
A Comparison of Mindfulness Meditation and Cognitive Self-Observation

Yvonne Greene

British Columbia Institute of Technology

Bryan Hiebert

University of Calgary

Abstract

Twenty-four college students learned either a meditation or a cognitive self-observation procedure. Both groups showed reliable increases in several dimensions of self-actualization (measured by the Personal Orientation Inventory) and decreases in many common stress-related symptoms (measured by the Symptoms of Stress Inventory). There were no differential treatment effects.

Résumé

Vingt-quatre étudiants de niveau collégial ont appris soit une procédure de méditation ou d'observation du "moi" cognitif. Les deux groupes ont démontré une élévation significative dans diverses dimensions de "l'accomplissement du soi" (mesuré par le "Personal Orientation Inventory" test) et une diminution au niveau de plusieurs symptômes reconnus comme étant reliés au stress (mesuré par le "Symptoms of Stress Inventory" test). Il n'y a eu aucun effets de traitement différentiel.

The Comparative Effects of Two Self-Observation Strategies on Mental Health and Well-Being

The existence of a relationship between self-awareness, health, and well-being has been recently proposed by a number of people (Brown, 1983; Thoreson & Mahoney, 1974). One way to promote self-awareness is through self-observation. In the western tradition, self-observation has been a component of many behavioural and cognitive interventions dealing with such targets as smoking, alcohol consumption, headaches, anxiety, obsessive thinking, compulsive behaviour and anger (Nelson, 1977). In the eastern tradition, self-observation has been an integral part of many meditation procedures. In this study we compare the effects of a cognitive and a meditative self-observation strategy on mental health and well-being.

BACKGROUND

Both meditation research and research into the effects of cognitive training have demonstrated influences on mental health and well-being. A number of studies have led to the conclusion that regular meditation decreases anxiety, depression, neuroticism (Shapiro, 1976; Williams, Francis & Durham, 1976), and stress-related disorders (cf. Bensen,

Klemchuk & Graham, 1974; Patel, 1977; Woolfolk, Carr-Kaffashan & McNulty, 1976). Regular meditation has also been associated with positive changes in personality variables such as field independence (Linden, 1973; Pelletier, 1974); spontaneity, inner-directedness, acceptance of aggression, and capacity for intimate contact (Nidich, Seeman & Dreskin, 1973; Seeman, Nidich & Banta, 1972); and self-concept (Blanz, 1974; Johnson, 1974; Valois, 1976). Similarly, Shapiro (1976) reported increases in positive self-statements and feelings of creativity among regular meditators.

Numerous reports also attest to the effectiveness of cognitive training in treating anxiety (Fremouw & Zitter, 1978; Keller, Croake & Brooking, 1975), anger (Novaco, 1975), depression (Shaw, 1977), and a variety of other mental health problems (see Ellis, 1973). Further, Maultsby, Kniffing and Carpenter (1974) and Husa (1982) found increased inner-directedness after using a cognitive training strategy in an educational setting. Such programs typically use some form of systematic self-observation as a central component, frequently coupled with procedures to reformulate or reconstruct maladaptive cognitions.

Since studies seem to suggest that both meditation and cognitive training have potential for enhancing psychological well-being, it was considered appropriate to compare the effects of the self-observation components of these two strategies. In order to allow for comparisons, a meditative procedure (Deatherage, 1980) and a cognitive training program were chosen which both emphasized self-observation.

METHOD

Subjects

The sample consisted of 24 college students (six men and 18 women) enrolled in a communication and interpersonal relationship training course. Subjects ranged in age from 19 to 41 years. All of the subjects were psychiatric nursing students in the second year of their program.

Training

The 24 subjects participated in the project as part of a course assignment. Students in the course were required to choose one of two options. One option was to participate in the research project, the other was to participate in a similar training program which did not require the collection of pre and posttraining data. Subjects who volunteered for the research project were assigned randomly to either the mindfulness group or the cognitive group. The course instructor, the first author, led both groups. All subjects completed a pretraining questionnaire patterned after Shapiro (1976), soliciting information about the subjects' experience with the training methods and their expectations.

