The Effect of Training in Verbal Self-Guidance on Performance Effectiveness in a MBA Program

TRAVOR C. BROWN, Memorial University of Newfoundland
GARY P. LATHAM, University of Toronto

Abstract

The present field experiment examined the effects of training in verbal self-guidance (VSG) and a motivational intervention, goal setting, on the performance effectiveness of students in a MBA program. Performance effectiveness was assessed in terms of outcome (i.e., GPA) and behavioural (i.e., interpersonal skills) measures as well as a composite criterion (performance effectiveness). MBA students (n = 126) were randomly assigned to a 2 (VSG training/control) x 2 (goal setting/do your best) factorial design. The results revealed a main effect for VSG on performance effectiveness. There was an interaction effect such that participants who were trained in VSG and set goals had the highest level of performance effectiveness. A subsequent analysis revealed that the main effect for VSG on performance was spurious due to an ordinal interaction effect. Hence, VSG may be most effective when combined with goal setting.

Résumé

L'article rapporte les résultats d'une expérience de terrain qui a examiné les effets de différents facteurs comme la formation à l'auto-régulation verbale (ARV), une intervention motivationnelle et la formulation d'objectifs sur la performance effective d'étudiants engagés dans un programme MBA. La performance a été évaluée à partir des critères suivants : la moyenne des résultats académiques, les habiletés interpersonnelles et une mesure composite appelée efficacité du rendement. Les participants (n = 126) ont été répartis au hasard selon un plan factoriel 2 par 2 (formation ARV contrôle) X (formulation d'objectifs/« faites de votre mieux »). L'analyse des résultats a révélé un effet principal de l'ARV sur la performance effective. Une analyse subséquente a toutefois démontré que l'évaluation de l'effet principal de l'ARV sur la performance était contestable, compte tenu d'un effet ordinal d'interaction. Il apparaît que l'ARV se révèle plus efficace lorsque cette intervention est combinée à la formulation d'objectifs.

Verbal self-guidance (VSG) involves people verbalizing their thought processes as they consider a problem, discover information relevant to this problem, generate potential solutions, consider the advantages and disadvantages of each alternative solution, and implement what is considered to be the best solution (Brown, 2003). Thus, VSG refers to self-talk, but one's self-discourse can vary widely, depending on what aspect of one's functioning one seeks to influence.

Meichenbaum (1971, 1975, 1977), a clinical psychologist, developed a VSG training method, which he labeled functional self-talk. This training teaches people to systematically talk themselves through ways to overcome obstacles to performing effectively. In essence, this technique involves training people to change their negative, dysfunctional self-statements (e.g., I can't solve this problem) to positive, functional self-statements (e.g., I can break this problem into parts and solve one part at a time). The training program consists of a three-step process whereby a participant: 1) observes a clinician model effective self-statements that guide the person to the actions needed to take to master a task, 2) performs a task while verbally instructing oneself, and 3) performs a task while verbally instructing oneself covertly.

Research Concerning VSG

Much of the research concerning VSG is limited to studies of children in clinical, counseling or educational settings. In these settings, VSG has been shown to have a positive effect on task mastery (i.e., ability). For example, training in VSG reduces errors made by impulsive children (Meichenbaum & Goodman, 1971), increases reading and listening comprehension skills of children (Schunk & Rice, 1984, 1985), and improves the creativity of students (Meichenbaum, 1975).

The purpose of the present study was to examine the external validity of VSG training for adults performing organizationally relevant tasks, namely, peo-

ple in a MBA program. A potential boundary condition for VSG may be the age of the participants. Previous studies showing the effectiveness of VSG have primarily involved children. Children may be more amenable to learning to focus on and change their self-talk than are adults. As William James noted more than a century ago, habits are formed early in life. By adulthood, they are "set like plaster" (James, 1892, p. 375).

A second boundary variable for the effectiveness of VSG may be the setting. Adults in an MBA program may be less willing to acquire the skills necessary for changing their dysfunctional self-talk than are clients in clinical/counseling settings. As Halpern (2004) noted, an adult's motivation to learn a new skill depends in part on the characteristics of the environment. A clinical/counseling setting may be more amenable for teaching VSG skills than an organizational setting as the former allows the person to conceal difficulties mastering a new task, and will not threaten a person's status among group members. A pilot test of VSG training in a previous year's MBA class revealed that many people derisively labeled the process as "psycho-babble." Nevertheless, the potential theoretical significance of VSG is that it may be a self-regulation process that explains in part a person's performance effectiveness in an organizational setting. As Vygotsky (1962) noted, inner speech is the primary vehicle for thought and self-direction. The practical significance of a positive finding is that VSG is an inexpensive training technique. As such, VSG may prove to be a relatively straightforward, self-administered intervention.

