

The effect of hypnotic training programs on the academic performance of students

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Abstract

The main objective of the present study was to empirically verify the effect of hypnotic training programs on the academic performance of students. A pre and posttest design was used. Two experimental and two control groups (total sample N=119) of volunteer second year psychology students at the University of Stellenbosch in South Africa comprised the sample. One of the experimental groups was exposed to active alert hypnosis and the other to relaxation hypnosis. One control group was exposed to progressive relaxation, while the other did not receive any intervention. The participants' April grades were used as a pretest, while their June grades served as a posttest. The two hypnotic training programs had a significant effect on the academic achievement of the participants, which was not found in the control groups. Regarding the efficacy of the two programs, however, no significant difference was found.

Key words: Hypnosis, hypnotic training, academic performance, active alert hypnosis, relaxation hypnosis, hypnotic suggestibility.

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Mental training programs that are based on hypnosis have already been used for quite some time in various fields of psychology in order to improve performance (Cox, 1994; Orlick & McCaffrey, 1991; Pates & Maynard, 2000; Patrick & Hrycaiko, 1998). However, claims which are not always empirically founded are often made regarding the use of such mental training programs (Peter, 1996; Wikström, 1996). According to Fritschholtz (1996), these claims apply particularly to programs which entail the use of hypnosis and the learning of self-hypnotic skills. On the other hand, however, it is equally true that if such programs appear to have some value, they could contribute considerably towards improving a student's learning behavior and empowering him or her academically. Two such mental training programs that claim to improve academic performance are those of Nel (1993), which is based on relaxation hypnosis and Wark (1996) which is based on active-alert hypnosis.

Mental training programs originated in the field of sport psychology. The publication in 1898 of the work by Norman Triplett emphasizing the athlete and the influence of his environment, is regarded as the first attempt to establish the importance of mental training programs (Weinberg & Gould, 1995). Betts's 1909 investigations of visualization in human beings has for the past 90 years served as the motivation for the emergence of mental training exercises (Potgieter, 1997). During the past decade, mental training programs have also been applied to the promotion of academic performance with scholars and students (Wark, 1996; West, 2003).

As far as the mentioned field of sport psychology is concerned, mental training programs are defined as the cognitive exercising of a physical skill with the aim of mastering or acquiring the skill in question, without the occurrence of any observable movement (Bar-Eli, Dreshman, Blumenstein & Weinstein, 2002; Cox, 1994). According to Gafner and Benson (2000), the mental training programs that are applied to academic performance concentrate on the same techniques as those that are used in sport psychology, for example, mental imagery, relaxation, behavioral modification, cognitive restructuring, active-alert hypnosis, relaxation hypnosis, self-hypnosis, meditation, and self-dialogue. Most mental training programs make use of combinations of the above-mentioned techniques (Patrick & Hryciako, 1998; Wang, Huddleston & Peng, 2003).

The traditional view of hypnosis as an altered form of the sleeping state was questioned by Banyai and Hilgard (1976). In these researchers' experimental design, participants were exposed to active-alert suggestions and a stationary ergometer, and evaluated on the basis of the SHSSA (Forms A and B). No significant differences were found in respect of the hypnotic phenomena. This led to the conclusion that the relaxation- or sleep-oriented behavior, which is traditionally associated with hypnosis, is a result of the type of suggestion that is given during the hypnotic process.

Empirical research indicates that no statistically significant differences exist between active-alert hypnosis and traditional relaxation hypnosis in respect of standard hypnotic phenomena. Researchers (Banyai, 1980; Banyai, Mezaros & Greguss, 1983; Cikurel & Gruzelier, 1990; Fellows & Richardson, 1993; Kelly, 1985; Mallot, 1984; Wark, 1996) have reported, however, that subjective experiential differences have been observed in the participants in respect of the application of the two hypnotic procedures. After relaxation hypnosis, the participants felt sleepy and presented with a low activity level, while the participants who were exposed to active-alert hypnosis were more active, displayed a heightened attention span and experienced feelings of excitement and alertness.

Liebert, Rubin and Hilgard (1965) were among the first researchers who applied the active form of hypnosis to the learning process. They found that participants under active-alert hypnosis made fewer errors in the learning of nonsensical word associations than participants under relaxation hypnosis or in the normal waking state. In a more comprehensive study by Wark (1996), a selected group of students participated in a 10-week mental training program based on active-alert hypnosis. The program was mainly focused on the following variables: enlargement of the attention span, improvement of concentration, motivation and mental alertness. Visualization exercises and the use of self-hypnosis comprised an inherent part of the program. The Creative Imagination Scale (Wilson & Barber, 1978) was used to select students who were highly suggestible or who displayed strong hypnotic potential. The finding of the study was that the student's academic performance improved significantly (Wark, 1996).

