Selected Alternative Training Techniques in HRD

C. W. Von Bergen, Barlow Soper, Gary T. Rosenthal, Lamar V. Wilkinson

Over the years a number of training techniques and procedures have been developed that are not part of the mainstream but are believed by some to have utility for organizations trying to enhance human performance. This article discusses four of these alternative techniques—subliminal self-help, mental imagery and practice, meditation, and Neurolinguistic Programming (NLP)—and examines the contributions of each from a scientific perspective. With the exception of mental practice, there is a paucity of data to demonstrate convincingly whether these alternative techniques promote or enhance individual or organizational effectiveness. It is concluded that effective professional practice depends on scientifically derived research results.

Training and development has historically been plagued by charlatans hawking this or that program or approach as having a significant positive impact on profits, effectiveness, absenteeism, turnover, and so on. Fads and techniques that come and go abound in this discipline: participation training is the style for a few years, then total quality management training surfaces; management by objectives comes and zero defects goes; T-groups are the darling of training professionals for a while; time management is "in" and job enrichment is "out"; Kepnor-Tregoe is popular for a time and then the one-minute manager takes its turn in the spotlight. Although these approaches are generally considered mainstream, others that have app eared are less traditional but also have significant followings proclaiming their effectiveness.

As a class, the latter techniques are considered extraordinary; they are developed outside of mainstream science and are accompanied by extreme claims for high effectiveness (Austin and Miller, 1992). These claims are often

Note: Correspondence concerning this article should be addressed to the first author at the Department of Management and Marketing, Southeastern Oklahoma State University, P.O. Box 4103, Durant, Oklahoma 74701–0609.

based on a handful of testimonials or individual cases instead of controlled experimentation and peer review of results.

An analogous situation has developed in medicine as a wide range of techniques known collectively as alternative medicine have gained increased emphasis. Some of these techniques have been around for hundreds, even thousands, of years; others, like biofeedback for example, are modern techniques that have filled useful niches alongside orthodox medicine. It is estimated that a third of American adults spent some $13.7 billion in 1996 on a bewildering array of such techniques as acupuncture, colonic irrigation, homeopathy, hypnotherapy, aromatherapy, Shiatsu massage, music therapy, naturopathy, herbal medicine, and therapeutic applications of electromagnetic fields (Langone, 1996). In 1996 the National Institutes of Health (NIH) classified alternative medicine as an unrelated group of nonorthodox therapeutic practices that often have explanatory systems that do not follow conventional biomedical explanations. NIH even created an Office of Alternative Medicine to facilitate the evaluation of alternative medical treatment modalities in order to determine their effectiveness, educate the conventional scientific biomedical community in alternative medical treatment, and help integrate treatments into mainstream medical practice.

Although no governmental office has been established to investigate alternative performance enhancement practices in business and industry, this paper reviews the validity and potential effectiveness of several alternative training and development performance enhancement techniques. The list is not meant to be exhaustive, but it represents a sample of currently popular techniques gleaned from the management training and development literature (Druckman and Bjork, 1991). These techniques were deemed worthy of investigation by the National Research Council (Druckman and Bjork, 1991; Druckman and Swets, 1988) and were described as offering "the potential to accelerate learning, improve motor skills, alter mental states, reduce stress" (Druckman and Bjork, 1991, p. vii), among other positive claims. Following NIH's definition of alternative medical practices, we classify these alternative training and development techniques as an unrelated group of nonorthodox, individual or organizational performance enhancement practices, often with explanatory systems that do not follow conventional scientific explanations. Literally dozens of such practices could be reviewed.

The current article critically examines four popular techniques of this nature: subliminal self-help, mental practice, meditation, and Neurolinguistic Programming. As for subliminal self-help, it has been estimated that over two thousand companies produce subliminal materials and that they generate over $50 million in annual sales ("Sound," 1990). Regarding the use of mental practice, Driskell, Copper, and Moran (1994) and Whetstone (1995) have noted that, though popularized in sports, mental practice is increasingly favored by business and other organizations. It has been stated that numerous organi-

zations use meditation, including USA Global Link and Telegroup, Inc. (Schmidt-Wilk, Alexander, and Swanson, 1996). And, in their book, O'Connor and Seymour (1990) list over eighty training organizations in the United States using Neurolinguistic Programming. Together, the four techniques represent some of the more popular alternative approaches to performance enhancement. It is not unusual to talk with someone who uses one of them or knows of someone or some business that does.

