (2001) in order to reduce misconceptions and to organize the burgeoning EI literature, have emphasized a clear distinction between trait EI, also called "trait emotional self-efficacy" and ability EI also called as described previously "cognitive-emotional ability". While the latter concerns actual emotion-related cognitive abilities referring to maximum-performance and must be measured

by maximum-performance tests, trait EI encompasses affect-related behavioural tendencies and self-perceived abilities referring to typical-performance and best measured through self-report. Trait EI is defined as a constellation of emotion-related self-perceptions and dispositions located at the lower levels of personality hierarchies according to Petrides, Furnham, & Mavroveli (2007). The sampling domain of the trait EI framework comprises 15 distinct components, which have been derived by Petrides and Furnham (2001) via content analysis of salient models of EI including those of Bar-On (1997), Goleman (1995), and Salovey and Mayer (1990) and cognate constructs such as alexithymia, affective communication, emotional expression, and empathy. In view of the conceptual shortcomings of early self-report EI measures, most of which were developed without a clear theoretical framework, attempting to measure EI as a cognitive ability, Petrides and colleagues decided on the development of the trait emotional intelligence questionnaire (TEIQue), predicated on their trait EI framework and theory.

The TEIQue consists of 153 items rated on a seven-point Likert scale and 13 facets, organized under four-factors: well-being, self-control, emotionality, and sociability. Two additional facets (adaptability, self-motivation) contribute directly to the global trait EI score.

The TEIQue has clear conceptual and psychometric advantages over number of "EQ" and personality "tests" widely available in the market. While these are easy to explain to psycho-metricians, it is not always straightforward to describe to practitioners.

Commercial test publishers simply cannot afford to provide sustained research funding for the measures they market. Consequently, instruments “developed” in commercial settings or owned by commercial companies cannot compete on research quality with instruments developed in universities or hospitals and owned by their authors.

The TEIQue is underpinned by a leading international research program currently based at the Institute of Education, University of London. The Trait Emotional Intelligence Questionnaire (TEIQue) is an integral part of the academic research program on trait emotional intelligence. The latest version of the TEIQue is v. 1.50. The TEIQue covers the sampling domain of trait EI comprehensively. It must be remembered that the TEIQue is a scientific measurement instrument based exclusively on trait EI theory.

Methodology

Participants

The present study enrolled a sample of 30 subjects with the following pre-requisites:

1. be within the age range of 20 to 60 years
2. be a native English speaker or bilingual
3. have never experienced hypnosis before
4. have time available for 2 meetings of approximately 2 hours each
5. no color blindness
6. no medical or psychiatric condition that could potentially affect cognitive functioning
7. no current intake of antidepressant, anti-anxiety or antipsychotic medication

For the purpose of the enrollment of this sample of subjects, four advertisements (2 two weeks the Wednesday and Saturday issues, each >180’000 copies) were placed in the State Capital’s (Porto Alegre) daily newspaper “Zero Hora” , worded as follows:
“Call for: English speaking Individuals: please help further scientific research on hypnotic susceptibility by enrolling in a short study conducted entirely in English. Either mail: chc@pdh.com.br or call 5432822567 for detailed information.” Additionally, notes were left

attached to the message boards of the British Commercial Consulate and the Pan-American School of Porto Alegre.

Of the initial 53 individuals that declared themselves ready to enroll for the project, 41 subjects were listed as possible candidates according to the prerequisites above. Then 5 were eliminated on the preference of native English speakers versus either bilingual or proficient English speakers and 4 for gender balance. Thus, a sample of 32 subjects (16 male and 16 female) was retained for testing. The N + 2 was deliberately chosen to make up, if necessary, for a last minute hindrance on behalf of one or the other of candidates, so that the initially decided subject number could be respected. It later appeared that just one subject could not comply with his marked schedule, so that the total tested candidates amounted to N=31, resulting in the exclusion of one more subject by reason of group symmetry.

The first factor to be analyzed was the English language competence topic:

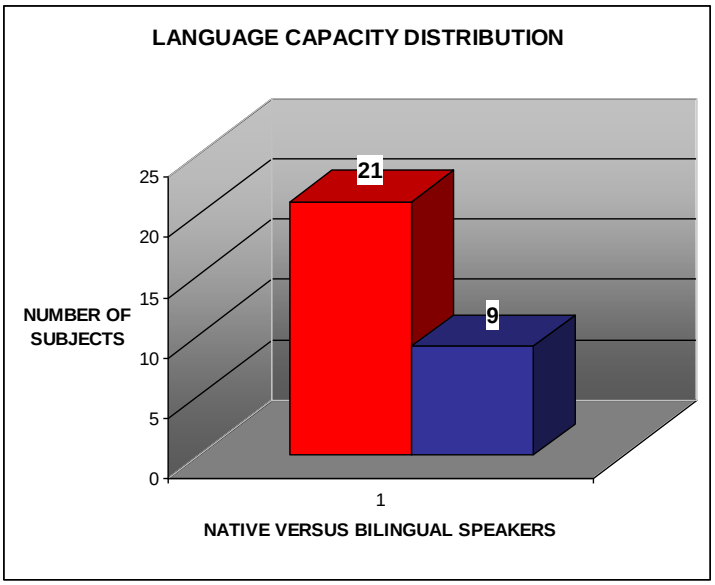

Figure 2: Native versus non-native speakers

Due to the fact that the entire study was carried out in English and that all the tests were used in their original English version, the language competence of the non-native speakers had to

be comparable to that of native speakers, so as to avoid any influence on the test results on the basis of inadequate comprehension levels. As the graph shows, 21 speakers were native speakers and 9 speakers had language skills comparable to those of native speakers. This distribution further came in handy, since it subsequently allowed an equal distribution of native versus non-native speakers in each group.

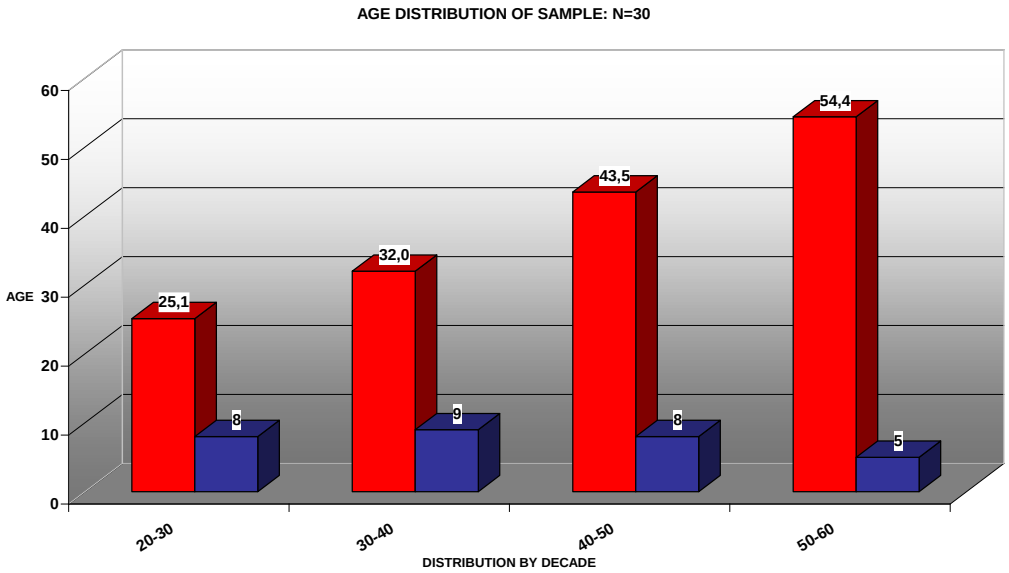

Figure 3: Age distribution

The graphic shows that the age distribution for the 20-50 age-range was roughly equal, with only 5 subjects falling into the 50-60 age group and an SD of 10.48. This aspect was favorable for the present study, since, according to L.C. Kihlstrom (2000):

> "….cross-sectional studies of different age groups show a developmental curve, with very young children relatively unresponsive to hypnosis. Hypnotizability reaches a peak at about the onset of adolescence but then scores generally drop off among middle-aged and elderly individuals. Longitudinal studies indicate that hypnotizability assessed in college students remains about as stable as IQ over a period of 25 years……."

which, related to the present data, means that 56% of the sample lies within this most susceptible group and 30% in a very close age range (43. 5 years) totaling 86% with presumably high hypnotic susceptibility from an age-related standpoint.