The positive effect of active-alert hypnosis on academic performance was also confirmed in a preliminary investigation by Liebenberg (1998). According to Wark (1996) and Liebenberg (1998), the improvement of performance could possibly be ascribed to the occurrence of a more focused attention span and an improved ability to concentrate. This assumption, however, was not empirically investigated, but nevertheless enjoyed support in the neurological field where the relationship between suggestions and the improvement of concentration was investigated by means of the EEG. Highly significant event-related potential (ERP) and amplitude changes were found following specific hypnotic suggestions that were given (Barabasz & Lonsdale, 1983; Crawford, Skolnick, Benson, Gur & Gur, 1993; Hasegawa & Jamieson, 2002). Although it is not exclusive to the educational field, the finding of Barabasz (1980; 1982; 1985) that active-alert hypnosis significantly improves concentration powers, mental alertness and flight performance of pilots, is nevertheless of significance.

Research concerning the effect of mental training programs on academic performance is not restricted to active-alert hypnosis, but is also concerned with traditional relaxation hypnosis and progressive relaxation. Research on relaxation hypnosis is indicative of significant (Melnick & Russell, 1987; Sapp, 1991; Woods, 1988), as well as insignificant (Egan & Egan, 1969; Johnson, Johnson, Lamont, Olson & Newman, 1981; Prezas, 1995) academic performance outcomes. A common hypnotic procedure that was used by all of the above-mentioned researchers was the traditional form of induction, in which relaxation and drowsiness are suggested. During the mental training programme, the participants were passive and had their eyes closed. The programs varied between cognitive modification (Woods, 1988), rational-state-oriented hypnosis (Boutin, 1990; Prezas, 1995), cognitive behavioral hypnosis (Sapp, 1991), hypnotic neurolinguistic programming (Prezas, 1995) and the direct hypnotic experience technique (Melnick & Russell, 1987).

Research studies, in which progressive relaxation was applied in an academic context, were primarily directed at test anxiety. However, a few studies did, in fact, investigate the influence of progressive relaxation on academic performance. According to Bernstein and Borkovec (1973), the recalling of information was more successful in the case of persons who had undergone progressive relaxation than in the case of those who had not. According to Benson, Wilcher, Greenberg, Huggins and Friedmann (2000) and Paul (1966), students achieved significantly better academic results through the use of simple relaxation instructions. Researchers such as Roban (1999) and Lee (2001), however, found no improvement in academic performance in their respective investigations.

In summary, it appears from the literature review that mental training programs that are based on hypnosis may have a positive effect on academic performance (Laidlaw

et al., 2003; Liebenberg, 1998; Wark, 1996). It also seems that active-alert hypnosis and relaxation hypnosis may elicit similar hypnotic behavioral phenomena in individuals, but that the behavior of the individuals during the active-alert induction and the relaxation induction, as well as in the trance state, might differ significantly (Banyai, Zseni & Tury, 1993). The latter finding refuted the traditional assumption that the suggestion of relaxation forms an integral part of the hypnotic process. Currently, it is widely accepted that it is rather the nature of the suggestions put forward during the hypnotic process that are of crucial importance (Barabasz, Barabasz, Jensen & Calvin, 1999; De Pascalis, Gheorghiu, Sheehan & Kirsch, 2002).

Against this background, the primary research question of this investigation is to empirically ascertain whether training programs do, in fact, have a positive effect on the academic performance of undergraduate students. If the two above mentioned programs do appear to be effective, an endeavour will be made to answer the ensuing question, namely, which of the two is the most effective?

Method

Participants

Use was made of a pre and posttest measurement design. From a statistical population of 564 undergraduate second-year Psychology students at the University of Stellenbosch, a sample of convenience of 119 students was included in the study. The study was conducted in Afrikaans, since all the participants were proficient in this language. The average age of the participants was 19.91 years, with a standard deviation of 0.75. The sample was divided randomly into two experimental groups and two control groups of 30 persons each (one control group comprising of 29 participants). One of the experimental groups was exposed to active-alert hypnosis and the other to relaxation hypnosis. Both experimental groups were exposed once a week to the respective interventions for a period of 8 weeks. The interventions were managed and conducted by the present researcher who is a trained hypnotherapist. In order to make the research feasible, each experimental group, along with the control group that received progressive relaxation intervention, was divided into groups of 10. The groups were separately exposed to the interventions. One control group was exposed to progressive relaxation intervention for the same period as the experimental groups. The other control group was not exposed to any interventions. Because of logistic reasons a colleague, also a professional psychologist, applied the progressive relaxation. The reason for including the control group (progressive relaxation) in the research design was to make the control group comparable to the experimental group in respect of the intervening variable, relaxation.