The purveyors of these methods often make extreme claims for their techniques, yet generally do not document controlled results to justify such claims. According to Rosen (1993), psychological self-help is big business, and many practitioners rush to market with exaggerated product claims. Sometimes they rationalize their actions by saying they "know" their interventions work because they have seen it.

Finally, these four were selected for study because they have been widely touted and sold to business, industry, and government (Druckman and Bjork, 1991) and have received considerable attention in the popular press.

Subliminal Self-Help Products

Build self-confidence! Lose weight! Reduce pain! Quit smoking! Speak effectively! Read faster! Improve memory! These are but a few of the subliminal programs available to assist individuals in improving some aspect of their lives. According to Oldenburg (1990), about two thousand individuals or companies in the United States and Canada produce subliminal self-help products with retail sales estimated at $50 million annually. The subliminal industry is significant and, by most accounts, getting bigger (McGarvey, 1989; Natale, 1988; Oldenburg, 1990).

Subliminal is defined as below the threshold of consciousness. Typically what happens is that messages are hidden visually—presented for about one-sixtieth of a second—in a videotape (Smith, 1993) or auditorily—average signal-to-noise ratios of −10 to −20db—in an audiotape (Bordon and Harris, 1984). The messages suggest improvement in a selected area. The premise underlying subliminal stimulation is that a person can effortlessly accomplish in a short time what others struggle but fail to do in a lifetime, hence making these mass-marketed tapes very attractive. For example, Gateways Institute's audiotapes advertise: "Subliminal tapes work, so you don't have to. . . . Simply play the tapes while you work, play, drive, read, exercise, relax, watch TV, or even as you sleep. No concentration is required for the tapes to be effective. They work whether you pay attention to them or not" (Druckman and Bjork, 1991, pp. 107–8).

Audiotapes appear to be the most popular subliminal approach (Merikle and Skanes, 1992). Most of the commercially available subliminal audiotapes have a similar format. When the tapes are played, all that a listener consciously

perceives are background sounds, such as music or ocean waves with the occasional cricket or seagull. Although each company's tapes contain a unique mix of background sounds, different tapes produced by the same company are often indistinguishable. Presumably, what separates the many different tapes produced by each company are the embedded subliminal messages that are impossible for a listener to hear consciously in the context of the background.

Do these tapes work? In a word, no. A comprehensive review of the subliminal self-help literature conducted by the Committee on Techniques for the Enhancement of Human Performance of the National Research Council (Druckman and Bjork, 1991) unequivocally concluded that there is neither theoretical foundation nor experimental evidence to support claims that subliminal self-help tapes enhance human performance. Remarkably, a number of studies are very clear in demonstrating the *ineffectiveness* of subliminal tapes in modifying a wide range of behavior (Auday, Mellett, and Williams, 1991; Greenwald, Spangenberg, Pratkanis, and Eskenazi, 1991; Merikle and Skanes, 1992; Russell, Rowe, and Smouse, 1991).

These findings fly in the face of the positive testimonials given by individuals using the tapes, but there are several reasons to question the conviction that subliminal suggestions are in any way responsible for, or even play a part in, any self-perceived behavioral improvements. In the first place, by buying and using a subliminal self-help product, an individual demonstrates not only a desire for personal enhancement but also a commitment to change his or her ways. The very act of making such a commitment, of mobilizing oneself into action, may be therapeutic in its own right, in much the same way that some people realize marked improvements in behavior after they register for, but before they receive, psychotherapy (Rachman and Wilson, 1990). For these and other reasons testimonials are not accepted evidence by any science (Stanovich, 1996).

A second, related reason that subliminal tapes may seem to have beneficial effects has to do with the social psychological phenomenon of effort justification; that is, the harder we work at something, the more we like it (Penrod, 1983). After spending money to buy a subliminal tape and using it daily for several weeks many people would be reluctant to admit to themselves or to others that they had wasted their money and time. They would instead be motivated to detect any sort of change in some aspect of their lives in order to rationalize their purchase (Conway and Ross, 1984).