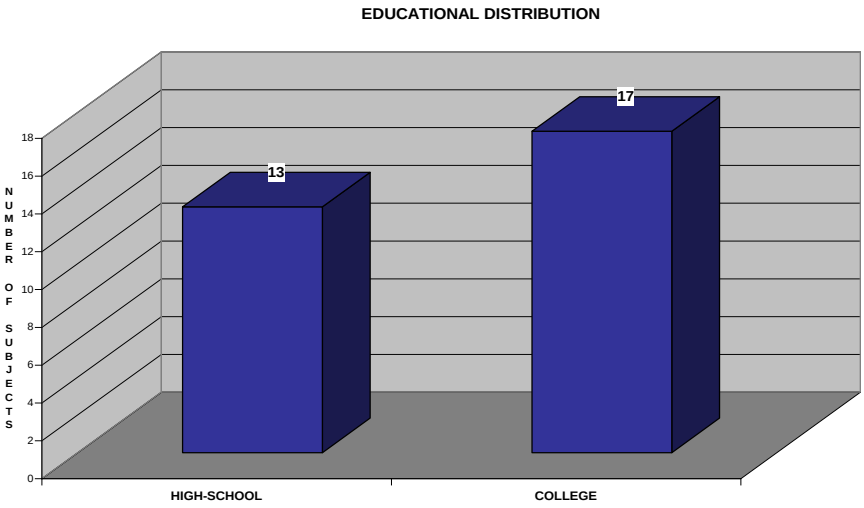

Figure 4: Educational distribution

Although no data was found in the scientific literature on the correlation of hypnotic susceptibility and the educational level of subjects, the author believed it was interesting to include this statistical data on the grounds of a possible relation to the present study; though it is clear that N:30 and the rough distinction between subjects having finished high-school and those possessing a college degree, would probably not yield any conclusive feedback.

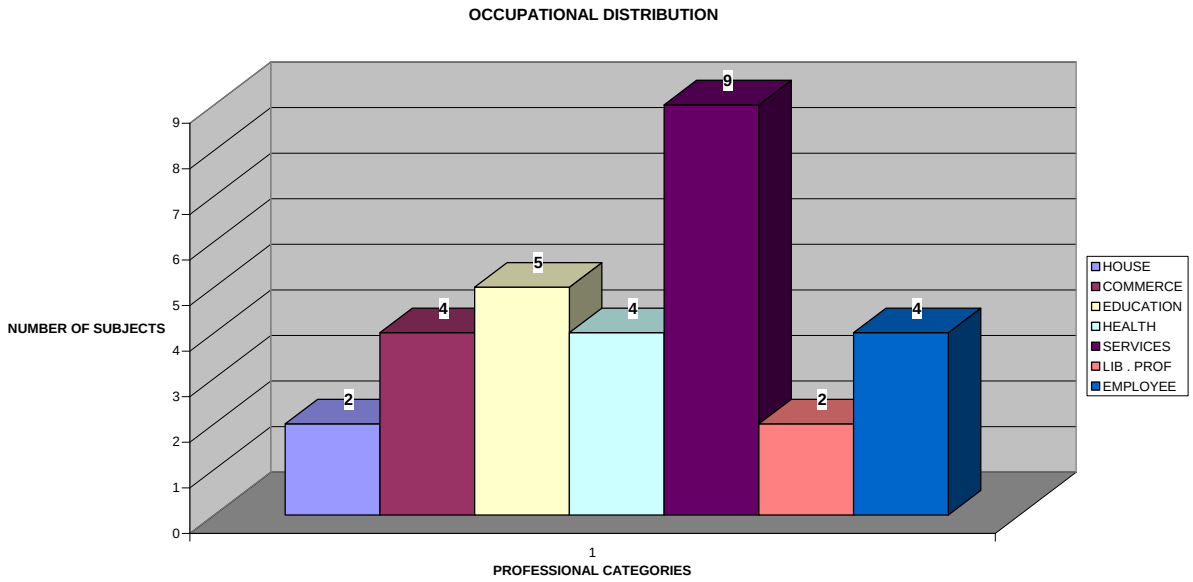

Figure 5: Occupational distribution

The occupational distribution shows a classification into 7 major sub-categories, whereby the leading group was that of subjects working in services (9), followed by education (5), 3 equally important categories of commerce, health, and employees (4) and 2 minor categories of subjects being liberal professionals and without an employment (2)

Materials

Initial screening

The first step to even validate the justification of the hypothesis that there may exist a correlation between IQ and EQ scores and hypnotic susceptibility was to contact other professionals active in the field of clinical hypnosis. Thus, through the help of the Brazilian Institute of Hypnology, a questionnaire was sent to 340 hypnotherapists working in 22 Brazilian states and Portugal. Apart from identification and hypnotic approach style, the questionnaire was worded as shown in table 3:

Table 3: Questionnaire

Since when do you practice clinical hypnosis:	
Approximately how many patients have you treated up to now:	

In your work with patients, have you ever subjectively noticed any correlation between:

(if you would like to add any comment, please use the line below the questions)

	yes	no
1- Apparent level of intelligence and facility to enter trance:		
Comment:		
2- Extrovertion and facility to enter trance:		
Comment:		
3- Level of education and facility to enter trance:		
Comment:		
4- Social-economic level and facility to enter trance		
Comment:		

English language competence

Initially an English language competence test was planned for the non-native speakers, however, given the fact that the 9 non native speakers had resided, worked and/or studied for prolonged periods (4-11 years) in English speaking locations, including Australia, Great Britain, Canada, South-Africa and the United States and expressed themselves with perfect ease during all pre-test interactions, this procedure could be foregone.

Tests used

After the detailed perusal of the test materials mentioned in the Literature Review part, the author decided on the use of the following test materials, due to reasons of proven reliability, general scientific consent and practicality:

- The Wechsler abbreviated scale of intelligence (WASI)
- The Trait Emotional Intelligence Questionaire (TEIQue)
- The Harvard Group Scale of Hypnotic Susceptibility Form A (HGSHS:A)

The WASI

The WASI was developed to meet the demands for a short and reliable measure of intelligence in the clinical, psychoeducationsl and research settings. It is individually administered and designed for use with individuals from 6-89 years. The Wasi is nationally standardized and yields the three traditional Verbal, Performance and Full Scale IQ scores. The WASI is composed of four subtests which tap various facets of intelligence, such as verbal knowledge, visual information processing, spatial and non-verbal reasoning and crystallized and fluid intelligence. The four subtests compose the Full Scale and yield the full scale IQ (FSIQ-4). The vocabulary and Similarities subtest compose the Verbal Scale and yield the Verbal IQ (VIQ) and the Block Design and Matrix Reasoning subtests compose the Performance Scale and yield the Performance IQ (PIQ). The two subtest form of the WASI, consisting of Vocabulray and Matrix Reasoning provides only the FSIQ-2

The WASI four sub-tests are:

- Vocabulary: The WASI Vocabulary subtest is a 42-item task, which includes low-end picture items. Items 1-4 of the vocabulary subtest require the examinee to name pictures which are displayed one at a time. Items 5-42 are orally and visually presented words that the examinee orally defines. Vocabulary is a measure of the individual's expressive vocabulary, verbal knowledge and fund of information. Additionally, it is a good measure of crystallized intelligence and g (Crystallized intelligence correlates with abilities that depend on knowledge and experience, such as vocabulary, general information, and analogies). It also relates to other cognitive abilities such as memory, language ability and concept and language development.
- Block Design: The Block Design subtest consists of a set of 13 modeled or printed two dimensional geometric patterns that the examinee replicates within a specified time limit using two-color cubes. The subtest taps the abilities related to special

visualization, visual-motor coordination and abstract conceptualization. It is a measure of perceptual organization and general intelligence.

- Similarities: As in the Vocabulary subtest, the WASI Similarities subtest includes low-end picture items (items 1-4) and 22 verbal items. Fir each of items 1-4, the examinee is shown a picture of three common objects on the top row and four response options on the bottom row. The examinee responds by pointing to the one response option that is similar to the three target objects. For each verbal item, a pair of words is presented orally and the examinee explains the similarity between the common objects or concepts that the two words represent. Similarities is a measure of verbal concept formation, abstract verbal reasoning ability and general intellectual ability.
- Matrix Reasoning: The Matrix Reasoning subtest presents a series of 35 incomplete gridded patterns that the examinee completes by pointing to or stating the number of correct response from five possible choices. Matrix Reasoning is a measure of nonverbal fluid reasoning (fluid intelligence generally correlates with measures of abstract reasoning and puzzle solving) and general intellectual ability.