Experimental procedure

At the beginning of the academic year, information sessions were held on various occasions with second-year students concerning the influence of hypnosis and self-hypnosis on academic performance. This served as a general orientation for students as to the rationale of the prospective study. General misconceptions and concerns with respect to hypnosis were discussed and explained. Students who wished to participate in the research had to report to the researcher. After the announcement of the April grades, the persons interested in the study were randomly divided into four groups, as set out in the research design. Unfortunately, a hypnosis suggestibility scale could not be incorporated as no such scale has been standardized for the South African population.

The group sessions commenced within a week after the pretest measures had been taken and were comprised of 1-hour sessions conducted on a weekly basis for 8 weeks. The posttest measures were taken within a week after the conclusion of the group sessions.

Before the commencement of the group sessions, group interviews were conducted with each experimental group to prepare the participants for the research process. During these interviews, attention was focused on the following:

- Aspects of the participant's academic behavior that were going to receive attention within the group sessions.
- Participants' questions and fears concerning the interventions.
- The manner in which the group sessions would be conducted.
- Fundamental principles concerning group participation namely: attendance; punctuality; completion of, and orientation in respect of, homework assignments; confidentiality; participation and involvement.

The sessions comprised of the following course:

Session 1. Hypnotic skills training was applied in order to reinforce the hypnotic abilities of the participants. The cognitive skills included absorption, focusing of attention, mental imagery, role-playing and holistic-process thinking (Diamond, 1989). Both Group 1 (relaxation hypnosis) and Group 2 (active-alert hypnosis) were exposed to hypnotic skills training, but Group 3 (progressive relaxation) and Group 4 (no intervention) were not.

Sessions 2 to 8. In the case of the two experimental groups, the intervention strategies that were followed were basically the same. The only difference was that Group 1 was exposed to suggestions reminiscent of relaxation and sleep, while Group 2 was exposed to suggestions relating to alertness, excitement, energy and activity. In the case of Group 1, but not Group 2, the participants' eyes were closed throughout the procedure. The intervention strategies of the two programs comprised the following:

- 1) Cognitive restructuring: which entailed an integration of hypnotherapy, mental imagery and cognitive therapy (Tosi, Rudy, Lewis & Murphy, 1992). Negative self-dialogue and negative thoughts were replaced with positive self-dialogue and thoughts.
- 2) The clenched-fist technique (Stein, 1963): clenching the fist of the dominant hand was associated with positive thoughts, emotions, motivation and concentration. By means of mental images of imaginary test or examination situations, the clenched-fist technique was inculcated.
- 3) Simulation of exposure (Heimberg, 1994): after a hypnotic induction, participants were required to place themselves, in their imagination, in any academic target situation (i.e. studying, attending lectures, or writing tests or examinations.) During the simulated exposures, participants learned to control their thinking, with the aid of cognitive restructuring and the clenched-fist technique.
- 4) The acquisition and inculcation of self-hypnotic skills. The two hypnotic training programs differed in respect of the acquisition and inculcation of self-hypnotic skills. In Group 1, relaxation self-hypnosis was learned and in Group 2, active-alert self-hypnosis. All of

the above-mentioned strategies had to be practiced at home by the participants with the aid of self-hypnosis.

- 5) Only progressive relaxation, without any hypnotic intervention, was offered to Group 3.
- 6) The hypnotic and progressive relaxation interventions were offered in a group context (Aroaz, 1985; Banyai, et al., 1993; Miller, 1979; Scheurkogel, 1992).