A third reason for attributing positive effects to subliminal tapes relates to expectancy effects, as clearly demonstrated by Pratkanis, Eskenazi, and Greenwald (1990; see also Greenwald, Spangenberg, Pratkanis, and Eskenazi, 1991). These researchers recruited individuals through a newspaper advertisement soliciting volunteers who were especially interested in subliminal self-help tapes and thus were likely to resemble the people most likely to purchase such products. On the first day of the study, the participants completed tests measuring their self-esteem and memory ability. They were then given a commer-

cially available tape either for improving self-esteem or for enhancing memory. The intriguing aspect of this study was that only half of the individuals, selected randomly, actually got the tape they thought they were getting while one-quarter received the memory enhancement tape mislabeled as the one to improve self-esteem and one-quarter received the self-esteem tape mislabeled memory enhancement.

The participants took their tapes home and listened to them for five weeks, as recommended by the manufacturer, and then returned to the experimenters who once again tested their self-esteem and memory. Although no differences were found—either positive or negative—on any measure of self-esteem or memory, many study participants believed and reported otherwise. Approximately half of those who thought they had received the self-esteem tape, regardless of whether they had actually received it, stated that their self-esteem had risen; similarly, about half of those who presumed correctly or not that they had received the memory tape asserted that their memory had improved as a result of listening to it. The title of the Pratkanis, Eskenazi, and Greenwald (1990) investigation—"What you expect is what you believe, but not necessarily what you get"—seems fitting.

In summary, a critical review of subliminal self-help training clearly demonstrates that this alternative technique to enhance human performance is not effective.

Mental Practice

A second alternative training and development technique is mental practice. Mental practice refers to cognitive rehearsal of a task in the absence of overt physical movement. When a musician practices a passage by thinking it through or when an athlete prepares for an event by visualizing the steps required to perform the task successfully, he or she is engaging in mental practice. Richardson provided the standard definition of mental practice as "the symbolic rehearsal of a physical activity in the absence of any gross muscular movements" (1967, p. 95). Such techniques also have been called *imaginary practice* (Perry, 1939), *covert rehearsal* (Corbin, 1967), *symbolic rehearsal* (Sackett, 1934), and *introspective rehearsal* or *conceptualization* (Egstrom, 1964).

In these studies, individuals are typically instructed to sit quietly, not move, and see themselves performing the task successfully from start to finish. Usually a control (no practice) group is included, as well as a group that actually practices the task physically. At a given period following the mental practice or physical practice sessions, actual performance is assessed. If the performance of the mental practice subjects exceeds that of the control subjects, mental practice is said to have a positive effect on enhancing performance.

Does mental practice really enhance performance? An excellent study by Driskell, Copper, and Moran (1994) addressed this question. These researchers conducted a comprehensive analysis of the literature on mental

practice to determine the effect of mental practice on performance and identify conditions under which it is most effective. Results indicated that it has a positive moderate but significant effect on performance, and that its effectiveness is a function of the type of task, the retention interval between practice and performance, and the length or duration of the mental practice intervention.

More specifically, Driskell, Copper, and Moran found that mental practice is an effective means for enhancing performance. However, the data indicated that mental practice is less effective than overt physical practice. The authors suggested that this finding is not altogether surprising given what mental practice provides and what it does not. Mental practice offers the opportunity to rehearse behaviors and to code behaviors into easily remembered words and images to aid recall. Mental practice does not offer direct knowledge of results or visual and tactile feedback. Statistically, mental practice accounted for less than 7 percent of the variance in performance. Though this may not sound like much, how many of us would be thrilled with an increase in profits of nearly 7 percent? It might mean the difference between keeping a job or being asked to move on.

Second, Driskell, Copper, and Moran found that type of task is a significant moderator of the effectiveness of mental practice. Not surprisingly, the effect of mental practice on performance is stronger the more the task involves cognitive elements (for example, observing, reading, problem solving) as opposed to physical elements (exerting force, applying speed and power, maintaining balance). But even though mental practice is better suited to tasks that are cognitively laden, it can produce significant effects in a wide range of tasks, from determining volumetric analyses of chemical substances (Beasley, 1978) to welding (Hackler, 1971).

Third, the positive effect of mental practice on performance declines over time. Driskell, Copper, and Moran found that after approximately two weeks the beneficial effects of mental practice are reduced to one-half of their original magnitude, and after approximately three weeks the increase in performance due to mental practice substantially dissipates. These estimates provide practical guidelines for implementing mental practice: to gain maximum benefits of mental practice, one should implement refresher training on at least a one- to two-week schedule.