Training consisted in teaching the subjects either mindfulness meditation (see Deatherage, 1980) or cognitive restructuring (see Ellis, 1973). Training required attendance at three consecutive sessions of approximately one hour each and daily practice of the method on the participant's own time. Subjects were required to complete a monitoring sheet after each out-of-class practice and submit this sheet to the instructor prior to each training session. The first session for each group consisted of an overview and rationale for the procedure, followed by a practice period. In the second and third sessions, the first 20 to 30 minutes were spent reviewing homework and giving feedback to participants. The remaining time was spent developing the concepts pertinent to the training session. They are discussed below.

Mindfulness meditation. The mindfulness training program was adapted from Deatherage (1980). Two basic exercises were taught: mindfulness of breathing, and mindfulness of thinking. In mindfulness of breathing, subjects were directed to assume a comfortable sitting position, close their eyes, and focus their attention on the rising and falling of their abdomen without imagining or visualizing, but just experiencing, the movement. Participants were to practice this daily for 30 minutes and to record any perceptions or observations in a practice log.

Mindfulness of thinking was taught in the second and third sessions. In the second session, participants were told that when people focus on their breathing several other mental activities often occur. When thoughts were noticed, participants were instructed to make a mental note; "thinking, thinking." They were to refrain from becoming involved in the content of these thoughts, and thinking of the thoughts as obstacles. They were simply to note the thought and let it pass away. Homework consisted of 30 minutes of practice daily. At the end of each practice session, subjects would describe, in a practice log, their subjective experience and record any thoughts that had occurred while they were practicing.

In the third session participants were directed to become more precise in noting their thoughts. They were to label their thoughts as planning, imagining, anticipating, or remembering. Participants were not to condemn themselves for any of the thoughts, nor to become unduly involved in the content, but simply to label the thought and continue focusing on the abdomen (cf. Goldstein, 1976; Thera, 1979). Home practice was to continue as in previous weeks.

Cognitive training. Cognitive training was patterned after the initial stages of Rational-Emotive Therapy (RET) (Ellis, 1973) using as a guide the instructional materials provided by Steinmetz, Blankenship, Brawn, Hall and Miller (1980). In the first session the major tenets of RET were outlined, emphasizing the important role of beliefs in determining emotional well-being and general health. Participants were told that one way to establish belief patterns was to observe their own thoughts.

They were then provided with some sample scenarios to practice distinguishing beliefs from self-thoughts. Homework practice was to continue daily with participants recording prevalent self-thoughts in their practice logs.

In the second session the main components from the first session were reiterated, participants were given more simulated practice scenarios, and were given an opportunity to share their home practice records. In the third session the concept of self-defeating and self-enhancing thoughts was introduced. Practice was given in differentiating between these types of thoughts. Participants were to practice this discrimination for homework, recording results in their home practice logs.

Dependent Measures

Two dependent measures were administered pre and posttraining.

Personal Orientation Inventory (POI). The POI (Shostrom, 1974) was used as a measure of positive mental health. The POI was developed by Shostrom in consultation with Abraham Maslow (Shostrom, 1964) with items derived from humanistic, existential, and gestalt psychology. The POI has two basic scales; support, and time competence, and ten subscales measuring various aspects of self-actualization. Test-retest reliabilities range from .52-.83 and construct validity is adequate (Shostrom, 1974).

Symptoms of Stress Inventory (SOSI). The SOSI (Leckie & Thompson, 1979) is a 118-item checklist on which subjects report the frequency of various stress-related symptoms during the previous 2-week interval. Reliability estimates range from .71-.96 (Cronbach's alpha). Although no validity studies are reported by the authors, the SOSI has high face validity and has been used frequently in other studies (cf. Hiebert & Eby, 1985; Pennebaker, 1983) as an indicator of stress-related symptoms.

Pretraining survey. A pretraining questionnaire was developed to obtain information regarding the participants' experience with the training methods and their outcome expectations. Studies in meditation frequently have been confounded by expectancy effects (see Malex & Sippelle, 1977; Smith, 1976) and the authors wanted some way to ascertain the degree to which expectancy factors had a differential effect on treatment outcome.