To date, there have been very few VSG training studies involving adults in organizational settings. Moreover, in two of those studies VSG was imbedded within other training interventions. Neck and Manz (1996) used the "thought self-leadership technique" (TSL) that included VSG and mental imagery. The training had no effect on job performance.

Waung (1995) found no significant effects for VSG in her study of two orientation-training programs. In addition to VSG, the treatment package included cognitive restructuring and a realistic job preview. The comparison group received a realistic job preview that included inculcating coping behaviours. Four weeks post-training, contrary to Waung's hypotheses, there were no significant differences between the two conditions in terms of anxiety, intention to remain in, and commitment to, the organization. Moreover, VSG participants experienced higher voluntary turnover than those in the comparison group. One potential explanation for these findings, offered by Waung, is that VSG participants reported that they had received more negative information than did the participants in the comparison group.

A second explanation, not reported by Waung (1995), was the short duration of the training program, namely a maximum of 35 minutes. This time period may have increased participants' awareness of their negative self-statements without allowing for the acquisition of requisite skills for changing these statements to positive self-guidance. Third, the comparison group was not a control group per se as these participants were given training on coping behaviours. This training may have bolstered the dependent variables.

Using VSG only, Millman and Latham (2001) found that seven, two-hour training sessions, conducted over a two and a half week period, resulted in a significantly greater number of displaced managers finding jobs within nine months of training, relative to participants in the control group. Two limitations of the study included the use of a quasi-experimental design, as not all participants were randomly assigned to conditions, and the small sample size.

Brown (2003) also used a quasi-experimental design to examine the effect of VSG training on team performance on simulated tasks. Performance increased significantly relative to a control group. As the unit of analysis was the team, the effect of VSG on an individual's performance was not examined.

Based on the fact that two of these four studies found that training in VSG affects performance positively in organizational contexts, we hypothesized that VSG should improve the performance of adults in a MBA program.

Goal Setting

None of the previously cited VSG studies in clinical/counseling or industrial organizational psychology examined the explicit effects of goals on performance. Yet, goal setting is implicitly imbedded in VSG. VSG requires an individual to turn specific negative self-statements (e.g., I can't find a job) to positive self-statements (e.g., I can update my resume) in order to attain a specific end goal (e.g., employment). In the present study, goal setting was made explicit in order to determine if it improves the effectiveness of VSG. However, because of theory and empirical research, we did not hypothesize a main effect for goal setting. As a theory of motivation, goal setting assumes that: 1) the person has the requisite knowledge and ability to perform the task, and 2) goal setting activates this task knowledge (Locke, 2000; Locke & Latham, 1990). Therefore, a difficult goal cues the individual's attention to choose to exert effort and persistence to attain it, resulting in a main

effect for goals on performance. When a task is complex and the person lacks the requisite task knowledge or skill, setting a specific, difficult performance goal can have a deleterious effect on performance. For example, Kanfer and Ackerman (1989), in a field study of Air Force trainees who were mastering a flight simulator, found that during the declarative stage of learning, participants need to focus their attention on understanding ways to perform the task. Hence, setting a specific, difficult goal decreased performance as it diverted participants' attention away from discovering and encoding the necessary strategies to perform the task. They concluded that goal setting is effective only after individuals encode and store the necessary task rules, as well as integrate the sequencing of motor and cognitive processes for performing the task effectively. These findings have been replicated by others (Seijts & Latham, 2001; Winters & Latham, 1996).

The assumption underlying the present study is that first year MBAs enter a new environment where they have yet to develop the necessary behavioural skills to work effectively in a team setting. The MBA program differs from a traditional undergraduate program in at least three ways. First, unlike most undergraduate programs, some classes are only several weeks long while others run a full semester. Second, the people with whom they regularly interact have widely different academic backgrounds (e.g., engineering, law, liberal arts, physical sciences, education, health sciences, nursing, etc.). Many MBA students do not have an undergraduate degree in business. Third, and most importantly, the MBA program requires extensive teamwork. Group assignments are an integral part of most, if not all, courses. People are permanently assigned to a team for at least an entire semester, and sometimes for a full academic year. Furthermore, there is fierce competition among people for grades as many organizational recruiters use grade point average (GPA) as a criterion for selection. The business school puts great pressure on MBA students to secure jobs with prestigious firms as starting salaries and place of employment can impact both the prestige and the ranking of a business school in the popular press. Adding to the expectations of, and stress placed on MBA students, is the emphasis by recruiters on evidence of interpersonal (i.e., teamwork) skills. Thus adapting to the environment of the MBA program requires the acquisition of interpersonal skills, a high GPA, and the motivation to do so.