Fourth, these researchers found that experienced people benefitted equally well from mental practice, regardless of task type. Novice subjects benefitted more from mental practice on cognitive tasks than on physical tasks. This result is consistent with Ryan and Simons' (1983) argument that if an experienced individual has already learned the component motor skills of a physical task then mental practice may be sufficient to enhance performance without additional physical practice and feedback. But for novices, who have not formed an approximation of the skill, the symbolic rehearsal provided by mental practice

may not be sufficient to guide performance. This suggests that mental practice may be more effective, everything else held constant, if novice subjects are given schematic knowledge before mental practice of a physical task.

Finally, Driskell, Copper, and Moran (1994) established that more mental practice is not necessarily better. They suggested that approximately twenty minutes total duration may be an optimal mental practice intervention. This is consistent with many researchers who have held that extended mental practice may lead to a loss of concentration and that there is an optimal length for such interventions. For example, Corbin (1972, p. 106) argued that "relatively short" practice sessions are optimal.

In summary, it appears that mental practice is a moderately effective means for enhancing performance in some circumstances, though it is less effective than physical practice for some people. Thus, for dangerous tasks, tasks in which there are seldom opportunities for physical practice, or as a means of supplementing normal training, mental practice should be considered as a training alternative.

Meditation

A third technique is meditation. Although for many people meditation conjures up visions of magic carpets and long-haired yogis sitting on mountaintops, it has been scientifically defined as a class of techniques designed to influence an individual's consciousness through the regulation of attention (Druckman and Bjork, 1991). Meditation typically requires that people lie quietly or sit in a particular position; attend to their breathing; adopt a passive attitude; be at ease; and, frequently, repeat aloud or to themselves a monosyllabic word, phrase, or sound, referred to as a mantra, typically for twenty minutes a day, twice a day, morning and evening.

Usually, meditation is viewed as a relaxation technique that can be used to cope with existing stress or prevent stress from occurring. But it can function in other ways. The popularity of meditation is a relatively recent phenomenon in the United States, although forms of meditation have been practiced in many Eastern countries for centuries. Meditation is an altered state of consciousness in which the individual may try to increase awareness and achieve bodily relaxation as well as relaxation of the mind (Benjamin, Hopkins, and Nation, 1994). Most types of meditation can be placed in one of two classes. *Opening-up meditation* requires the subject to achieve a clear mind by eliminating all thoughts and thus becoming especially receptive to new experiences. In *concentrative meditation*, the person focuses attention intensively on a single sound, idea, object, or action of the body, such as breathing (Naranjo and Ornstein, 1977).

Meditation originated in religious settings. Meditation and contemplation in the Jewish tradition allowed the concentration necessary for reading and

interpreting the Torah. This practice also runs through Indian religious history as far back as the third millennium B.C. (Bloomfield and Kory, 1976). One meditation technique, Transcendental Meditation (TM), was introduced to the United States in 1959 by the Indian teacher Maharishi Mahesh Yogi. It is by far the best known and most often practiced of the various approaches to meditation. Maharishi chose to use the term "transcendental," meaning "going beyond," to signify that TM takes one beyond normal wakeful experience to a state of restfulness that is also characterized by a heightened sense of alertness (Adeste, 1979).

TM creates an opportunity to disengage briefly from the unending cascade of thoughts, emotions, sensations, and perceptions. The meditator experiences quiet levels of the mind while becoming increasingly aware of the unbounded nature of this awareness in the absence of objects. This rest offers the opportunity for a variety of spontaneous and regenerative changes throughout the entire nervous system (Denniston and McWilliams, 1975).

A number of claims have been made for the benefits of meditation, including elimination of depression and anxiety, greater resistance to fatigue, improved sexual potency, greater creativity, stronger social skills, and better mental efficiency. More relevant to business, meditation advocates (for example, Gordon, 1991; Kory, 1976; Schmidt-Wilk, Alexander, and Swanson, 1996) claim that executives and employees work together more effectively and accomplish greater productivity after commencing meditation, that productivity and sales dollars per employee almost double, and that some organizations have indicated that meditation programs generated so much enthusiasm that additional courses were opened to all executives and employees. Nice to say, wonderful to hear, but such assertions and testimonials are not scientifically rigorous and do not warrant confidence.