These subtests are similar in format to their WISC III (Wechsler Intelligence Scale for Children) and WAIS III (Wechsler Adult Intelligence Scale) counterparts and are the subtests with the highest loadings on g (general cognitive abilities) and for their strong association with constructs of intelligence such as the verbal and performance and crystallized and fluid dichotomies. Administration of all four subtests is a means of quickly estimating an individual's verbal, non-verbal and general cognitive functioning in approximately 30 minutes. When time is a major constraint, only two subtests of the WASI, namely the Vocabulary and Matrix Reasoning, are needed for estimating general cognitive functioning in 15 minutes or less. Derivative short forms of the Wechsler (using just a few randomly chosen items of the subtests of the full test battery) do not yield reliable results due to a number of

variables such as administration order, practice, motivation or even scoring. To counter these limitations of derivative short forms and existing brief intelligence measures, the WASI was developed as an independent scale.

As for the normative and scoring technicalities, the WASI is different from other Wechsler scales in that subtest total raw scores are converted to T-scores instead of subtest scaled scores. The subtest age-corrected T-scores, in turn, are used to calculate the WASI IQ scores. The T-score scale is used because it has a far wider range of score points and, therefore, can better differentiate the levels of ability reflected by the subtest total raw scores.

The sums of subtest T-scores for the WASI IQ scale were calculated by summing each individual's age-corrected T-scores on the relevant subtests. For the four subtest form, the Verbal score is the sum of the T-scores on Vocabulary and Similarities, the Performance score is the sum of the T-scores on Block Design and Matrix Reasoning and the Full Scale score is the sum of the T-scores on all four subtests. For each age group the total raw scores of each subtest were first converted to percentiles and then converted to a T-score scale with a mean of 50 and standard deviation of 10. According to the authors, this conversion was accomplished by preparing a cumulative frequency distribution of raw scores for each age group, normalizing these distributions and calculating the appropriate T-score for each raw score.

For each scale (Verbal, Performance and Full Scale), the distribution of the sums of T-scores was converted to a scale with a mean of 100 and a standard deviation of 15.

The TEIQue SF

According to its authors:

> "Trait Emotional Intelligence Questionnaire – Short Form (TEIQue-SF) is a 30-item questionnaire designed to measure global trait emotional intelligence (trait EI). It is

based on the long form of the TEIQue, Petrides (2001). Two items from each of the 15 subscales of the TEIQue were selected for inclusion, based primarily on their correlations with the corresponding total subscale scores. This procedure was followed in order to ensure adequate internal consistencies and broad coverage of the sampling domain of the construct. Items were responded to on a 7-point Likert scale. The TEIQue has been constructed with the aim of providing comprehensive coverage of the trait EI domain, Petrides & Furnham, (2001)"

The trait emotional intelligence (trait EI) model successfully integrates and extends EI related ideas in a general framework that incorporates 15 specific facets:

- Adaptability
- Emotion control
- Low impulsiveness
- Self-motivation
- Trait empathy
- Assertiveness
- Emotion expression
- Relationships
- Social awareness
- Trait happiness
- Emotion appraisal (self and others)
- Emotion management (others)
- Self-esteem
- Stress management
- Trait optimism

The TEIQue assesses all of the above facets through 15 subscales. In addition, it provides scores on four factors of broader relevance:

- well-being
- self-control
- emotionality
- sociability

It is important to remember that scores on the trait EI facets do not reflect cognitive abilities (e.g., IQ), but rather self-perceived abilities and behavioural dispositions.

The authors of the Trait Emotional Intelligence Research Program (2001) describe each of the scales and factors as yielding:

- Emotion expression:
    - High scorers: subjects fluent in communicating their emotions to others, who know what the best words are for expressing their feelings accurately and unambiguously.
    - Low scorers: subjects with difficulty in communicating emotion-related thoughts, and letting others know how they feel. Inability to express emotion may be indicative of a more generalized problem of lack of self-confidence and social assertiveness.
- Empathy: This scale measures the 'perspective-taking' aspect of empathy: seeing the world from someone else's point of view.
    - High scorers tend to be skilful in conversations and negotiations because they take into account the viewpoints of those they are dealing with. They can put themselves "in somebody else's shoes" and appreciate how things seem to them.

  - Low scorers have difficulty adopting other people's perspectives. They tend to be opinionated and argumentative and may often seem self-centered.

- Self-motivation:
  - High scorers are driven by a need to produce high quality work. They tend to be determined and persevering. They do not need to be externally rewarded for their efforts because they have a strong sense of achievement and are motivated from within.
  - Low scorers tend to need a lot of incentives and encouragement in order to get things done. They need constant reward to keep going and they are more likely to give up in the face of adversity.
- Emotion regulation: This scale measures short-, medium-, and long-term control of one's own feelings and emotional states.
  - High scorers have control over their emotions and can change unpleasant moods or prolong pleasant moods through personal insight and effort. They are psychologically stable and they know how to pick themselves up after emotional setbacks.
  - Low scorers are subject to emotional seizures and periods of prolonged anxiety or even depression. They find it difficult to deal with their feelings and are often moody and irritable.
- Happiness: This scale concerns pleasant emotional states, primarily directed towards the present rather than the past (life satisfaction) or the future (optimism). Along with *self-esteem* and *optimism*, this scale reflects the general psychological state at present.
  - High scorers are cheerful and feel good about themselves.
  - Low scorers often feel blue and can be overly negative about things.

- Social awareness:
    - High scorers believe they have excellent social skills and are socially sensitive, adaptable, and perceptive. They are good at negotiating, brokering deals, and influencing others. In addition, they tend to have control over their emotions and the manner in which they express them, which enables them to function confidently in diverse social contexts, like parties or networking events.
    - Low scorers believe they have limited social skills and often feel anxious in unfamiliar settings because they are unsure about how to behave. They find it difficult to express themselves clearly and have a small circle of acquaintances. They are known for their limited interpersonal skills.
- Low impulsiveness: This scale measures mainly dysfunctional ('unhealthy') rather than functional ('healthy') impulsivity. Low impulsivity involves thinking before acting and reflecting carefully before making decisions.
    - High scorers weigh all the information before they make up their mind, without, however, being overly cautious.
    - Low scorers tend to be impetuous and to give in to their urges. Much like children, they want immediate gratification and have low self-control.
- Emotion perception: This scale measures emotion perception in one's own self as well as in others.
    - High scorers are clear about what they feel and able to decode other people's emotional expressions.
    - Low scorers are often confused about how they feel and do not pay much attention to the emotional signals that others send out.
- Self-esteem: The self-esteem scale measures one's overall evaluation of oneself.

  - High scorers have a positive view of themselves and their achievements. They are confident, positive, and satisfied with most aspects of their life.
  - Low scorers tend to lack self-respect and to not value themselves very highly. Low self-esteem scores are often the result of challenges in one or more of the other areas that the TEIQue assesses.

- Assertiveness:
  - High scorers are forthright and frank. They know how to ask for things, give and receive compliments, and confront others when necessary. They have leadership qualities and can stand up for their rights and beliefs.
  - Low scorers tend to back down even if they know they are right and have difficulty saying 'no,' even when they feel they must. As a result, they often end up doing things they do not want to do. In most cases, they prefer to be part of a team rather than to lead it.
- Emotion management: This scale concerns one's perceived ability to manage *other* people's emotional states.
  - High scorers on the emotion management scale can influence other people's feelings (e.g., calm them down, console them, motivate them). They know how to make others feel better when they need it.
  - Low scorers can neither influence nor manage others' feelings. They become overwhelmed when they have to deal with other people's emotional outbursts and are less likely to enjoy socializing and networking.
- Optimism: Like happiness, this scale is linked to well-being, albeit in a forward-looking way. Along with *happiness* and *self-esteem*, this scale reflects the individual's general psychological state at this point in time.

  - High scorers look on the bright side and expect positive things to happen in their life.
  - Low scorers are pessimistic and view things from a negative perspective. They are less likely to be able to identify and pursue new opportunities and tend to be risk-averse.