Goal Setting and VSG

Based on the extant research, we hypothesized that VSG, with its emphasis on the discovery and affirmation of one's ability (e.g., "Ah, all I have to do to succeed is…"), increases a person's performance. Based on Locke's (2000) conclusions, we hypothesized an interaction effect such that participants who receive training in VSG and set a specific high goal have the highest level of performance effectiveness. Locke argued that on a complex task there is typically an interaction effect between task knowledge and goals. Specifically, he argued that this interaction occurs when: 1) the goal alone cannot activate existing task knowledge because the person lacks such knowledge and 2) this task knowledge is derived from other sources (e.g., peers, professors), which when combined with goals, results in the highest level of performance in the high goal, high task knowledge condition. Thus, we hypothesized that the motivational effects of goal setting are beneficial in this study only when training in VSG enables an individual to develop and affirm behaviours to overcome obstacles to his/her performance. VSG facilitates the discovery of task behaviours because it focuses attention on discovering and encoding the necessary strategies to perform the task at hand.

Performance Criteria

There has been a long debate in the literature concerning the choice of an appropriate performance criterion (see Latham & Wexley, 1994). The performance criteria in the present study were dictated by the setting. MBA programs have been criticized by both the media (Jack, 2001), as well as the Association to Advance Collegiate Schools of Business, which is the accreditation body for MBA programs in North America (Olian et al., 2002), for developing people who graduate with strong analytical yet weak interpersonal skills. Business leaders and educators have demanded that this situation be corrected (Mason, 1992; Olian et al., 2002; Pfeffer, 1998).

The MBA director in the business school, where this study took place, assigns MBA students to teams. Both MBA students from previous years, as well as faculty, had observed that poor interpersonal skills had an adverse effect on students' academic performance in the program, namely GPA. Sue-Chan and Latham (2004) found that MBA students lack the knowledge and skills necessary to improve themselves as team-players. Consequently, both an outcome and a behavioural measure of performance effectiveness were used to evaluate the effect of the VSG training program on the person's performance.

The outcome measure in the present study was the student's GPA. As noted earlier, many organizational recruiters use this measure as a basis for hiring grad-

uating MBA students, and faculty use GPA as an indicator of a student's mastery of course material. Hence, this measure is highly relevant to a MBA student. A limitation of an outcome measure is that it is often influenced by factors beyond the individual's control (e.g., quality of teaching; number of exams scheduled in a given day; idiosyncratic grading bias of instructors). Thus, a behavioural measure of a person's effectiveness was also used in this study, namely, the person's interpersonal skills. Interpersonal skills are defined as the ability to communicate, work collaboratively with others, manage time, empower/delegate, as well as motivate/persuade self and others (de Janasz, Dowd, & Schneider, 2002; Whetten & Cameron, 2002).

A limitation of behavioural criteria is their susceptibility to errors in observation (e.g., leniency, halo, contrast effects). Multiple operationalization of performance effectiveness in terms of an outcome and behavioural measure decreases the likelihood of a Type II error. In MBA programs in general, and in this MBA program in particular, interpersonal skills and GPA are interrelated. This is because a student's GPA is affected by how well individuals perform as team members in their respective teams. Team assignments influence 40-80% of the person's course grade in each course of the MBA program. Previous research has shown that behavioural performance measures, developed through a systematic job analysis, correlate with performance outcome measures (Latham & Wexley, 1977; Taggar & Brown, 2001). Thus a composite criterion was also used in this study as this measure is the norm for making administrative decisions (e.g., hiring, promoting) in organizational settings (Schmidt & Kaplan, 1971).