The problem, from a scientific perspective, concerns proper experimental controls. Controls for distraction or for just sitting or lying quietly and undisturbed are seldom found in the studies that demonstrate such positive benefits as reduction in respiration and heart rate and in experience of stress, anxiety, or anger (Cheaper and Giber, 1978; Delmonte, 1985). Indeed, when a resting-only control group is present, there is no evidence that reductions in heart rate, respiration rate, skin conductance fluctuations, or blood pressure are any less for that group than for experienced meditators (Holmes, 1984). In other words, resting in bed for twenty minutes produces the same reduction in somatic arousal as engaging in twenty minutes of meditation. There are also some reports of benefits in blood pressure reduction for borderline hypertensives (for example, Benson, 1975; Patel, 1973), but in most studies combined use of other techniques, such as relaxation, precludes clear attribution of any positive effects to meditation alone (Delmonte, 1984, as cited in Brener and Connally, 1986).

As for the highly publicized feats of some yogis who can remain buried for many hours without suffocating, for example, these are probably due not to

any special properties of meditation but rather to these individuals' confidence in their ability to slow down their respiration rate as well as their faith that they can survive the ordeal if only they do not panic (Druckman and Bjork, 1991). Or the reports may simply be fraudulent, like the repeated claims of yogi levitation (Stein, 1989).

Finally, two reviews of meditation research (Brener and Connally, 1986; Druckman and Bjork, 1991) found that in scientifically controlled studies meditation does not reduce somatic arousal any more than does simply resting quietly. In summary then, it must be concluded that there is no scientific evidence to support the unique benefits attributed to meditation by its promoters, who appear to be more concerned with demonstrations of the experience than with experimental evaluations of the procedure.

Neurolinguistic Programming

"Double your chances of success: A powerful new psychological technique called NLP can help us get what we really want—and need—out of life" (Robert Harding Syndications, 1995, p. 69).

"Cure phobias and other unpleasant feeling responses in less than an hour . . . cure many physical problems—not only most of those recognized as 'psychosomatic'" (Stevens, 1979, p. ii).

"The most powerful and effective technology in human communication and change" (brochure, Jacobson, 1995, no page numbers).

Extraordinary claims, to be sure, but these are but a few of those being espoused for Neurolinguistic Programming (NLP), the final alternative training and development technique we will review in this article. NLP is a system of procedures that purports to enable people to increase their effectiveness in communicating with and influencing others. It was developed in the 1970s by Bandler and Grinder (for example, 1975; also Bandler and Grinder, 1979; Grinder and Bandler, 1976). Training in NLP is usually provided via workshop format; the third quote above is actually from a brochure advertising one such training opportunity.

NLP was derived through observations of three psychotherapists who Bandler and Grinder judged to be particularly effective and was formulated as a means of understanding and facilitating similarly high levels of interaction in others. NLP is founded on the idea that people communicate from a limited number of sensory-oriented representational systems. A representational system is a person's typical, usual, and preferred way of interacting with the world. Some people are visually oriented, others are sound oriented, and still others are feeling oriented. When a person uses language that ties into the representational system used by another, that person is supposed to feel more understood and, ultimately, to be more easily influenced. Examples include statements like "I *see* what you mean" when conversing with a visually oriented person, "It *sounds* to me like. . . ." when communicating with a

hearing-oriented individual, and "I *feel* we should. . . ." when speaking with a kinesthetically oriented person. Thus, each phrase uses a verb linked to one of the representational modalities. One can cue off the words and match the other's system with one's replies or monitor the direction of eye movement, which is the most noteworthy nonverbal indication of an individual's preferred representational system.

Bandler and Grinder said that these eye movements are remarkably fixed and that certain directions consistently correspond to the three representational orientations, as well as to certain thought processes, information recall, or image construction. Through NLP training it is stated that individuals can gain proficiency at identifying representational modes and use both that knowledge and an understanding of thought processes to establish high levels of interpersonal competency via language that mirrors others' modes, that is, using the same sensory terms. But more importantly, applying this information via specific techniques like "anchoring" and "reframing," it is said that a person also can readily and to a significant degree influence or direct another person's thoughts, feelings, and opinions.