RESULTS

Data was analyzed using multiple 2-way ANOVAs for repeated measures (training group \times time). We acknowledge that MANOVA procedures would be appropriate for this data set, however the combination of dependent measures and sample size resulted in too few degrees of freedom to permit a MANOVA. The use of multiple ANOVAs does increase the chance that positive results will be indicated spuriously

(Type I error), however, the magnitude and extensiveness of the positive differences makes this unlikely. Generally speaking, there were no statistically reliable differential group effects on either dependent measure, however, reliable time effects were observed for both groups on both

TABLE 1
Means and Standard Deviations for POI Scores (n = 12)

<i>Subscale</i>	<i>Group</i>	<i>Time</i>			<i>Probability</i>
		<i>Pretest</i>		<i>Posttest</i>	
Innerdirected Support	Mindfulness	85.66	(11.97)	93.41 (12.10)	.01
	Cognitive	91.66	(13.89)	96.33 (12.10)	
Time Competence	Mindfulness	17.00	(2.17)	17.33 (3.31)	N.S.
	Cognitive	16.66	(3.84)	17.75 (3.69)	
Values self-Actualizing	Mindfulness	20.75	(3.16)	22.50 (2.11)	.02
	Cognitive	20.41	(3.52)	20.75 (3.07)	
Existentiality	Mindfulness	21.08	(4.88)	23.66 (4.75)	.02
	Cognitive	23.16	(4.97)	24.25 (3.84)	
Feeling Reactivity	Mindfulness	16.08	(3.75)	17.50 (3.55)	.02
	Cognitive	17.50	(2.81)	18.25 (2.00)	
Spontaneity	Mindfulness	12.66	(2.80)	13.91 (2.42)	.01
	Cognitive	12.75	(2.30)	14.16 (2.36)	
Self-Regard	Mindfulness	12.58	(2.39)	13.25 (2.22)	N.S.
	Cognitive	13.25	(3.10)	13.91 (2.19)	
Self-Acceptance	Mindfulness	14.41	(2.67)	15.41 (3.08)	.01
	Cognitive	16.91	(3.70)	19.50 (3.82)	
Nature of Human Kind	Mindfulness	12.16	(1.64)	13.50 (1.56)	.01
	Cognitive	11.33	(1.43)	12.00 (1.95)	
Synergy	Mindfulness	7.33	(1.37)	8.00 (0.95)	N.S.
	Cognitive	6.83	(1.46)	7.00 (1.34)	
Acceptance of Aggression	Mindfulness	16.25	(4.09)	17.75 (3.79)	N.S.
	Cognitive	19.00	(3.46)	19.25 (2.70)	
Capacity for Intimate Contact	Mindfulness	18.75	(4.20)	20.66 (4.65)	.01
	Cognitive	20.75	(4.59)	22.08 (3.11)	
Time Incompetence	Mindfulness	6.18	(1.99)	6.18 (2.92)	N.S.
	Cognitive	6.72	(3.66)	5.27 (3.60)	
Outer Directed Support	Mindfulness	39.58	(11.31)	33.50 (12.13)	.01
	Cognitive	35.08	(14.06)	29.50 (12.35)	
Time Ratio	Mindfulness	0.35	(0.24)	0.51 (0.59)	.03
	Cognitive	0.48	(0.57)	0.65 (0.61)	
Support Ratio	Mindfulness	0.24	(0.10)	0.34 (0.21)	.04
	Cognitive	0.30	(0.16)	0.35 (0.16)	

(Standard Deviations are in parentheses)

dependent measures. Specifically, there were significant time effects on the support, self-actualizing values, existentiality, feeling reactivity, spontaneity, self-acceptance, capacity for intimate contact, and time and support ratio subscales of the POI. (See Table 1).

Also, significant time differences were found on the peripheral, gastrointestinal, muscle tension, habit patterns, depression, anxiety, anger, and cognitive disorganization SOSI subscales, and on the total SOSI score. (See Table 2).