In summary, the present study differs from the four earlier VSG studies in industrial-organizational psychology (Brown, 2003; Millman & Latham, 2001; Neck & Manz, 1996; Waung, 1995) in that it used an experimental rather than a quasi-experimental design, where there was no confounding of treatments, and where the consequences for the individual were "real." People were randomly assigned to conditions. The effect of goal setting was examined explicitly rather than implicitly. The outcomes for the person included an appraisal of interpersonal skills by peers as well as grades assigned by faculty members. The evaluation of the training program included both behavioral and outcome performance measures as well as a composite criterion. Thus the probability of making a Type II error regarding the effect of the intervention in bringing about a change in the person's effectiveness was minimized. Two hypotheses were tested.

Hypothesis 1: People trained in VSG have significantly higher performance than those who are not trained in VSG.

Hypothesis 2: There is an interaction effect between VSG and goal setting on performance.

Method

Sample

Adults enrolled in the first year MBA class (n = 126) of a Canadian university were randomly assigned to a 2 (VSG, control) x 2 (goal, do your best) factorial design. This number represented 95.46% of the students (n = 132). On average, these MBAs were 29 years old, male (59.50%) with 4 1/2 years of full-time employment experience. Participants did not differ significantly from nonparticipants on sex, age, or work experience.

Procedure

The procedure used in this experiment consisted of the following steps: 1) development of a behavioural measure of interpersonal skills, 2) random assignment to experimental conditions, 3) goal setting intervention, 4) training in VSG, and 5) data collection.

Interpersonal skills. Interpersonal skills (see Table 1) were assessed using behavioural observation scales (BOS; Latham & Wexley, 1977, 1994) developed by Sue-Chan and Latham (2004). Using a previous first-year MBA class, a job analysis, namely, the critical incident technique (Flanagan, 1954), was conducted with faculty who teach in the MBA program as well as MBA students. This job analysis asked people to recall examples of both effective and ineffective teamwork or interpersonal behaviours that led to high or low GPA in the program. These behaviours were used to develop BOS. BOS were used because they are reliable and valid, and they correlate positively with performance outcome measures (e.g., Latham, 1997; Latham & Wexley, 1977; Taggar & Brown, 2001).

Assignment to teams. Each year the director of the MBA program assigns each student to a team. Steps are taken to ensure that the teams are relatively balanced in terms of sex, quantitative/qualitative undergraduate degrees, and international/national students. Group size in the present study ranged from five to six individuals. The tasks performed by these teams were similar to those performed by teams in other organizational settings. Specifically, these tasks included multidisciplinary analyses and presentations, as well as consulting projects based on

TABLE 1
BOS Items and Associated Interpersonal Skills

BOS item (adapted from Sue-Chan & Latham, 2004)	Interpersonal skill area
Motivates team-mates to produce extremely high standards of work	Motivating/Persuading Self and Others
Pays attention during group meetings	Working with others
Perseveres to understand concepts regardless of their difficulty	Motivating/Persuading Self and Others
Is prepared for group meetings	Working with Others; Time Management
Distributes group work to capitalize on strengths and interests of others	Empowerment/Delegation
Keeps group members accurately informed of progress on projects	Communication
Knows content of group projects completed by other group members	Working with Others; Empowerment/Delegation
Co-ordinates upcoming work with group members who are involved in it	Empowerment/Delegation
Meets deadlines	Time Management
Clearly communicates when available for work	Communication
Expresses ideas clearly in written assignments	Communication

organizational site visits. As consulting groups, the teams met client organizations, analyzed data, made recommendations, and presented their findings to key stakeholders. These team projects, as noted earlier, represented a minimum of 40% of the final grade in each MBA course.

The roles of team members were highly interdependent. Each team was identifiable by a name (they also had web folders, mailboxes, etc.) and each had total authority on project planning regarding assignment of tasks to individuals among the team. Each team also made decisions that had important consequences for them, both as a team and as individuals within the team, in terms of GPA. The only directions given to the teams by faculty members were the task assignments and their completion dates.

Experimental conditions. A 2 (VSG/control) by 2 (goal setting/no goal setting) factorial design was used in this experiment. All participants were shown the BOS and informed that the interpersonal skills contained on them were important for performing well in the MBA program. Given the use of teams in the business school, behaviours on the BOS were labeled teamwork skills. Immediately following the presentation of the BOS, participants were invited to participate in the study. Specifically, they were informed that: a) the purpose of the study was to assess the effectiveness of different approaches to performing effectively in the MBA program; b) it was important not to share training program details with other people as it could cause contamination; and c) we randomly assigned participants to conditions in order to control for extraneous variables. This was done without regard to a person's team as the unit of analysis in this study was the individual. At no time did we share our hypotheses with participants or faculty members.