Three questions should be asked of NLP. Is it based on knowledge of how the neurological and perceptual systems work? Do the proposed relationships among NLP variables exist? And does NLP produce the results it claims? In relating NLP to current understandings of neurology and perception, Druckman and Swets (1988) and others (Bertelsen, 1987) believe NLP to be in error. Instead of being grounded in contemporary, scientifically derived neurological theory, NLP is based on outdated metaphors of brain functioning and is laced with numerous factual errors (Druckman and Swets, 1988).

Bandler and Grinder stated that they were not interested in establishing scientific validation of NLP but instead intended to portray what works. Hence, the authors only present anecdotal and testimonial data to support their suppositions and the relationships among NLP variables and concepts. Even an elementary text on scientific method (for example, Stanovich, 1996) details the myriad pitfalls of such a methodology and describes its irrelevance to legitimate theory building. Where controlled studies have been performed attempting to test NLP hypotheses—like the proposed relationship between eye movement direction and representational system—they consistently have failed to do so (for example, Bliemeister, 1988). Bradley and Heinz-Joachim (1985) summarized that NLP is limited by a lack of supportive empirical evidence and is too simplistic to account for verbal behavior adequately.

Finally, in a meta-analysis and a follow-up investigation of controlled studies examining the effectiveness of NLP in influencing others, Sharpley (1984, 1987) stated that matching representational systems to eye movements has no effect. Similarly, Druckman and Swets (1988), in their evaluation of NLP for the National Research Council, concluded "there is little or no evidence to date to support either NLP assumptions or NLP effectiveness" (p. 143). The most telling commentary on NLP may be that in the latest revision of his text on

enhancing human performance, Druckman (Druckman and Bjork, 1991) omitted all references to Neurolinguistic Programming.

Concluding Remarks

A key goal of HRD is to optimize individual, team, and organizational performance (Gilley and Eggland, 1989). To survive and prosper, organizations are interested in enhancement of human performance and are willing to pay handsomely for a competitive advantage. This is reflected in the American Society for Training and Development's finding that employers in 1995 (most recently available figures) spent $55.3 billion on HRD activities in the United States, an increase of 20 percent (adjusted for inflation) over 1983 ("Trends," 1996). With such funding available it is inevitable that a multitude of approaches will be offered to businesses. Some of these techniques have been and will continue to be developed outside of mainstream, scientific research contexts. And frequently these methods are accompanied by claims of extreme effectiveness.

We identified four alternative training techniques that have been widely touted and sold to government and industry: subliminal stimulation, mental practice, meditation, and NLP. Finding that the claims made for three of these techniques, mental practice being the exception, did not stand up to scientific scrutiny, we encourage HRD professionals to guard against substituting testimonials and popularity in the marketplace for research evidence when they consider a new training aid. Effective, professional HRD practice depends on having and using objective research evidence to guide evaluation. One should question how practice, and the field of HRD, can advance when such training techniques are used if the research is not present.

As is the case with any product that comes with extraordinary claims, it is the buyer's responsibility to be skeptical and cautious when weighing the effectiveness of nontraditional training and development products. As we indicated, some products or techniques may be useful, if in limited contexts, while others may be of little value. The only way to discern which is which is by using the scientific method and relying on formal experimental methodology instead of the testimonials or marketing hype typically used by proponents of alternative training and development strategies.

References

Adeste, J. E. (1979). *Managing stress.* New York: AMAZON.

Auday, B. C., Mellett, J. L., & Williams, P. M. (1991, Apr.). *Self-improvement using subliminal self-help audiotapes: Consumer benefit or consumer fraud?* Paper presented at the 71st annual meeting of the Western Psychological Association, San Francisco.

Austin, S., & Miller, L. (1992). An empirical study of the SyberVision golf videotape. *Perceptual and Motor Skills, 74,* 875–881.

Bandler, R., & Grinder, J. (1975). *The structure of magic.* Vol. I. Palo Alto, CA: Science and Behavior Books.

Bandler, R., & Grinder, J. (1979). *Frogs into princes: Neurolinguistic Programming.* Moab, UT: Real People Press.

Beasley, W. F. (1978). The effect of physical and mental practice of psychomotor skills on chemistry student laboratory performance (Doctoral dissertation, University of Maryland, College Park, 1978). *Dissertation Abstracts International, 39,* 5428.

Benjamin, Jr., L. T., Hopkins, J. R., & Nation J. R. (1994). *Psychology.* (3rd. ed.) New York: Macmillan.