Additional findings

All subjects in their respective groups reported some familiarity with both training procedures. However, no reliable differences in outcome expectation were evident. Also, inspection of the homework logs indi-

TABLE 2
Means and Standard Deviations for SOSI Scores (n = 12)

<i>SOSI</i>		<i>Time</i>			
<i>Subscale</i>	<i>Group</i>	<i>Pretest</i>	<i>Posttest</i>	<i>Probability</i>	
Peripheral	Mindfulness	7.00 (4.26)	4.33 (3.23)	.01	
	Cognitive	5.50 (4.34)	4.00 (3.62)		
Cardio-pulmonary	Mindfulness	10.33 (4.52)	6.83 (4.78)	N.S.	
	Cognitive	7.83 (5.39)	6.67 (8.79)		
Neural	Mindfulness	1.66 (1.80)	1.00 (1.54)	N.S.	
	Cognitive	1.33 (1.92)	1.00 (1.76)		
Gastro-intestinal	Mindfulness	7.18 (5.17)	4.09 (4.35)	.01	
	Cognitive	5.33 (5.48)	3.00 (3.72)		
Muscle Tension	Mindfulness	8.82 (5.00)	6.64 (5.14)	.01	
	Cognitive	7.25 (8.45)	4.58 (8.06)		
Habit Patterns	Mindfulness	17.09 (8.55)	10.64 (5.54)	.01	
	Cognitive	12.92 (8.76)	8.75 (8.60)		
Depression	Mindfulness	8.58 (7.74)	5.17 (5.91)	.01	
	Cognitive	6.92 (6.40)	3.33 (4.31)		
Anxiety	Mindfulness	9.64 (7.37)	5.55 (3.80)	.01	
	Cognitive	9.04 (7.37)	4.83 (4.78)		
Anger	Mindfulness	10.83 (5.80)	5.83 (5.10)	.01	
	Cognitive	11.00 (7.08)	5.58 (7.40)		
Cognitive Disorganization	Mindfulness	6.00 (3.95)	4.25 (2.34)	.01	
	Cognitive	5.60 (3.82)	3.00 (3.10)		
Total	Mindfulness	90.09 (39.52)	55.91 (29.33)	.01	
	Cognitive	72.83 (48.68)	44.75 (45.44)		

(Standard Deviations are in parentheses)

cated that both groups engaged in practice and completed their homework logs to a similar extent.

Summary

Mindfulness training and cognitive training were equally effective in enhancing psychological well-being. Both training methods were equally effective in increasing the subjects' affirmation of self-actualizing values, in promoting a greater degree of sensitivity to their own needs and feelings, and in increasing spontaneity. Subjects in both groups experienced an increased acceptance of themselves and an increased capacity for intimate contact. Subjects in both groups also experienced a change toward being able to live primarily in the present and were increasingly guided by inner-principles and values while at the same time being influenced by outside forces. Further, both groups were equally effective in reducing the frequency of many symptoms of stress.

DISCUSSION

The results of this study indicate that a cognitive self-awareness strategy and a meditative self-awareness strategy are equally effective in producing changes in self-actualization as measured by the POI and in reducing a range of stress-related symptoms. Both strategies produced significant changes in a positive direction on all but three subscales of the POI and on all but two subscales on the SOSI. These results support previous findings that increased self-awareness of mental processes appears to be accompanied by an increase in mental and physical well-being.

Since there were no significant differences between training methods, it can be deduced that perhaps the training methods used were of secondary importance to some other factors. It may be that the reactive affects of self-observation in mental processes are conducive to health and well-being (Assagioli, 1971; Deatherage, 1980). It could also be that the training of attention is a more important factor than the specific training methods used since both methods involve some kind of attentional training. Another possible explanation hinges on the observation that both training methods emphasized insight as a central component. Perhaps the development of insight is a more important factor in increasing health and well-being than a particular training method. Further component analysis studies will be necessary to address these possibilities.