Measurement

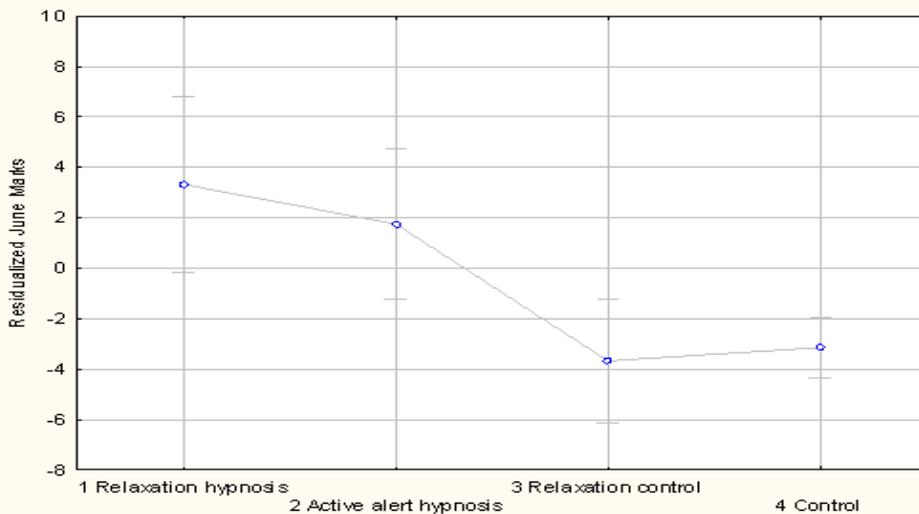
In respect of the dependent variable, academic performance, the student’s average April grades (percentages) was taken as a pretest and the residualized June examination grades (percentages), as the posttest. The average mark was calculated by taking the participant’s four undergraduate subjects into account. The commencement of the experimental interventions occurred after completion of the April tests and the interventions ended before the commencement of the mid-year June examinations.

Results

The following research hypothesis was posed: There are significant differences in the mean academic performance between the four groups.

An analysis of co-variance of the June test group means at the average adjusted April test grades was conducted with two outliers removed. The first hypothesis of no differences exist among the groups is rejected [$F(3, 112) = 7.313, p < 0.01$]. Due to the fact that the April test grades were used as a covariate for the June tests it consequently explained 67% of the variance in June grades. In contrast, only 6% of the variance in June grades is accounted for by the group effect. Since the covariate effect was so large, the hypothesis was tested by making use of residualized June test grades (that is, adjusting for the April covariate). The respective groups differ significantly from each other. The hypothesis, namely that significant differences exist between the groups, can be thus been accepted [$F(3, 113) = 7.22, p < 0.01$]. This finding is illustrated schematically in Figure 1.

Figure 1: 95% confidence intervals for residualized June Test Grades



Since the F -test indicates that there are, in fact, significant differences among the groups, a Bonferonni post hoc test was performed. These Bonferonni comparisons from the residualized tests clearly show that significant differences exist between Groups 1 and 3 ($p = 0.001$), Groups 1 and 4 ($p = 0.004$) and Groups 2 and 4 ($p = 0.02$). Note that Groups 1 and 2 are not significantly different and Groups 3 and 4 also do not differ significantly. The two mental programs, based on relaxation and active alert hypnosis respectively, had a significant influence on the academic performance of students. Regarding the second hypothesis: Post-hoc analysis using the Bonferonni correction found that Groups 1 and 2 differ significantly from Groups 3 and 4. As far as the comparison of the experimental and control groups are concerned, the F -test indicated that the experimental groups jointly differ significantly from the control groups pooled together [$F(1, 113) = 20.99, p < 0.01$]. Both hypnotic training programs based on hypnosis appeared to exercise a significant influence on the academic performance of undergraduate students, and both seem to have been effective. The group effect indicates that 17% of the residualized June test grades is explained by the hypnotic training programs with hypnosis effect.

As mentioned two outliers were detected in Group 1 and removed. The maximum effect size determined was: $\delta = (\max(\text{mean}) - \min(\text{mean}) / \sqrt{\text{MSE}}) = 0.96$ yielding an ^a priori power of 1 for group sizes of size 30. The residuals of the ANOVA on the residualized June test grades were tested for normality. The Shapiro-Wilk test showed non-normality ($p = 0.02$), but the Kolmogorov-Smirnov test showed normality ($p > 0.2$). The Levene test shows significant heteroscedasticity among the group variances.

Thus, the analyses as described above were done on the residualized June test grades with the outliers removed. The non-parametric Kruskal-Wallis test confirmed the ANOVA ($p = 0.0001$) and the subsequent non-parametric multiple comparisons showed again that Groups 1 and 2 differs from Groups 3 and 4. (In short: Groups 1 vs. 3: $p = 0.0049$, Groups 1 vs. 4: $p = 0.0017$, Groups 2 vs. 3: $p = 0.042$, Groups 2 vs. 4: $p = 0.017$ and Groups 1 vs. 2: $p = 1$ and 3 vs. 4: $p = 1$) The observed power of the ANOVA on the residualized test grades was 98.03% for group sizes of $n_1 = 28, n_2 = 30, n_3 = 30, n_4 = 29$ after removing the two outliers in Group 1.