- Relationships: This scale mainly concerns one's personal relationships, including close friends, partners, and family. It is about starting and maintaining emotional bonds with others.
  - High scorers usually have fulfilling personal relationships that positively affect their productivity and emotional well-being. They know how to listen and be responsive to the people close to them.
  - Low scorers find it difficult to bond well with others and tend to undervalue their personal relationships. They often behave in ways that hurt those close to them.
- Adaptability:
  - High scorers are flexible in their approach to work and life. They are willing and able to adapt to new environments and conditions.
  - Low scorers are change-resistant and find it difficult to modify their work- and life-style. They are generally inflexible and have fixed ideas and views.
- Stress management:
- High scorers can handle pressure calmly and effectively because they have developed successful coping mechanisms. More often than not, they are good at regulating their emotions, which helps them tackle stress.
- Low scorers are less likely to have developed stress-coping strategies. They may prefer to altogether avoid situations that are potentially hectic, rather than deal with

the associated tension. Their vulnerability to stress is problematic, as it leads them to reject important, but time-demanding, projects.

Interpreting factor scores:

- Well-being:
    - High scorers on this factor reflect a generalized sense of well-being, extending from past achievements to future expectations. Overall, individuals with high scores feel positive, happy, and fulfilled.
    - Low scorers tend to have low self-regard and to be disappointed about their life as it is at present.
- Self-control:
    - High scorers have a healthy degree of control over their urges and desires. In addition to fending off impulses, they are good at regulating external pressures and stress. They are neither repressed nor overly expressive.
    - Low scorers are prone to impulsive behaviour and seem to be incapable of managing stress. Low self-control are associated with inflexibility.
- Emotionality:
    - High scores on this factor believe they have a wide range of emotion-related skills. They can perceive and express emotions and use these abilities to develop and sustain close relationships with important others.
    - Low scorers on this factor find it difficult to recognize their internal emotional states and to express their feelings to others, which often leads to less rewarding personal relationships.

- Sociability: The sociability factor differs from the emotionality factor above in that it emphasizes social relationships and social influence. The focus is on the individual as an agent in different social contexts rather than on personal relationships with family and close friends.
    - High scores on the sociability factor are better at social interaction. They believe they have good listening skills and can communicate clearly and confidently with people from very diverse backgrounds.
    - Low scores believe they are unable to affect others' emotions and are less likely to be good negotiators or networkers. They are unsure what to do or say in social situations and, as a result, they often appear shy and reserved.

Summing all these different traits up in a more accessible overlook:

Table 4: Factorial and subscale structure of the TEIQue according to Petrides and Furnham (2003b)

Factors & facets	**High scorers perceive themselves as…**
Well being	
Self-esteem	successful and self-confident
Trait happiness	cheerful and satisfied with their lives
Trait optimism	confident and likely to look on the bright side of life
Self-control	
Emotion regulation	capable of controlling their emotions
Stress management	capable of withstanding pressure and regulating stress
Impulsiveness (low)	reflective and less likely to give in to their urges
Emotionally	
Emotion perception self and others)	clear about their own and other people's feeling
Emotion expression	capable of communicating their feelings to others
Relationship skills	capable of having fulfilling personal relationships
Empathy	capable of taking someone else's perspective
Sociability	
Social competence	accomplished networkers with excellent social skills
Emotion management (others)	capable of influencing other people's feelings
Assertiveness …	forthright, frank and willing to stand up for their rights

The following subscales do not belong to any particular factor and are directly included in the total score:	
Adaptability Self-motivation	flexible and willing to adapt to new conditions driven and unlikely to give up in the face of adversity

Scoring on the TEIQue-SF is quite straightforward. After reversing the scores of items 16, 2, 18, 4, 5, 7, 22, 8, 10, 25, 26, 12, 13, 28, 14, the 7 columns are then summed and their total score is formed. The median value of the TEIQue-SF is 146.39 (dispersion = 20.44)

The HGSHS:A

According to the authors, The Harvard Group Scale of Hypnotic Susceptibility, Form A by R.E.Shor and E.C. Orne (1962) is an adaptation for group administration with self-report scoring of the individually administered and objectively scored Stanford Hypnotic Susceptibility Scale, Form A by Weitzenhofer and Hilgard (1959). This revised version can be administered to groups of unlimited size.

The HGSHS:A was prepared conservatively by making only those changes needed to preserve the characteristics of the original version under group conditions. Although many minor changes proved to be necessary, the only fundamental alteration was the provision for self-report scoring. In this modality, the subject judges afterwards whether or not he performed the requested behaviors and then reports his judgments in special response booklets.

The manual of the test consists of a complete set of instructions for attempting the induction of hypnosis and for measuring susceptibility to the standard induction procedures on a 12-point scale. The instructions are prepared on the assumption that the adapted scale is being used with a group where at least one or more of the subjects is likely to be experiencing hypnotic procedures for the first time.

The instructions begin with some recommendations for establishing rapport through a preliminary conversation and then go on through eleven specific instructions, each of which is eventually scored by the subjects. The final score of the 12-item scale is arrives at through a written interrogatory on amnesia. The response booklet for self-report scoring is distributed to the subjects with the appropriate instructions prior to the hypnotic procedures.

The individual sections of the scale are timed to indicate an approximate reading rate. The induction and hypnotic testing should take about 50 minutes. The initial and final periods are flexible, depending on the time available. Research findings to date indicate that norms derived from the adapted scale are congruent with norms derived from the individually administered version.

The different items of suggestibility for which the subjects simply had to indicate if letter A or B corresponded to their case, are the following:

- 01.Head falling forward.
- 02.Eyes becoming heavy and closing.
- 03.Left hand lowering
- 04.Right arm heavy and difficulty in lifting it
- 05.Difficulty in separating interlocked fingers
- 06.Extended left arm becoming stiff and difficult to bend.
- 07.Outstretched arms, hands being pulled together.
- 08.Difficulty in shaking head "no".
- 09.Getting rid of annoying fly.
- 10.Difficulty in opening eyes.
- 11.Touching left ankle at tapping sound.
- 12.Temporary difficulty in remembering events of hypnosis.

The scoring of the response booklets, as modified by J.F.Kihlstrom in 2002, followed the procedure described by the authors. Subjects received a score of 1 if they had marked item A (indicating an experienced behavioral change for a given suggestion) and a 0 if item B was marked (indicating that the behavioral change was not experienced). Amnesia was scored as 1 if the subject recalled fewer than four out of twelve items before the amnesia was lifted.

Procedure

The first step to validating the hypothesis of an IQ/EQ versus hypnotic susceptibility correlation was to assess the data gathered from the questionnaire sent to peers in the field of clinical hypnosis.

With the initial data favoring the hypothesis, a viable sample number had to be determined and the test material perused, selected and made available, which in the case of the HGSHS:A, presupposed a good quality recoding of the introduction and induction procedures and the preparation of the response booklets and for the WASI the ordering of the original test at Pearson's in the USA.

Then the physical place for the test administrations had to be found, due to the fact that for reasons of practicality, it had to be in Porto Alegre, the state capital and not at the author's premises, at a distance of 160 km. The director of a small school of university preparation classes kindly put at our disposal a comfortable classroom, seating 50 people and thus largely sufficient for the purpose. Generously counting time and allowing for some small delays, the room had to be available 2, 5 hours on one day plus 5 hours on 4 days.

Only then were the notes put on the before mentioned message boards and the newspaper advertisements ordered. By the third week of November, all the 32 subjects were enrolled for the study, had been individually briefed on what to expect, chosen and given their respective consent to the possible schedules and been divided into three groups:

- Group A: equal proportion of male and female subjects, (5 each), 7 native and 3 bilingual speakers, to be tested on : HGSHS:A + WASI, demand of availability for the subjects of this group : 180 minutes
- Group B: equal proportion of male and female subjects, (5 each), 7 native and 3 bilingual speakers, to be tested on : HGSHS:A + TEIQue-SF, demand of availability for the subjects of this group : 135 minutes

- Group C: equal proportion of male and female subjects, (6 each), 8 native and 4 bilingual speakers, to be tested on : HGSHS:A + WASI + TEIQue-SF (one bilingual male examinee could not meet his schedule and one female native speaker was later eliminated to warrant the symmetrical distribution in all three groups), demand of availability for the subjects of this group : 195 minutes

The examiners exact time availability had to corresponded to a minimum of 22, 25 hours :

Table 5: Organization of testing schedules

Day 1	HGSHS:A	Groups A,B,C	30 subjects	120 minutes
Day 1	TEIQue:SF	Groups B,C	20 subjects	15 minutes
Day 2	WASI	Group A	5 subjects	300 minutes
Day 4	WASI	Group A	5 subjects	300 minutes
Day 5	WASI	Group C	5 subjects	300 minutes
Day 6	WASI	Group C	5 subjects	300 minutes

For the administration of the HGSHS:A on day 1, a period of 120 minutes was used, since this meeting represented the only one with all 30 subjects present. At the beginning of this encounter, the rest of the testing schedules was organized and a summed up explanation given as to the intents of the present study.