Goal setting. Participants (n = 62) in the goal-setting condition met in a large room for approximately 30 minutes. There they were explicitly asked to set a specific, difficult goal for the BOS score that they would work to attain as individuals. They then met in small groups of four to six people to discuss their rationale for their goal because discussing one's goal can increase goal commitment (Locke & Latham, 1990). At the end of the discussion, they were

informed that they could modify their goals based on this conversation. Goal difficulty and goal commitment were assessed at this time. We did not require a goal for GPA as all of them wanted a "perfect" 4.0.

Participants in the no goal setting, do your best (DYB) condition (n = 64) met in a separate room. They, too, received the BOS. Rather than setting a specific, difficult goal, they were urged to do their best to demonstrate the interpersonal skills listed on the BOS for the reasons cited earlier. They then met in groups of four to six people to discuss the importance of doing their best to demonstrate the BOS items. Consistent with previous goal-setting studies (see Locke & Latham, 1990), these people did not complete questionnaires concerning a goal as they were not in a goal-setting condition.

Training in VSG. Three weekly 90-minute VSG training sessions were provided. In the first session, immediately following the goal-setting intervention, the participants (n = 60) discussed ways that their positive (i.e., functional) and negative (i.e., dysfunctional) self-talk affected their behaviour in the MBA program. Each person identified three dysfunctional self-statements concerning their performance. These statements were the focus of training in VSG.

Consistent with Meichenbaum (1975, 1977), people were taught to change their dysfunctional self-statements to functional self-talk. A three-step process was used. Specifically, they were trained to become aware of negative self-statements (e.g., "I just can't seem to motivate my team-mates"), then discover for themselves specific ways they could improve the situation, and finally to develop positive self-statements to guide their actions (e.g., "I have already learned to give positive feedback…I can use positive feedback to energize my team-mates.").

Consistent with Meichenbaum and Goodman (1971), each statement was initially modeled by the trainer. Then each trainee repeated the statement overtly. Finally, each trainee repeated the statement covertly. The session ended with the trainees receiving logbooks to record their self-statements concerning their performance over the coming weeks.

The second session contained three components. First, the trainer reviewed the VSG technique. Second, trainees reviewed their logbooks and gave examples of areas in which they had engaged in functional or dysfunctional self-talk concerning their performance. Third, for each dysfunctional statement, the trainees applied the VSG technique.

The third session replicated the second session. In addition, trainees identified obstacles to successfully using VSG to increase their performance in the MBA program. As a group, participants discussed these obstacles and strategized ways to overcome them. The session ended with questionnaires assessing trainees' reactions to the VSG training.

In order to minimize demand effects, people in the control condition (n = 66), who were not trained in VSG, took part in a simulation exercise where they assumed the roles of members of a city council. This council was asked to review several proposals concerning the use of a building donated to the city. The rationale given to the participants in this control condition was that the simulation was designed to teach them the importance of working effectively as individuals in teams. Participants had 90 minutes to reach group consensus concerning the proposal that they would accept.

Data collection. At the end of the semester manipulation checks were conducted. Prior to receiving their grades, peers assessed one another's interpersonal skills anonymously. The dean's office calculated the GPA for each individual.

Measures

VSG manipulation checks. VSG manipulation checks included trainee reactions and VSG skills usage. Reactions were assessed using a 10-item, 5-point Likert-type scale (e.g., the extent to which VSG participants: a) would recommend this training to others, b) were satisfied with the training, and c) found the trainer helpful). In assessing VSG usage, all participants (VSG and control) were asked the extent to which they were aware of their self-statements, monitored their self-statements, generated positive self-statements, and converted negative statements to positive ones using a 5-point Likert-type scale (1 = strongly disagree and 5 = strongly agree).