Discussion

The experimental group that was exposed to relaxation hypnosis differed significantly from Group 3 ($p = 0.01$) and Group 4 ($p = 0.01$). With this finding, the assumption of Nel (1993), namely that a program that is based on relaxation hypnosis promotes the academic performance of students is corroborated. Ritzman (1995) exposed students who were underachieving academically to a similar program which was based on relaxation hypnosis. The students' academic performance improved significantly, a finding also reported by Gruzelier, Levy, Williams and Henderson (2001).

This investigation also supports the research of Wark (1996) to the effect that a mental training program that is based on active-alert hypnosis can promote the academic performance of students. However, the research design of the present research differs in two respects from that of Wark. Firstly, control groups were used in the present study; and secondly, the participants were not selected on the basis of their suggestibility levels. The positive effect of active-alert hypnosis on the academic performance of students is also

confirmed by the investigation of Liebenberg (1998). Since Liebenberg's research design was similar to that of the present study, it could possibly be deduced that individuals who are not highly suggestible, could also benefit from active-alert hypnosis.

Brennan (1997) compared the relaxation hypnosis program of Nel (1993) with the clenched-fist technique of Stein (1963). In a pre and posttest measure design, the effect of the two programs on the academic performance and test anxiety of students was investigated. The students' academic performance displayed significant improvements in both programmes. In the current investigation, in which one of the experimental interventions comprised that of Nel's mental training program, in combination with Stein's clenched-fist technique, Brennan's findings were corroborated. However, the current investigation did not only confirm the findings of Brennan, but also those of similar investigations (Barnier & McConkey, 2001; Boutin, 1990; Hill, 1998; Prezas, 1995) in which hypnotherapeutic interventions were applied in order to promote academic performance.

Among the most important points of criticism levelled against the research carried out in respect of hypnosis are the minimal use of control groups in the investigations, and the preponderance of single-participant studies (Fritschholtz, 1996; Krippner, 1972; Wikström, 1996). However, the methodology of the current investigation eliminated this criticism.

Conclusions

The first important conclusion was that the two hypnotic training programs used in this study, did have a positive effect on the academic performance of undergraduate students. Furthermore, the conclusion can be drawn that active-alert hypnosis yields similar results to those obtained by relaxation hypnosis. This finding confirms the assumption of Banyai and Hilgard (1976) that relaxation-and-sleep-oriented behavior does not comprise a prerequisite for a trance condition, as has traditionally been assumed previously. In the investigation it was found that both mental training programs promoted academic performance in undergraduate students. Concerning the role of hypnotic phenomena the following was found: During the implementation of the two hypnotic training programs, similar observations were made to those reported by Banyai and Hilgard (1976) and Wark (1996), namely that the experimental groups differed significantly in respect of their induction and trance behavior. Group 2 participants (active-alert hypnosis) were much more active and displayed behavior that went hand in hand with excitement, alertness and exaggerated physical movements. Group 1 participants (relaxation hypnosis), in contrast, were passive, with closed eyes, and were in a deeply relaxed state.

According to West (2003), there are significant negative correlations between hypnotic suggestibility and academic performance (West, 2003). However, most of the participants in the present study, regardless of the fact that they were not selected according to suggestibility levels, were able to benefit from hypnotic skill exercises. This conclusion supports the assumption of Aroaz (1982; 1985), Diamond (1989), Katz (1979), Liebenberg, (1998) and Golden, Dowd and Friedberg (1987).

From a critical point of view, the findings should be handled with great caution, for the following reasons:

Firstly, it is possible that non-hypnotic variables could have contributed to the improved academic performance of these students. For example, the possibility of the Pygmalion effect cannot be discarded. As all the students (both experimental and control groups) were informed about the influence of hypnosis on academic performance, but only

the experimental group was exposed to hypnosis, this could have created expectations and therefore the Pygmalion effect.

Secondly, for practical reasons, the researcher personally conducted the information sessions and the experimental groups. Although the researcher was careful to be as objective as possible, the presence of such a subjectivity factor is not desirable; and this may have influenced the results.

Thirdly, the groups were not representative of South African society. Although the fact that the participants were predominantly white can be ascribed to historical-political factors, this does not neutralize the fact that these results cannot be directly applied to more than 80% of the general South African population. The same applies to the non-representative number of male participants: the fact that approximately 80% of the psychology students are women does not alter the fact that the distribution curve of participants has been rendered askew in respect of gender.

