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Subliminal Tapes

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In September of 1957 public outrage followed the disclosure that movie audiences had been covertly manipulated by invisible messages exhorting them to "Drink Coca-Cola" and "Eat popcorn". Minds had been "broken and entered" said the New Yorker. Although there was never any good evidence for these claims of surreptitious control the myth of subliminal persuasion proved very durable. In the 1980's self-help audio tapes that promised to induce dramatic improvements in mental and psychological health began to appear in bookstores. These devices were widely advertised as being able to produce many desirable effects, including weight loss, breast enlargement, improvement of sexual function, and relief from constipation. The tapes shared a common format in that the only consciously perceivable sounds on the tapes consisted of music, ocean waves, and the occasional bird cry. The intended therapeutic effects were purportedly brought about by the unconscious (i.e., 'subliminal') perception of messages and directives contained on the tapes.

Subliminal tapes represented a change in modality from visual to auditory, and they were ostensibly being exploited for more noble purposes, inasmuch as they were being touted as a form of psychotherapy -- clearly a less crass

objective than that of covert advertising. Regrettably however, there is no scientific evidence to support their utility.

Two methods have been used for testing the efficacy of subliminal tapes. Since the tapes are designed to bring about improvements of various kinds, the most obvious means of appraising effectiveness was to look for evidence of improved functioning or enhanced performance. In an innovative study by Pratkanis et al. (1994) participants listened daily for five weeks to tapes designed to improve either self-esteem or memory. Unbeknownst to the subjects, half of them received tapes that were mislabeled. That is, half the subjects with self-esteem tapes actually listened to tapes designed to improve memory. Similarly half the subjects who thought they had memory tapes were really listening to self-esteem tapes. Pre- and post-test measures of both self-esteem and memory revealed that no improvements in either domain of functioning were achieved by using the tapes. Interestingly, participants *believed* that they had benefited from the tapes in a manner consistent with the tapes' labels (and with the manufacturers' claims), even though objective measures showed no such improvements. The investigators thus obtained what they called an *illusory placebo effect*. Participants' expectations of improvement appear to have created the illusion of improvement, even though there was no actual improvement.

Merikle and Skanes (1992) evaluated subliminal weight loss tapes by recruiting overweight subjects who had a desire to lose weight, and who also believed that such tapes could help. Some participants were assigned to a

placebo condition in which tapes identical to those in the weight loss condition were used, with the exception that the subliminal affirmations pertained to dental anxiety as opposed to weight loss. The appearance, packaging, and supraliminal materials on the placebo tapes were otherwise indistinguishable from the weight loss tapes. Another group of subjects were assigned to a 'wait list control' condition. All subjects were weighed once a week for five weeks. Subjects in all three groups lost about a pound over the five weeks, with no evidence of subliminal influences or of placebo effects. It is possible that simply participating in the study made subjects more conscious of weight-related issues. Other investigators have found no evidence that subliminal tapes can improve study skills or reduce anxiety.

Another means of appraising the scientific validity of these devices entails an assessment of the nature of the subliminal auditory signal they contain. Proponents seem to have assumed that for obtaining subliminal effects one modality is as good as another. Claims about the utility of subliminal tapes are thus essentially claims about the subliminal perception of speech. It is not obvious what the analogue to visual masking is for a speech signal. Masking, in the visual domain, is procedurally defined with relative precision. The mask does not impair or change the target stimulus, it simply limits the time available for processing the preceding target. In the absence of the mask, the target is easily perceived.

The target messages on subliminal tapes (assuming that they are present at all) are reduced in volume and further attenuated by the superimposition of

other supraliminal material. The problem is that in the process of prohibiting conscious awareness of the signal, the signal itself can easily become mutilated, if not eradicated. Sometimes the subliminal "message" is accelerated or compressed to such a degree that the message would be unintelligible even if it were clearly audible.

One study showed that there was no spectrographic evidence of any speech signals on the tapes from one of the subliminal tape companies. Another study showed that listeners were unable to distinguish a subliminal tape from a placebo control in a forced-choice task. This presence/absence discrimination required a 'placebo' tape which was identical to its companion subliminal tape but without any subliminal message. Similarly Moore (1995) used matched pairs of audiotapes from three different manufacturers. Tapes in each pair were identical, except for the nature of the ostensible subliminal messages they contained. In the course of 400 forced choice trials, subjects could not discriminate between tapes containing allegedly different subliminal messages. Taken together, these data show that little or no perceptual activity is triggered by the subliminal content of the tapes tested. It should not, therefore, surprise us that no therapeutic effects have been obtained by any of the evaluation studies mentioned above. Moreover, the signal detection data suggest that there could never be therapeutic benefits from such devices because they do not appear to contain a signal that is capable of triggering the requisite semantic processing that practical benefits would require. Recent research (Kouider & Dupoux, 2005) has shown that speech perception in the absence of conscious awareness is

possible, although the nature of the effect did not extend to semantic activation. Semantic priming was achieved only when the prime stimuli were available to consciousness.

Psychological self-help is big business and many psychologists rush to market with exaggerated product claims. Subliminal tapes constitute a paradigmatic example. Not all proponents of these devices were unabashed quacks, however advocates were almost invariably associated with their sale. Because semantic activation without conscious awareness was a well-established phenomenon, some observers apparently jumped to the conclusion that subliminal stimulation provided relatively direct access to the systemic unconscious. They assumed that there was a pipeline to peoples' internal motives. Unconscious perceptual processes were thought to provide the means by which therapeutic directives could be smuggled into the unconscious through the back door. Scientific studies have made it clear that this assumption has neither theoretical nor empirical support. Notwithstanding their scientifically dubious status, subliminal audio tapes can still be found, although their presence in the marketplace is now largely confined to mail order and internet sales. The scientific community can take some credit for their demise and for placing unfounded claims in proper perspective.

References

- Kouider, S., & Dupoux, E. (2005). Subliminal speech priming. Psychological Science, 16, 617-625.
- Merikle, P. M., & Skanes, H. (1992). Subliminal self-help audiotapes: A search for placebo effects. Journal of Applied Psychology, 77, 772-776.
- Moore, T. E. (1995). Subliminal self-help auditory tapes: An empirical test of perceptual consequences. Canadian Journal of Behavioral Science, 27, 9-20.
- Pratkanis, A.R., Eskinazi, J. & Greenwald, A.G. (1994). What you expect is what you believe (but not necessarily what you get): A test of the effectiveness of subliminal self-help audiotapes. Basic and Applied Social Psychology, 15, 251-276.