Benson, H. (1975). *The relaxation response.* New York: Morrow.

Bertelsen, P. (1987). The client's model of the world. *Psyke und Logos, 8,* 375–408.

Bliemeister, J. (1988). Empirical verification of the central theoretical constructs of Neurolinguistic Programming (NLP). *Zeitschrift fur Klinische Psychologie. Forschung und Praxis, 17 (1),* 21–30.

Bloomfield, M. D., & Kory, R. B. (1976). *Happiness: The TM program, psychiatry, and enlightenment.* New York: Dawn Press.

Bordon, B., & Harris, K. S. (1984). *Speech science primer: Physiology, acoustics, and perception of speech.* (2nd ed.) Baltimore, MD: Williams & Wilkins.

Bradley, E. J., & Heinz-Joachim, B. (1985). Bandler and Grinder's Neurolinguistic Programming: Its historical context and contribution. *Psychotherapy, 22,* 59–62.

Brener, J., & Connally, S. R. (1986). *Meditation: Rationales, experimental effects, and methodological issues.* Paper prepared for the U.S. Army Research Institute for the Behavioral and Social Sciences, European Division. Department of Psychology, University of Hull, London, England.

Cheaper, D. M., & Giber, D. (1978). Meditation and psychotherapeutic effects. *Archives of General Psychiatry, 35,* 294–302.

Conway, M., & Ross, M. (1984). Getting what you want by revising what you had. *Journal of Personality and Social Psychology, 47,* 738–748.

Corbin, C. B. (1967). Effects of mental practice on skill development and controlled practice. *Research Quarterly, 38,* 534–538.

Corbin, C. B. (1972). Mental practice. In W. P. Morgan (Ed.), *Ergogenic aids and muscular performance* (pp. 93–118). San Diego, CA: Academic Press.

Delmonte, M. M. (1985). Meditation and anxiety reduction. *Clinical Psychology Review, 5,* 1–12.

Denniston, D., & McWilliams, P. (1975). *The TM book: How to enjoy the rest of your life.* Allen Park, MI: Three Rivers Press.

Driskell, J. E., Copper, C., & Moran, A. (1994). Does mental practice enhance performance? *Journal of Applied Psychology, 79,* 481–492.

Druckman, D., & Bjork, R. A. (Eds.). (1991). *In the mind's eye: Enhancing human performance.* Washington, DC: National Academy Press.

Druckman, D., & Swets, J. A. (Eds.). (1988). *Enhancing human performance: Issues, theories, and techniques.* Washington, DC: National Academy Press.

Egstrom, G. H. (1964). Effects of an emphasis on conceptualizing techniques during early learning of a gross motor skill. *Research Quarterly, 35,* 472–481.

Gilley, J. W., & Eggland, S. A. (1989). *Principles of human resource development.* Reading, MA: Addison-Wesley.

Gordon, J. S. (1991, May). The inner life. *The Atlantic, 267,* 115–122.

Greenwald, A. G., Spangenberg, E. R., Pratkanis, A. R., & Eskenazi, J. (1991). Double-blind tests of subliminal self-help audiotapes. *Psychological Science, 2,* 119–122.

Grinder, J., & Bandler, R. (1976). *The structure of magic.* Vol. II. Palo Alto, CA: Science and Behavior Books.

Hackler, C. M. (1971). An experimental study of the relative effectiveness of physical and mental practice on the learning and retention of a selected motor task (Doctoral Dissertation, University of Maryland, College Park, 1971). *Dissertation Abstracts International, 32,* 5584.

Holmes, D. S. (1984). Meditation and somatic arousal reduction: A review of the experimental evidence. *American Psychologist, 39,* 1–10.

Jacobson, S. (1995). *What can NLP do for you?* [Brochure]. Mandeville, LA: SCINL.

Kory, R. D. (1976). *The transcendental meditation program for business people.* New York: American Management Association.

Langone, J. (1996). Alternative therapies: Challenging the mainstream. *Time* (fall special issue), 40–43.

McGarvey, R. (1989, Feb.). Recording success. *USAir Magazine,* 94–102.

Merikle, P. M., & Skanes, H. E. (1992). Subliminal self-help audiotapes: A search for placebo effects. *Journal of Applied Psychology, 77,* 772–776.