Fourthly, the research design did not make it possible to tell to which degree suggestibility plays a role in determining participants benefiting from hypnotic intervention. It is therefore suggested that the study be replicated including a hypnosis scale standardized for the specific group of research participants.

Regardless of the mentioned points of criticism, it would nevertheless seem that hypnotic training programs do indeed have the potential to improve academic and study behavior on the part of students. South Africa is at a juncture in its history where the Government is committed to the improvement of academic performance at primary, secondary and tertiary level. New research and ideas in this regard are therefore welcomed. Against the background of the viewpoint that trance states form an integral part of the traditions of many cultural groups in Southern Africa, research on the effect of hypnosis on these specific cultures could bring interesting results to the forefront. In the process, for example, the effectiveness of different hypnotic techniques and especially a combination of traditional-Western and traditional-African techniques should be investigated. This could open a new field of research and clinical application in developing countries. Therefore, the request that further and more representative research should be carried out in this field, is not an unreasonable one.

References

- Aroaz, D.L. (1982). *Hypnosis and sex therapy*. New York: Brunner/Mazel.
- Aroaz, D.L. (1985). *The new hypnosis*. New York: Pergamon.
- Banyai, E.I. (1980). *A new way to induce a hypnotic-like altered state of consciousness: Active alert induction*. In L. Kardos, & Plçh, C. (Eds.), *Problems of the regulation of activity* (pp. 261-273). Budapest: Akadçmiai Kiadõ.
- Banyai, E., & Hilgard, E.R. (1976). A comparison of active-alert hypnotic induction with traditional relaxation induction. *Journal of Abnormal Psychology*, 85, 218-224.
- Banyai, E., Mezaros, I., & Greguss, A.C. (1983). Psychophysiological comparison of active-alert and traditional relaxation hypnosis. In R. Sinz, & M.R. Rosenzweig (Eds.), *Psychophysiology* (pp. 225-230). Amsterdam: Gustav Fischer and Elsevier Biomedical Press.
- Banyai, E.I., Zseni, A., & Tury, F. (1993). Active-alert hypnosis in psychotherapy. In J. Rhue, S.J. Lynn, & I Kirsch (Eds.), *Handbook of clinical hypnosis* (pp.271-291). Washington, DC: American Psychological Association.

- Barabasz, A. F. (1980). Effects of hypnosis and perceptual deprivation on vigilance in a simulated radar detection task. *Perceptual and Motor Skills*, 50, 19-24.
- Barabasz, A.F. (1982). Restricted environmental stimulation and the enhancement of hypnotizability. *International Journal of Experimental Hypnosis*, 30, 147-166.
- Barabasz, A.F. (1985). Enhancement of military pilot reliability by hypnosis and psychophysiological monitoring: In flight simulator data. *Aviation, Space and Environmental Medicine*, 24, 248-250.
- Barabasz, A.F., Barabasz, M., Jensen, S., & Calvin, D. (1999). Cortical event-related potentials show that the structure of hypnotic suggestions is crucial. *International Journal of Clinical and Experimental Hypnosis*, 47(1), 5-22.
- Barabasz, A., & Lonsdale, C. (1983). Effects of hypnosis on P300 olfactory evoked potential and electrodermal responses. *Abnormal Psychology*, 92, 520-525.
- Bar-Eli, M., Dreshman, R., Blumenstein, B., & Weinstein, Y. (2002). The effect of mental training with biofeedback on the performance of young swimmers. *Applied Psychology*, 51(4), 567-582.
- Barnier, A.J., & McConkey, K.M. (2001). Post hypnotic responding: The relevance of suggestion and test congruence. *International Journal of Clinical and Experimental Hypnosis*, 49(3), 207-219.
- Benson, H.J., Wilcher, M., Greenberg, B., Huggins, E., & Friedman, R. (2000). Academic performance among middle-school students after exposure to a relaxation response curriculum. *Journal of Research and Development in Education*, 33(3), 156-165.
- Bernstein, D.A., & Borkovec, T.D. (1973). *Progressive relaxation training: A manual for the helping professions*. Champaign, IL: Research Press.
- Boutin, G.E. (1990). Treatment of anxiety by rational stage directed hypnotherapy: A case study. *Australian Journal of Clinical Hypnotherapy and Hypnosis*, 10(2), 65-72.
- Brennan, C.V. (1997). *Two hypnotic procedures and their respective effects on test anxiety and academic performance*. Unpublished master's thesis, University of Stellenbosch, South Africa.
- Cikurel, K., & Gruzelier, J.A. (1990). The effect of an active-alert hypnotic induction on lateral asymmetry in haptic processing. In J.H. Gruzelier (Ed.), *A working model of neurophysiology of hypnotic relaxation* (pp.201-225). New York: Van Nostrand Reinhold.
- Cox, R.H. (1994). *Sport psychology: Concepts and implications*. Dubuque, IA: Brown and Benchmark.
- Crawford, H.J., Skolnick, B., Benson, D.M., Gur, R.E., & Gur, R.C. (1993). Effects of hypnosis on regional cerebral blood flow during ischemic pain with and without suggested hypnotic analgesia. *International Journal of Psychophysiology*, 15(3), 181-195.
- De Pascalis, V., Gheorghiu, V. A., Sheehan, P.W., & Kirsch, I. (2002). Suggestions and suggestibility: Theory and research. *Contemporary Hypnosis*, 19(3), 139-145.
- Diamond, M.J. (1989). The cognitive skills model: An emerging paradigm for investigating hypnotic phenomena. In N.P. Spanos, & J.F. Chaves (Eds.), *Hypnosis: The cognitive behavioral perspective* (pp. 380-399). Buffalo, NY: Prometheus Books.
- Egan, R.M., & Egan, W.P. (1969). The effect of hypnosis on academic performance. *American Journal of Clinical Hypnosis*, 11(1), 30-34.
- Fellows, B.J., & Richardson, J. (1993). Relaxed and alert hypnosis: An experimental comparison. *Contemporary Hypnosis*, 10(1), 49-54.