So as to compensate potential lateness, better coordinate successive examinee arrivals, be able to create/renew a pleasant rapport and also in order to be able to score the test during the

presence of the examinee and let him/her have the result, the examiner allowed 60 minutes for each WASI examinee, whereas the test procedures determines approximately 35 minutes for the four-subtest module.

Results

Data Analysis:

Initial screening questionnaire

The questionnaire sent to the 340 peers actively involved in the field of clinical hypnosis and contacted through the Brazilian Institute of Hypnology was answered by 14% or 46 individuals and the respective corroborated the initial hypothesis.

In this sample the distribution of professionals and years practicing clinical hypnosis is as follows:

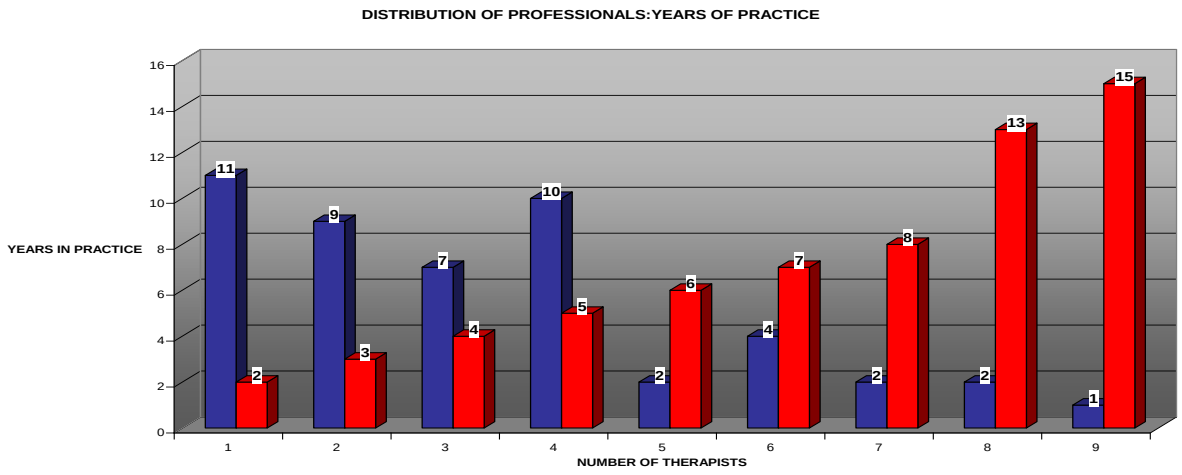

Figure 6: Distribution of practice years per therapist, N: 48

Due to the fact that most of the professionals have adhered to this professional board of hypnotherapists in recent years since it represents a new direction in hypnotherapy, called "Conditionative hypnosis", only 23% of the sample works in the field for 6 years or more. This also determines the mean number of patients seen during the total of the 264 practice years:

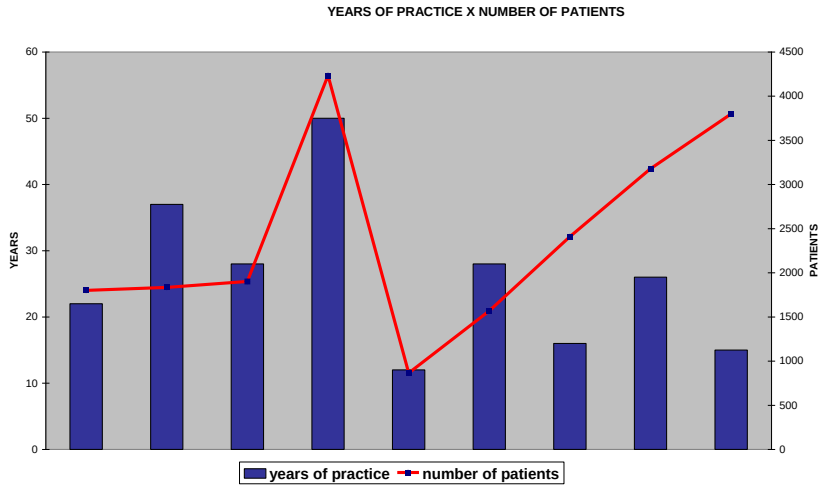

Figure 7: Practice years x number of patients of the 9 categories

Graph nº 6 shows the distribution of patient numbers within the respective 9 categories of lengths of practice (2-15 years) of the 48 professionals. In a total of 234 years of practice, these professionals saw 21592 patients, averaging each 92/patients/year.

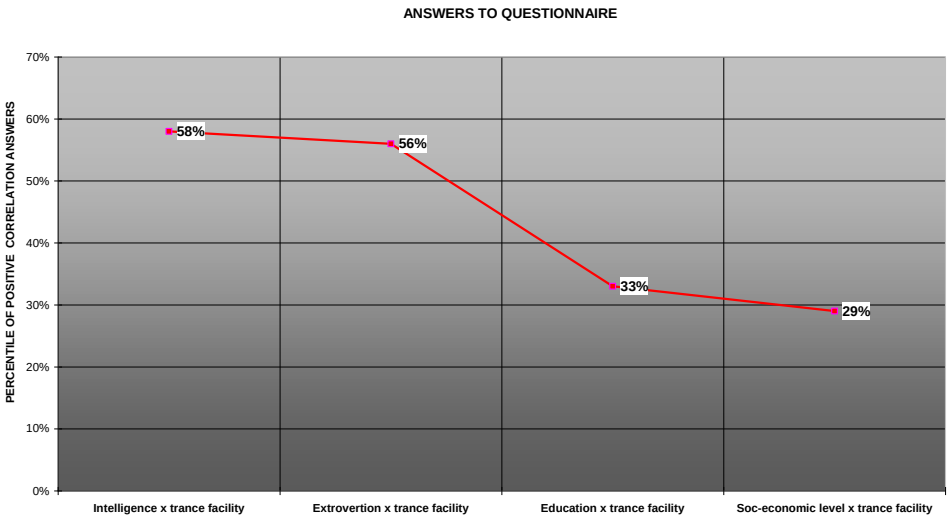

Figure 8: Percentile answers personality and socio-economic factors x trance facility

The respondents' answers thus legitimized the investigation of the initial hypothesis with a respective percentile of 58% and 56% of IQ and EQ versus hypnotic susceptibility related subjective impressions, which in patient numbers correspond to 12523 patient for the IQ related item and 12091 patients for the EQ related item. The graph also reveals that educational and socio-economic levels had no bearing on apparent trance facility.

Test results on the HGSHS:A

|Given the fact that this test was the first that all subjects passed in this study, a more in depth analysis will be supplied, so as to check on test compliance with data existing in literature.

The whole sample of 30 subjects was tested on the HGSHS:A using the test in its original English version. The texts were taped according to the procedure manual using semi-professional equipment. The application time including the self-scoring of the response booklets was of 80 minutes and the means of checked answers per item appear in graph nº 8.

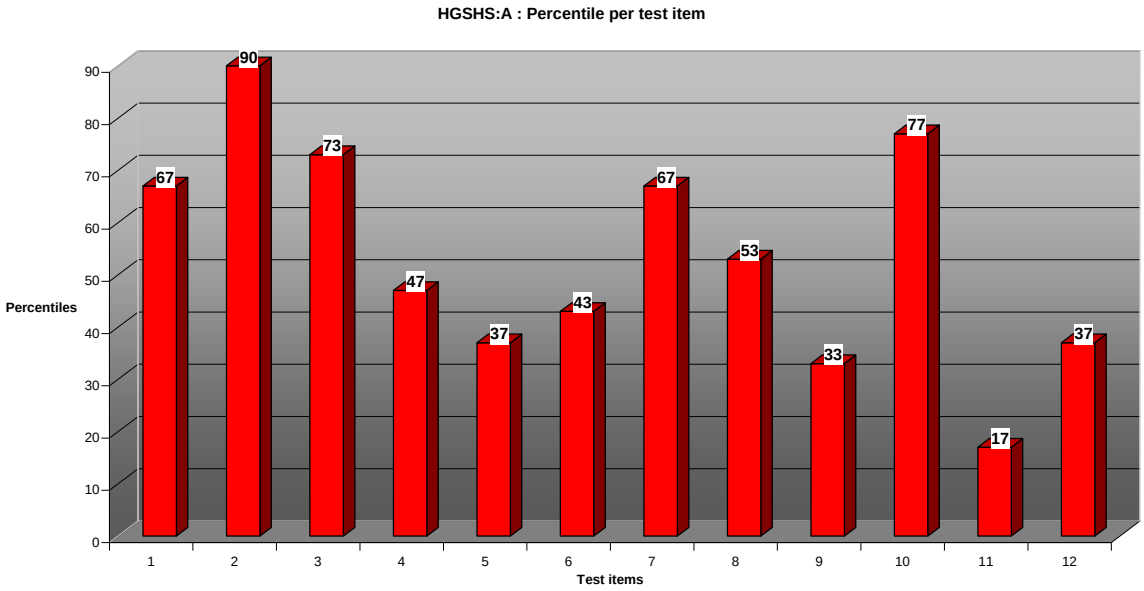

Figure 9: Percentiles of answers per item

The results of the samples on this test showed a mean score of 6,40 with an SD of 2,42 on a scale from 0 representing no hypnotic susceptibility to 12, representing very high hypnotic susceptibility. For validation purposes this data was compared to existing data in the literature as follows:

Table 6: Mean an SD of the hypnotic susceptibility values

COUNTRIES	SAMPLE NUMBER	MEAN	SD	SCORE	SD
BRAZIL*	30	53,33	18,386	6,40	2,42
BRAZIL**	33	54,92	24,574	6,58	2,44
SWEDEN	291	56,42	20,756	x***	x
ITALY	376	53,08	12,810	x	x
FINLAND	285	60,42	20,161	7,26	2,61
DANEMARK	376	63,67	21,339	x	x
SPAIN	374	59,42	16,121	7,13	2,61
GERMANY	230	56,17	16,236	6,5	2,43
AUSTRÁLIA	1994	45,42	17,312	5,45	2,95
USA	132	62,75	17,457	7,39	3,04

*present study
** Brazilian study by P.L. Jácome Macêdo and D.Assis Perreira (2005)
*** no data found in literature

This table shows that the data collected in eight countries of reference, other than Brazil, has a close correlation with the data of the present study despite the sample being small (N:30). This data was further investigated by comparing the individual percentile response data of the present sample to each of the 12 questions among the nine countries, according to S.P. I. Kallio and M. J. Ihamuotila (1999)

Table 7: Comparative percentiles of answers to all 12 test items (* present study)

HGSHS : A	**Brazil***	**Brazil**	**Sweden**	**Italy**	**Finland**	**Danemark**	**Germany**	**Spain**	**Australia**	**USA**
	N=30	**N=33**	**N=291**	**N=376**	**N=285**	**N=376**	**N=374**	**N=220**	**N=220**	**N=132**
1	**67**	67	70	70	84	86	73	73	61	86
2	**90**	91	76	62	86	48	73	64	57	74
3	**73**	73	66	56	89	75	83	60	71	89
4	**47**	58	61	55	43	72	52	58	36	48
5	**37**	39	74	60	66	76	57	67	53	67
6	**43**	55	65	63	53	75	52	69	41	57
7	**67**	73	64	64	78	78	74	79	71	86
8	**53**	61	56	48	56	73	49	74	42	50
9	**33**	21	14	28	28	38	47	29	25	56
10	**77**	76	51	40	52	61	47	59	38	56
11	**17**	6	15	35	37	11	31	29	17	36
12	**37**	39	65	56	53	71	36	52	33	48

It thus comes forth that the data collected in this study adequately integrates the existing statistics. Since our sample, however, had the specificity of a proportion of 70% to 30% of native versus bilingual speakers, the result data has been further filtered by comparing both, score data in graph 9 and percentile response data in graph 10, to exclude any unforeseen deviations:

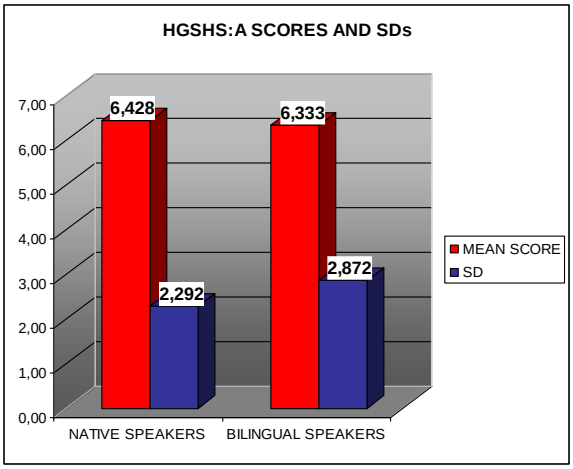

Figure 10: Scores and Sds of Native

versus bilingual speakers

The graph shows that there is not a significant difference in score obtained by the sample of 21 native English speaking examinees (score: 6,47, SD 2,292) and the 9 bilingual examinees (score 6,33, SD 2,872). The small variation of this data can be considered valid.

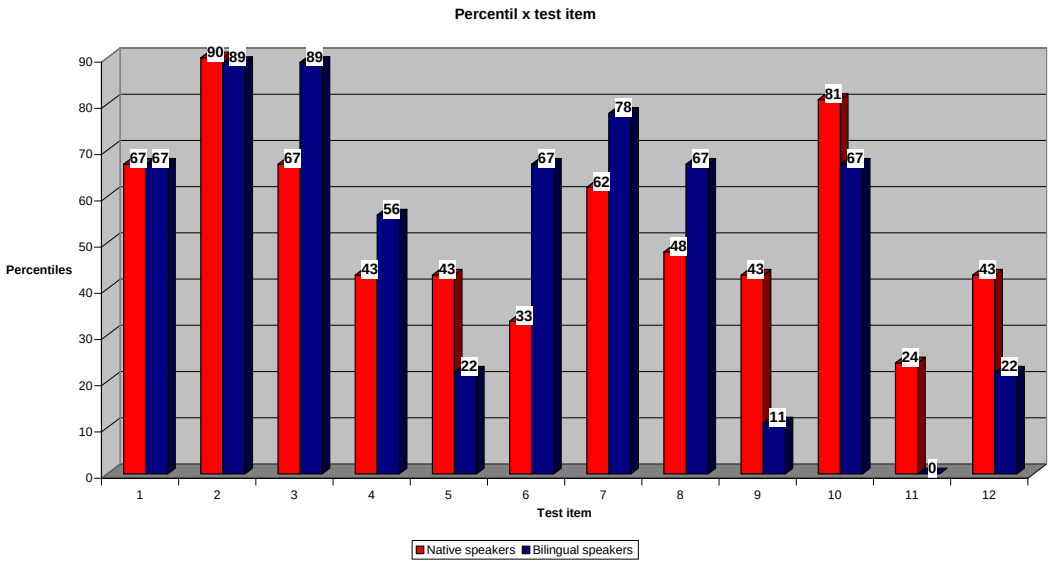

Figure 11: Mean % of items answered and SD by native versus bilingual speakers

The variation in data in graph 10 between the percentage of marks scored per item may appear significant at first sight, could however be expected, considering the small sample amount N: 9 of bilingual speakers. The mean percentiles and SD, however, between native speakers (53,66%, SD 19,74) and bilingual speakers (52,91%, SD 30,90), shows coherence of data, allowing the conclusion that the test data is valid for our mixed population sample.

Test results on the WASI

On the total of N:20 that were tested on the WASI, a medium score of 104,50 was reached with a SD of 13,12. The minimum score was of 86 and the maximum of 122.