Another factor that has been important in previous meditation studies is the expectation effect (Smith, 1976; Shapiro, 1976). Since there were no significant differences in outcomes for both training groups one could conclude that the changes observed may be due to general expectation effects. Subjects' expectations were assessed prior to

training and it was found that approximately 21% thought the cognitive training would have some effect and 41% thought the meditation would have some effect. Based on these observations alone, one would suspect that the meditation training would produce a stronger effect. The fact that this did not occur suggests that expectancy was not a major factor in this study.

IMPLICATIONS

The results of this study suggest that teaching college students to become more aware of their mental processes can have a positive effect on mental and physical well-being. Although this type of training is not a part of most college programs, this study suggests that many college students could benefit from the inclusion of self-observation training in their college programs. Further, it is important to note that the training in this study encompassed only three sessions, and therefore could be incorporated easily into many college courses.

Interestingly, decreases in stress symptoms occurred in both groups, even though there was no instruction given in stress control procedures. This suggests that participants already had sufficient skills in their coping-repertoires to effect a reduction in stress symptoms. In order to activate these skills it was sufficient merely to train them to be more aware of some of the activating events in their lives. This result is similar to that obtained by Hiebert and Fox (1981) who reported that reductions in anxiety could result from teaching people to self-monitor their anxiety level.

An old adage says "Don't use a sledge hammer to kill a fly." Caution should also apply to therapeutic overkill. Many clients possess adequate coping-skills and would more likely be able to use them successfully if they learned a procedure for identifying the contexts for which those skills are appropriate.

References

- Assagioli, R. (1971). *Psychosynthesis*. New York: Viking Press.
- Bensen, H., Klemchuk, H. M., & Graham, J. (1974). The usefulness of the relaxation response in the therapy of headache. *Headache, 14*, 49-52.
- Blanz, L. T. (1974). Personality changes as a function of two different meditative techniques. *Dissertation Abstracts International, 34*(11-A), 7035-7036.
- Brown, B. (1983). *Supermind: The Ultimate Energy*. New York: Bantam.
- Deatherage, O. D. (1980). Mindfulness meditation as psychotherapy. In S. Boorstein (Ed.), *Transpersonal psychotherapy* (pp. 173-187). Palo Alto, CA: Science and Behaviour Books.
- Ellis, A. (1973). *Humanistic psychotherapy: the rational-emotive approach*. New York: Julian Press.
- Fremouw, W. J., & Zitter, R. E. (1978). A comparison of skills training and cognitive restructuring-relaxation for the treatment of speech anxiety. *Behaviour Therapy, 9*, 248-259.
- Goldstein, J. (1979). *The experience of Insight*. Santa Cruz, CA: Unity Press.