- Fritschholtz, E.J. (1996, August). *Clinical hypnosis research*. Paper presented at the 7th European Congress in Hypnosis, Budapest, Hungary.
- Gafner, G., & Benson, S. (2000). *Handbook of hypnotic inductions*. London: W.W. Norton.
- Golden, W.L., Dowd, E.T., & Friedberg, F. (1987). *Hypnotherapy: A modern approach*. New York: Pergamon Press.
- Gruzelier, J.H., Levy, J., Williams, J.D., & Henderson, D. (2001). Effect of self-hypnosis with specific versus non-specific imagery: Immune function, mood, health and exam stress. *Contemporary Hypnosis, 18*, 97-110.
- Hasegawa, H., & Jamieson, G.A. (2002). Conceptual issues in hypnosis research: Explanations, definitions and the state/non-state debate. *Contemporary Hypnosis, 19*(3), 103-117.
- Heimberg, R.G. (1994). Cognitive assessment strategies and the measurement of outcome of treatment for social phobia. *Behavior Research and Therapy, 32*, 269-280.
- Hill, T. (1998). Hypnosis in the treatment of learning difficulties in students. *Australian Journal of Clinical and Experimental Hypnosis, 26*(1), 65-71.
- Johnson, L.S., Johnson, D.L., Lamont, D., Olson, M.R., & Newman, J.P. (1981). The uses of hypnotherapy with learning disabled children. *Journal of Clinical Psychology, 37*(2), 291-299.
- Katz, N.W. (1979). Comparative efficacy of behavioral training, training plus relaxation, and sleep/trance hypnotic induction in increasing hypnotic susceptibility. *Journal of Consulting and Clinical Psychology, 47*, 119-127.
- Kelly, P.J. (1985). *The relationship between hypnotic ability and hypnotic experience*. Unpublished doctoral dissertation. University of Waterloo, Canada.
- Krippner, S. (1972). The use of hypnosis and the improvement of academic achievement. *Journal of Special Education, 4*(4), 451-460.
- Laidlaw, T.M., Naito, A., Dwivedi, P., Enzor, N.A., Brincar, C.E. & Gruzelier, J.H. (2003). Mood changes after self-hypnosis and Johre prior to exams. *Contemporary Hypnosis, 20*(1), 25-40.
- Lee, M. (2001). A comparison of transpersonal and physical stress reduction techniques in preparing students for entrance examinations in a Taiwan school. *Dissertation Abstracts International-Section A: Humanities and Social Sciences, 61*(7-A), 2594.
- Liebenberg, C. (1998). *Die invloed van wakkerbewussyn-hipnose op die akademiese prestasie van voorgraadse studente [The influence of active-alert hypnosis on the performance of undergraduate students.]* Ongepubliseerde magistertesis [Unpublished Masters dissertation], University of Stellenbosch, South Africa.
- Liebert, R.M., Rubin, N., & Hilgard, E.R. (1965). The effects of suggestions of alertness in hypnosis on paired-associated learning. *Journal of Personality, 33*, 605-612.
- Malott, J.M. (1984). Active-alert hypnosis: Replication and extension of previous research. *Journal of Abnormal and Social Psychology, 93*(2), 246-249.
- Melnick, J., & Russell, R.W. (1987). Hypnosis versus systematic desensitization in the treatment of test anxiety and academic performance using self-hypnosis. *Journal of Counselling Psychology, 23*(4), 291-295.
- Miller, M.M. (1979). *Therapeutic hypnosis*. New York: Human Sciences Press.
- Nel, P.W. (1993). Hypnosis for success in studies and examinations. *Hypnos SA, 3*(1), 1-9.
- Orlick, T., & McCaffrey, N. (1991). Mental training with children for sport and life. *Sport Psychologist, 5*(4), 322-334.
- Pates, J., & Maynard, I. (2000). Effects of hypnosis on flow states and golf performance. *Perceptual and Motor Skills, 91*, 1057-1075.