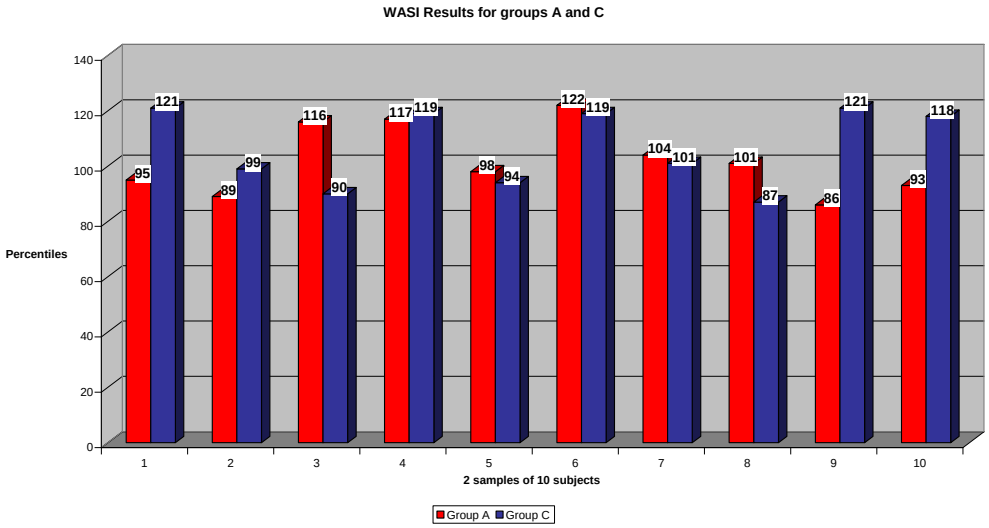

Figure 12: WASI test results for groups A and C (N:10 each)

To exclude a bias, possibly caused on the account of language competence, the scores of the 14 native speakers was compared to that of the 6 bilingual speakers, showing, according to Fig. 12, that no significant difference existed between the two groups, the native speakers reaching a medium score of 106 with an SD of 12,378(minimum: 89, maximum: 122) and the bilingual speakers a medium score of 101 and an SD of 15,323 (minimum: 86, maximum: 121)

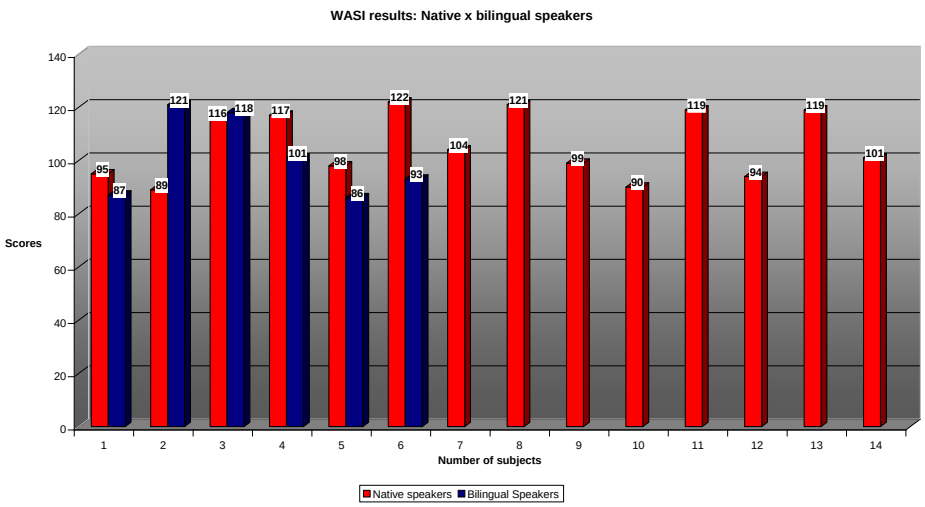

Figure 13: WASI test results native x bilingual speakers groups A and C

Test results on the TEIQue-SF

On the total of N:20 that were tested on the TEIQue-SF, a median score of 145,60 was reached with a dispersion of 19,17. The minimum score was of 124 and the maximum of 182.

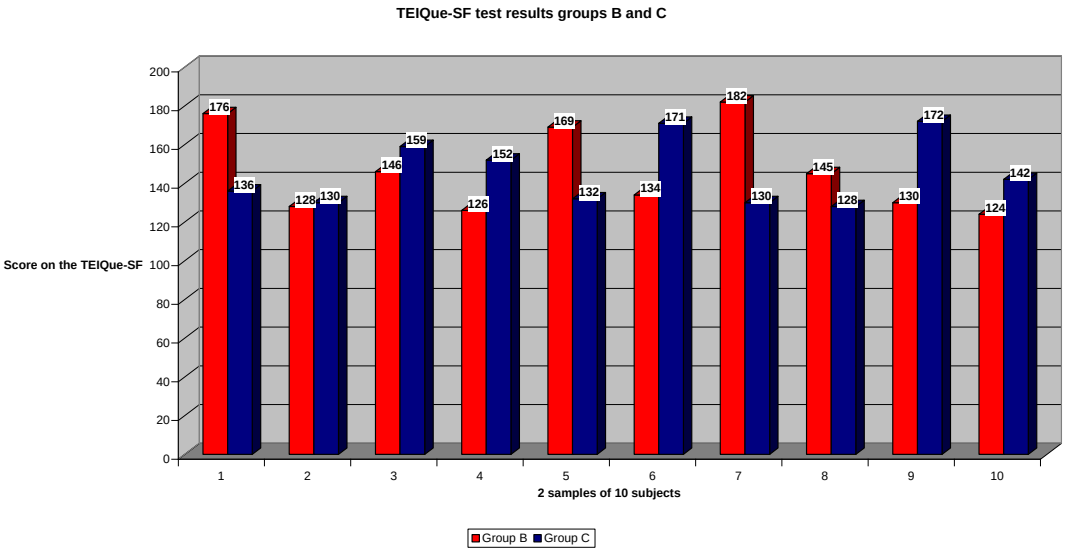

Figure 14: TEIQue-SF test results for groups B and C (N:10 each)

Following the same procedure as for the preceding tests to exclude a bias, possibly caused on the account of language competence, the scores of the 14 native speakers was compared to that of the 6 bilingual speakers, showing, according to Fig. 13, that no significant difference

existed between the two groups, the native speakers reaching a medan score of 147,92 with an dispersion of 20(minimum: 128, maximum: 171) and the bilingual speakers a medan score of 140,16 and dispersion of 17,62 (minimum: 124, maximum: 172)

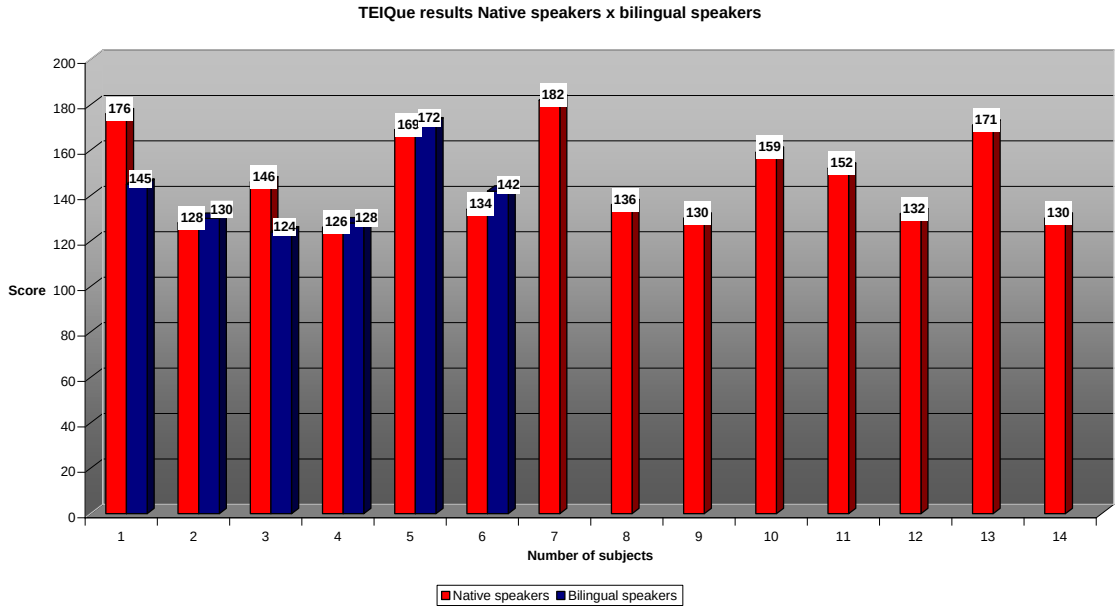

Figure 15: TEIQue-SF test results native x bilingual speakers groups B and C

Comparative analysis of test results

The comparative results of all tests applied to the 3 groups A, B and C are the following:

Table 8: Summary of test results of all tests and groups

Test	N	Minimum	Maximum	Mean/Median	SD/Dispersion
WASI	20	86	122	104,50	13,12
TEIQue-SF	20	124	182	145,60	19,17
HGSHS:A	30	3	11	6,40	2,43

for which the statistical test(s) per group(s) analysis using Spearman's rank correlation coefficient, chosen for its reliability with relatively small samples, renders the following details:

Group A: correlation analysis between WASI e HGSHS:A:

Table 9: WASI x HGSHS:A groupA

Variable	Value
Correlation coefficient	0,7604
p <	0,0107
N	10

*The correlation is significant at p < 0,05.