Naranjo, C., & Ornstein, R. E. (1977). *On the psychology of meditation.* New York: Penguin.

Natale, J. A. (1988). Are you open to suggestion? *Psychology Today, 22,* 28–30.

O'Connor, J., & Seymour, J. (1990). *Introducing Neurolingistic Programming: The new psychology of personal excellence.* London: Crucible.

Oldenburg, D. (1990, Apr. 5). Hidden messages. *Washington Post,* p. C5.

Patel, C. (1973). Yoga and biofeedback in the management of hypertension. *Lancet, 2,* 1053–1055.

Penrod, S. (1983). *Social psychology.* Englewood Cliffs, NJ: Prentice-Hall.

Perry, H. M. (1939). The relative efficiency of actual and imaginary practice in five selected tasks. *Archives of Psychology, 4,* 5–75.

Pratkanis, A. R., Eskenazi, J., & Greenwald, A. G. (April, 1990). *What you expect is what you believe, but not necessarily what you get: On the effectiveness of subliminal self-help audiotapes.* Paper presented at the annual convention of the Western Psychological Association, Los Angeles.

Rachman, S. J., & Wilson, G. T. (1990). Using direct and indirect measures to study perception without awareness. *Perception and Psychophysics, 44,* 563–575.

Richardson, A. (1967). Mental practice: A review and discussion, Part 1. *Research Quarterly, 38,* 95–107.

Robert Harding Syndications. (1995, Oct. 16). Double your chances of success. *First,* 69–73.

Rosen, G. (1993). Self-help or hype: Comments on psychology's failure to advance self-care. *Professional Psychology: Research and Practice, 24,* 340–345.

Russell, T. G., Rowe, W., & Smouse, A. D. (1991). Subliminal self-help tapes and academic achievement: An evaluation. *Journal of Counseling and Development, 69,* 359–362.

Ryan, E. D., & Simons, J. (1983). What is learned in mental practice of motor skills: A test of the cognitive-motor hypothesis. *Journal of Sport Psychology, 5,* 419–426.

Sackett, R. S. (1934). The influence of symbolic rehearsal upon the retention of a maze habit. *Journal of General Psychology, 10,* 376–395.

Schmidt-Wilk, J. Alexander, C. N., & Swanson, G. C. (1996). Developing consciousness in organizations: The transcendental meditation program in business. *Journal of Business and Psychology, 10,* 429–444.

Sharpley, C. F. (1984). Predicate matching in NLP: A review of research on the preferred representation system. *Journal of Counseling Psychology, 31,* 238–248.

Sharpley, C. F. (1987). Research findings on Neurolinguistic Programming: Nonsupportive data or an untestable theory? *Journal of Counseling Psychology, 34,* 103–107.

Smith, T. B. (1993). Effects of subliminal stimuli on unconscious processing of anxiety: An examination of implicit perception. *Perceptual and Motor Skills, 77,* 899–904.

Sound too good to be true?: Behind the boom in subliminal tapes. (1990, July 30). *Newsweek, 116,* 60–61.

Stanovich, K. E. (1996). *How to think straight about psychology.* (4th ed.) New York: HarperCollins.

Stein, H. F. (1989). The influence of psychogeography upon the conduct of international relations: Clinical and metapsychological considerations. In H. F. Stein and W. G. Niederland (Eds.), *Maps from the mind: Readings in psychogeography* (pp. 181–207). Norman: University of Oklahoma Press.

Stevens, J. O. (1979). Foreword. In R. Bandler & J. Grinder (Eds.), *Frogs into princes: Neurolinguistic Programming* (p. ii). Moab, UT: Real People Press.

Trends. (1996, Nov.). *Training and Development, 50* (11), 8.

Whetstone, T. S. (1995). Enhancing psychomotor skill development through the use of mental practice. *Journal of Industrial Teacher Education, 32*, 5–31.

C. W. Von Bergen is associate professor, Department of Management and Marketing, Southeastern Oklahoma State University, Durant.

Barlow Soper is professor, Department of Psychology and Behavioral Sciences, Louisiana Tech University, Ruston.

Gary T. Rosenthal is associate professor, Department of Psychology and Counselor Education, Nicholls State University, Thibodaux, Louisiana.

Lamar V. Wilkinson is associate professor of education, Department of Psychology and Behavioral Sciences, Louisiana Tech University, Ruston.