Goal-setting manipulation checks. Consistent with the recommendations of Locke and Latham (1990), people in the goal condition completed questionnaires assessing actual goal difficulty level (i.e., desired BOS score), perceived goal difficulty level, goal specificity, and goal commitment. The latter three measures were assessed using a 5-point Likert-type scale where 1 = strongly disagree and 5 = strongly agree. Perceived goal difficulty and specificity were assessed at the end of the study using questions adapted from Winters and Latham (1996). Specifically, two goal difficulty questions asked if participants saw their goal as difficult (Question 1) or easy (Question 2, reverse scored). Goal specificity was measured using three questions, namely, the extent to which participants believed that their goal

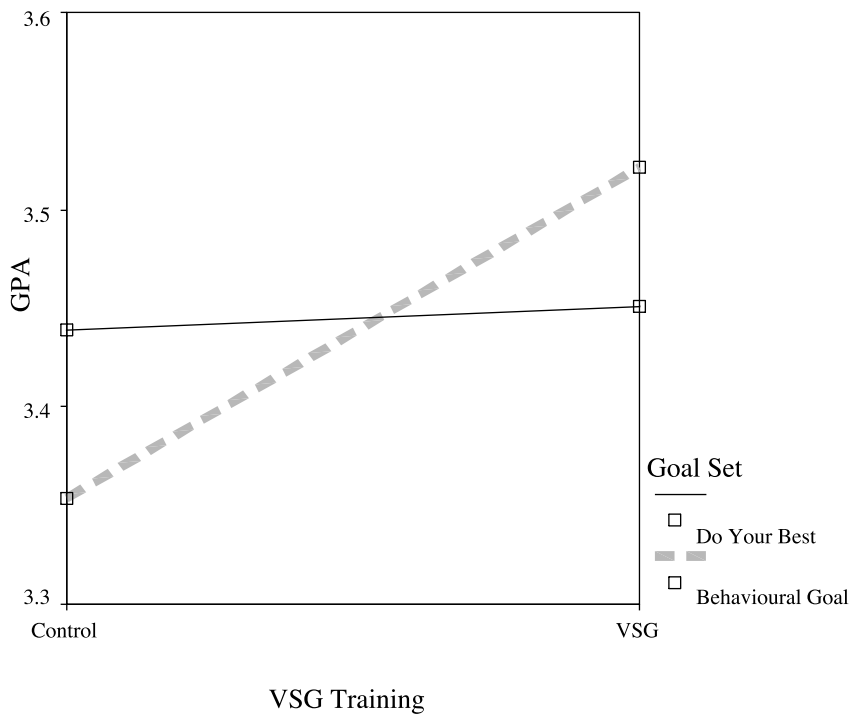

Figure 1. Interaction effect – GPA

TABLE 2
Performance Measures by Condition

	Behavioural Goal	DYB
A: GPA		
VSG	3.52 (.20)	3.45 (.22)
Control	3.35 (.22)	3.43 (.16)
B: BOS Score		
VSG	37.27 (3.54)	35.38 (5.22)
Control	35.69 (4.18)	36.86 (3.31)
C: Composite		
VSG	.81 (1.47)	-.06 (1.95)
Control	- .53 (1.77)	.01 (1.43)

Note. Standard deviations are presented in parentheses.

was specific (Question 1), vague (Question 2, reverse scored), or uncertain (Question 3, reverse scored). A person's goal was operationalized in terms of BOS score; goal commitment was assessed using the five-item goal commitment scale developed by Klein, Wesson, Hollenbeck, Wright, and DeShon (2001).

Performance. The behavioural measure of an individual's interpersonal skills was anonymously assessed by peers. Specifically, peers rated the frequency with which they observed a team member performing each behaviour using a 5-point scale (0 = almost never and 4 = almost always). These peers worked with the person throughout the entire semester. Thus, peers were arguably the most important source of information regarding a person's behaviour. The outcome measure of a person's performance (i.e., GPA) was measured by faculty who were neither aware of the purpose of the study, nor the experimental condition to which a person had been randomly assigned. The composite criterion, performance effectiveness, was created by summing each person's z-score for GPA and BOS.

Results

VSG Manipulation Checks

Responses indicated that the VSG participants were satisfied with the training (M = 39.46; SD = 5.02; maximum score = 50, α = .79). Moreover, they reported greater use of VSG skills (M = 19.28; SD = 3.51; maximum score = 25; α = .91) than those in the control (M = 15.43; SD = 4.91) condition, $F(1, 108) = 22.00$, $p < .001$.