The data of this table shows that there is a strong, positive and significant correlation between the results of the WASI scores and the HGSHS:A scores of group A.

Group B: correlation analysis between TEIQue-SF and HGSHS:A:

Table 10: TEIQue-SF x HGSHS:A group B

Variable	Value
Correlation coefficient	0,6575
p <	0,0388
N	10

*The correlation is significant at p < 0,05.

The data of this table shows that there is a strong, positive and significant correlation between the results of the TEIQue-SF scores and the HGSHS:A scores of group B.

Group C: correlation analysis between WASI and TEIQue-SF

Table 11: WASI x TEIQue-SF group C

Variable	Value
Correlation coefficient	0,5810
p <	0,0781
N	10

*The correlation is significant at p < 0,05.

The data of this table shows that there exists a moderate, positive correlation between the results of the WASI and TAIQue-SF scores of group C. However, this correlation does not reach a level of significance. (p < 0,0781).

Group C: correlation analysis between WASI and HGSHS:A

Table 12: WASI x HGSHS:A group C

Variable	Value
Correlation coefficient	0,8724
p <	0,0010
N	10

*The correlation is significant at p < 0,05.

The data of this table shows that there is a strong, positive and significant correlation between the results of the WASI scores and the HGSHS:A scores of group C. The results reveal an even higher level of significance than those shown in table 7.

Group C: correlation analysis between TEIQue-SF and HGSHS:A

Table 13: TEIQue-SF x HGSHS:A group C

Variable	Value
Correlation coefficient	0,7921
p <	0,0063
N	10

*The correlation is significant at p < 0,05.

The data of this table shows that there is a strong, positive and significant correlation between the results of the TEIQue-SF scores and the HGSHS:A scores of group C. The results also reveal an even higher level of significance than those shown in table 8.

Groups A and C: correlation analysis between WASI and HGSHS:A

Table 14: WASI x HGSHS:A groups A and C

Variable	Value
Correlation coefficient	0,8070
p <	0,0000
N	20

*The correlation is significant at p < 0,01.

The data of this table shows that there is a strong, positive and significant correlation between the results of the WASI scores and the HGSHS:A scores of groups A and C. The level of significance reveals a great reliability of the data: p < 0,000.

Groups B and C: correlation analysis between TEIQue-SF and HGSHS:A

Table 15: TEIQue-SF x HGSHS:A groups A and C

Variable	Value
Correlation coefficient	0,6573
p <	0,0016
N	20

*The correlation is significant at p < 0,01.

The data of this table shows that there is a strong, positive and significant correlation between the results of the TEIQue-SF scores and the HGSHS:A scores of groups B and C. The results also reveal an even higher level of significance than those shown in tables 7-9.

Summary of Results

The main analysis of all preceding data was based on the scores, their average/median and SD/dispersian as obtained by the subjects during the 3 different tests. With exception of the data described in table 9 (WASI x TEIQue-SF), which was exclusively included as a point of interest but not relevant to the validation of the initial hypothesis, it can be observed that the scores, on the applied tests reveal a positive correlation which varies from moderate to high, thus being statistically significant.
The results therefore prove that the higher the scores on IQ and EQ tests, the higher the scores on hypnotic susceptibility tests.

A subsequent analysis, based on the mean score and SD, as pre-defined by each of the three tests' publishers, only revealed a statistically insignificant correlation due to the small sample which does not allow a meaningful statistical analysis. The data is available in appendix 1.

Conclusions

The data analysis having shown that the initial hypothesis of the study, holding that the higher the scores of a person on IQ and EQ tests, the higher also his/her susceptibility to hypnotic suggestion, could be confirmed on the basis of linear data. It is relevant to notice that this is to

date, to the author's knowledge, the first study to investigate such a relationship in more depth. In the past, some researchers and clinicians have supposed and even mentioned the possibility of such a correlation, without, however, formalizing their impression. In the present study 3 test methods have been chosen due to their criteria that best suited our purpose. It could also be proven that the cross-cultural circumstances under which our investigation was carried out in terms of the mixed sample (Native Speakers x Bilingual Brazilians) and in terms of environment (for the tests, these subjects left a Portuguese speaking environment and entered an English speaking one) did not influence the test results in any significant way, in other words with variations that are considered normal in any heterogeneous group and environment.

The next step to further the knowledge about the type of correlation that exists between IQ/EQ and hypnotic susceptibility may be the attempt to enroll larger samples because this would allow, apart from re-validating the present correlations, to check yet another hypothesis, namely: the higher above average the results on the first two tests, the higher above average the results on the suggestibility scale, this time not exclusively including the linear subjects values in the analysis, but also the pre-determined mean and SD data of the tests. Such samples should best be of >N:100. In the present case, situations with only N:2, N:3 and N:5 could be found with respect to this type of investigation, making a sound statistical analysis impracticable.

It would also appear worthwhile in future research to test the same variables on a different set of tests, such as the WAIS IV or the Stanford Binet intelligence scale for IQ, the Bar-On for EQ and the Stanford Hypnotic susceptibility scales, thus comparing and validating the present data. Furthermore the notion of hypnotic susceptibility could be extended to

include different trance induction approaches and styles, since all recognized susceptibility scales use similar styles as far as wording and succession of test-items is concerned.

As is the case with all tests that partly rely on both, self-observation and self-report, and that are necessarily prone to central tendency, acquiescence and social desirability bias, exclusively large amounts of test batteries on a significant number of subjects yield reliable scores, which is why the involvement of universities in such research projects is fundamental.

If we, on the other hand, believe in philosophy of mind theories like Eliminativism which hold, that science will one day be able to develop theories which explain our behaviors better than our current explanations do and make no mention of mental states, we shall have to invoke Occam's razor and eliminate all other concepts of the functioning of our mind in favor of these new theories. Currently, the challenge of mapping the mind, in other words, locating the precise brain activity that creates specific experiences and behavioral responses, is engaging some of the finest scientists in the world and progress is made fast, so that concepts like IQ, EQ and hypnotic susceptibility might soon be explained in terms of neurophysiologic processes.

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Figures and Tables

Figures:

Tables:

Appendix 1: Analysis of test data (according to Spearman): obtained scores compared to test's mean/median and Sd/diversion scores as defined by publishers:

Group A

WASI	HGSHS:A
Variable	**Value**
Correlation coefficient	0,7604
p <	0,0107
N	10

*The correlation is significant at p < 0,05.

WASI	HGSHS:A
Variable	**Value**
Correlation coefficient	-0,8660
p <	0,3333
N	3

*The correlation is significant at p < 0,05.

Group B

TEIQue-SF	HGSHS:A
Variable	**Value**
Correlation coefficient	0,6575
p <	0,0388
N	10

*The correlation is significant at p < 0,05.

TEIQue-SF	HGSHS:A
Variable	**Value**
Correlation coefficient	.
p <	.
N	2

*The correlation is significant at p < 0,05.

Group C

WASI	TEIQue-SF
Variable	**Value**
Correlation coefficient	0,5810
p <	0,0781
N	10

*The correlation is significant at p < 0,05.

WASI	TEIQue-SF
Variable	**Value**
Correlation coefficient	1,0000
p <	.
N	2

*The correlation is significant up to p < 0,05.

WASI	HGSHS:A
Variable	**Value**

WASI	HGSHS:A
Variable	**Value**

Correlation coefficient	0,8724
p <	0,0010
N	10

*The correlation is significant up to p < 0,01.

Correlation coefficient	.
p <	.
N	2

*The correlation is significant up to p < 0,05.

TEIQue-SF	HGSHS:A
Variable	**Value**
Correlation coefficient	0,7921
p <	0,0063
N	10

*The correlation is significant up to p < 0,01.

TEIQue-SF	HGSHS:A
Variable	**Value**
Correlation coefficient	.
p <	.
N	2

*The correlation is significant at p < 0,05.

Groups A and C

WASI	HGSHS:A
Variable	**Value**
Correlation coefficient	0,8070
p <	0,0000
N	20

*The correlation is significant up to p < 0,01.

WASI	HGSHS:A
Variable	**Value**
Correlation coefficient	-0,7071
p <	0,1817
N	5

*The correlation is significant at p < 0,05.

Groups B and C

TEIQue-SF	HGSHS:A
Variable	**Value**
Correlation coefficient	0,6573
p <	0,0016
N	20

*The correlation is significant up to p < 0,01.

TEIQue-SF	HGSHS:A
Variable	**Value**
Correlation coefficient	.
p <	.
N	2

*The correlation is significant up to p < 0,05.