- Patrick, T., & Hrycaiko, D.W. (1998). Effects of a mental package on an endurance performance. *Sport Psychologist, 12*(3), 283-299.
- Paul, G.L. (1966). *Insight vs. desensitization in psychotherapy: An experiment in anxiety reduction*. Stanford, CA: Stanford University Press.
- Peter, B. (1996, August). *How to write a clinical hypnosis paper*. Paper presented at the 7th European Congress on Hypnosis, Budapest, Hungary.
- Potgieter, J.R. (1997). *Sportsielkunde: Teorie en praktyk*. [Sportpsychology: Theory and Practice.] Butterworth: Durban.
- Prezas, R. B. (1995). The effects of neurolinguistic programming on state-trait anxiety and academic performance using self-hypnosis. *Dissertation Abstracts International - Section A: Humanities and Social Sciences, 56*(5-A), 1715.
- Ritzman, T. (1995). Accidental hypnosis in scholastic achievement. *Medical Hypnoanalysis Journal, 9*(4), 149-157.
- Roban, W.A. (1999). Effects of individualized single-session imagery treatments on test anxiety and academic performance. *Dissertation Abstracts International - Section A. Humanities and Social Sciences, 59*(11-A), 4058.
- Sapp, M. (1991). Hypnotherapy and test anxiety: Two cognitive behavioral constructs. *Australian Journal of Clinical Hypnotherapy and Hypnosis, 12*(1), 25-31.
- Scheurkogel, R. (1992). *Kliniese hipnoterapie as fasiliterende faktor vir raseoneel-emotiewe terapie in die behandeling van eksamenangs* [Clinical hypnotherapy as facilitating factor for rational emotive therapy in the treatment of test anxiety.] Ongepubliseerde magistertesis [Unpublished masters dissertation], University of Stellenbosch, South Africa.
- Stein, C. (1963). The clenched-fist technique as hypnotic procedure in clinical psychotherapy. *American Journal of Clinical Hypnosis, 6*, 113-119.
- Tosi, D.J., Rudy, D.R., Lewis, J., & Murphy, M.A. (1992). The psychobiological effect of cognitive experiential therapy, hypnosis, cognitive restructuring and attention placebo control in the treatment of essential hypertension, *Psychotherapy, 29*, 274-284.
- Wang, L., Huddleston, S., & Peng, L. (2003). Psychological skill use by Chinese swimmers. *International Sports Journal, 7*(1), 48-55.
- Wark, D.M. (1996). Teaching college students better learning skills using self-hypnosis. *American Journal of Clinical Hypnosis, 38*(4), 277-286.
- Weinberg, R.S., & Gould, D. (1995). *Foundations of sport and exercise psychology*. New York: Braun-Brumfield.
- West, V. (2003). Hypnotic suggestibility and academic achievement. *Contemporary Hypnosis, 20*(1), 48-52.
- Wikström, P. (1996, August). *Outcome studies in hypnosis*. Paper presented at the 7th European Congress in Hypnosis, Budapest, Hungary.
- Wilson, S., & Barber, T.X. (1978). The Creative Imagination Scale as a measure of hypnotic responsiveness. *American Journal of Clinical Hypnosis, 20*(4), 235-249.
- Woods, S.J. (1988). Hypnosis as a means of achieving cognitive modification in the treatment of academic anxiety. *Australian Journal of Clinical Hypnotherapy and Hypnosis, 7*(2), 106-121.