Goal-Setting Manipulation Checks

Goal-setting manipulation checks revealed that the mean goal set by goal-setting participants was

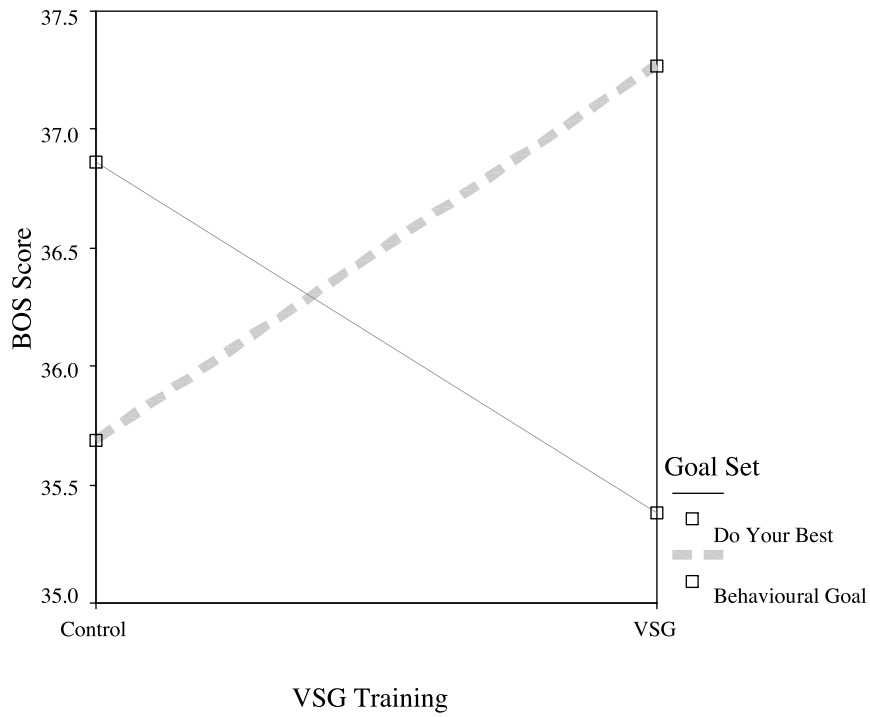

Figure 2. Interaction effect – Interpersonal skills

47.07 (*SD* = 4.08; maximum score = 56), that these participants were highly committed to their goals (*M* = 21.12; *SD* = 2.94; α = .71; maximum score = 25), and that they perceived their goals to be both specific (*M* = 11.42; *SD* = 2.30; α = .66; maximum score = 15) and difficult (*M* = 7.98; *SD* = 1.44; α = .65; maximum score = 10). ANOVA confirmed that there were no significant differences in these four measures between the goal-setting participants in the VSG condition and those in the control condition, $F(1, 58) = 1.50$, $p > .05$; $F(1, 57) = .15$, $p >. 05$; $F(1, 48) = .03$, $p > .05$; $F(1, 48) = .01$, $p > .05$, respectively.

Performance

GPA. GPA was available for 121 participants; 5 had left the MBA program. GPA ranged from 2.68 to 3.89 (*M* = 3.44; *SD* = .21; maximum score = 4). Consistent with the first hypothesis, a 2 x 2 ANOVA revealed a main effect for VSG on GPA, $F(1, 117) = 6.60$, $p < .01$. In addition, there was an interaction effect between VSG and goal setting, $F(1, 117) = 4.02$, $p < .05$. Thus, Hypotheses 1 and 2 were supported. No main effect was found for goal setting, $F(1, 117) = .01$, $p > .05$. The means and standard deviations are shown in Table 2. The interaction effect is presented in Figure 1.

Bobko (1986) argued that a spurious main effect can result in a 2 x 2 ANOVA when an ordinal interaction is present. Given our hypotheses that the participants in the VSG/goal-setting condition would have the highest performance level, we tested the interaction using Bobko's ordinal interaction technique. This technique involves two planned contrasts: 1) testing the equality of the means of the three noninteraction conditions (i.e., VSG/DYB; Control/ Goal Setting; Control/DYB) using a one-way analysis; and 2) comparing the means of the interaction (i.e., VSG/goal setting) versus the average of the remaining three conditions using a planned t-test. Contrast one was not significant, $F(2, 90) = 2.01$, $p > .05$); thus, there was no significant difference among the means of the three conditions. Contrast two was significant, $t(119) = 2.51$, $p < .05$. Thus, there was an ordinal interaction with the VSG/goal-setting condition having the highest level of GPA relative to the other three study conditions.