- Hiebert, B. A., & Eby, W. (1985). The effects of relaxation training for Grade 12 students. *The School Counsellor*, 32, 205-210.
- Hiebert, B. A., & Fox, E. E. (1981). Reactive effects of self-monitoring anxiety. *Journal of Counseling Psychology*, 28, 187-193.
- Husa, H. E. (1982). The effects of rational self-counselling on college students; locus of control. *Journal of College Student Personnel*, 23, 304-307.
- Johnson, S. F. (1974). Effects of Yoga-Therapy on a conflict resolution, self-concept and emotional adjustment. *Dissertation Abstracts International*, 34, 6385 (Abstract).
- Keller, J., Croake, J., & Brooking, J. (1975). Effects of a program in rational thinking on anxieties in older persons. *Journal of Counselling Psychology*, 22, 54-57.
- Leckie, M. S., & Thompson, E. (1979). *Symptoms of Stress Inventory: A Self-Assessment*. Seattle, WA: University of Washington.
- Linden, W. (1973). The relation between the practice of meditation by school children and their levels of field dependence-independence test anxiety and reading achievement. *Journal of Consulting & Clinical Psychology*, 41, 139-143.
- Malex, J., & Siprelle, C. (1977). Physiological and subjective characteristics of Zen meditation and demand characteristics. *Journal of Consulting and Clinical Psychology*, 45, 339-340.
- Maultsby, M., Kniffing, P., & Carpenter, L. (1974). Teaching self-help in the classroom with rational self-counselling. *Journal of School Health*, 44, 445-448.
- Nelson, R. O. (1977). Assessment and therapeutic functions of self-monitoring. In M. Hersen, R. M. Eister, & P. M. Miller (Eds.), *Progress in behavior modification* (Vol. 5), (pp. 264-308). New York: Academic.
- Nidich, S., Seeman, W., & Dreskin, T. (1973). Influence of Transcendental Meditation: A replication. *Journal of Counselling Psychology*, 20, 565-566.
- Novaco, R. (1975). *Anger control: The development and evaluation of an experimental treatment*. Lexington, MA: Health.
- Patel, C. (1977). Biofeedback-aided relaxation and meditation in the management of hypertension. *Biofeedback and Self-Regulation*, 2, 1-41.
- Pelletier, K. (1974). Influence of transcendental meditation upon autokinetic perception. *Perceptual and Motor Skills*, 39, 1031-1034.
- Pennebaker, D. F. (1983). Assessment and multimodal treatment of chronic headache. In *Biofeedback: An Integrated Systems Learning Approach*. Biofeedback Society of America. Proceedings of the Fourteenth Annual Meeting of the Biofeedback Society of America. Wheat Ridge, CO: Biofeedback Society of America.
- Shaw, B. F. (1977). Comparison of cognitive therapy and behaviour therapy in the treatment of depression. *Journal of Consulting and Clinical Psychology*, 45, 543-551.
- Seeman, W. S., Nidich, S., & Banta, T. (1972). Influence of transcendental meditation on a measure of self-actualization. *Journal of Counselling Psychology*, 19, 184-187.
- Shapiro, D. H. (1976). Zen meditation and behavioural self-control strategies applied to a case of generalized anxiety. *Psychologia*, 9, 134-138.
- Shostrom, E. L. (1964). A test for the measurement of self-actualization. *Educational and Psychological Measurement*, 24, 207-218.
- . (1974). *Personal Orientation Inventory Manual*. San Diego, CA: Ed/TS/Educational & Industrial Testing Service.
- Smith, J. C. (1976). Psychotherapeutic effects of T.M. with controls for expectation of relief and dailing sitting. *Journal of Consulting and Clinical Psychology*, 44, 630-637.
- Steinmetz, J., Blankenship, J., Brawn, L., Hall, D., & Miller, G. (1980). *Managing Stress Before It Manages You*. Palo Alto, CA: Bull Publishing.
- Thera, N. (1979). *The heart of Buddhist meditation*. New York: Noble Offset Printers.
- Thoresen, C. E., & Mahoney, M. J. (1974). *Behavioural Self-Control*. New York: Holt, Rinehardt, & Winston.
- Valois, L. (1976). The effects of Transcendental Meditation on the self-concept as measured by the Tennessee Self-Concept Scale. *Dissertation Abstracts International*, 37, 208 A (Abstract).

- Williams, P., Frances, A., & Durham, R. (1976). Personality and meditation. *Perceptual and Motor Skills*, 43, 787-792.
- Woolfolk, R. L., Carr-Kaffashan, L., & McNulty, T. (1976). Meditation training as a treatment for insomnia. *Behaviour Therapy*, 7, 359-365.

About the Authors

Bryan Hiebert, Ph.D., is an Associate Professor of Counselling Psychology in the Department of Educational Psychology at the University of Calgary. His primary writing and research endeavours lie in the areas of counsellor education and various applications of stress control.

Ms. Yvonne Nola Green, R.N., B.S.N., M.A., is a course writer, tutor, and guest lecturer with the School of Health Science of the British Columbia Institute of Technology. As well, she is a therapist with the mental health services at Chilliwack General Hospital. Her areas of professional and research interest include stress management and new paradigms of health.

Address correspondence to Dr. Bryan Hiebert, Department of Educational Psychology, University of Calgary, 2500 University Drive N.W., Calgary, Alberta, T2N 1N4.

Acknowledgements

This study was completed while the second author was an Associate Professor in the Counselling Emphasis in the Faculty of Education at Simon Fraser University.