Interpersonal skills. For the behavioural measure of performance, BOS scores were obtained for 117 participants (response rate = 92.86%).The level of agreement among raters was calculated using the average interrater agreement statistic, r_{wg}, (James, Demaree, & Wolf, 1993). The r_{wg}, for the 11 behavioural items ranged from .71 to .84; the average level of agreement across the 11 items was .77. The median number of

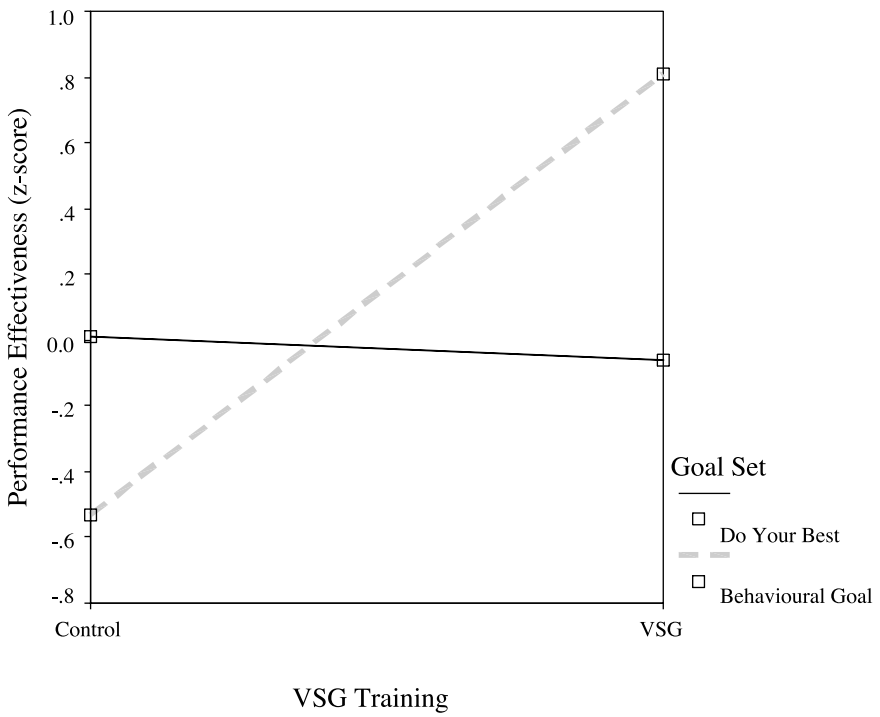

Figure 3. Interaction effect – Composite criterion

peer ratings per person was four. Cronbach's alpha coefficient for the 11-item BOS was .90. The grand mean of the 11-item BOS was 36.26 (SD = 4.17; maximum score = 44).

The correlation between GPA and interpersonal skills was significant (r = .43, p < .01). Consistent with Hypothesis 2, a 2 x 2 ANOVA revealed a significant interaction effect, $F(1, 113) = 3.97$, $p < .05$. There were no main effects for either VSG or goal setting on interpersonal skills, $F(1, 113) = .01$, $p > .05$; $F(1, 113) = .22$, $p > .05$, respectively. The means and standard deviations of this ANOVA are shown in Table 2; the interaction effect is presented in Figure 2. Again, Bobko's (1986) ordinal interaction analysis was conducted. For contrast one, ANOVA revealed no significant differences among the three conditions of VSG only, goal setting only, and Control/*DYB*, $F(2, 88) = .99$, $p > .05$. In addition, there was no significant difference between the means of the VSG/goal setting and the mean of the other three conditions, $t(115) = 1.41$, $p = .16$.

Composite criterion. A 2 x 2 ANOVA of the composite criterion of performance effectiveness revealed a main effect for VSG, $F(1, 111) = 4.11$, $p < .05$. There was also an interaction effect between VSG and goal setting , $F(1, 111) = 5.12$, $p < .05$. Thus, Hypotheses 1 and 2 were supported. No main effect was found for goal setting, $F(1, 111) = .28$, $p > .05$. The means and standard deviations are shown in Table 2. The interaction effect is presented in Figure 3.

Again, Bobko's (1986) ordinal interaction analysis was conducted to see if the main effect for VSG was spurious. For contrast one, ANOVA revealed no significant differences among the three conditions of VSG only, goal setting only, and Control/*DYB*, $F(2, 87) = .88$, $p > .05$. For contrast two, there was a significant difference between the mean of the VSG/goal-setting condition versus the mean of the other three conditions, $t(113) = 2.66$, $p < .01$. Thus, there was evidence of an ordinal interaction for the composite criterion.

Discussion

The theoretical and practical significance of this experiment is three-fold. First, of significance to both goal-setting theory and training in VSG is the interaction effect found for VSG and goal setting on performance. The lack of a main effect for goal setting alone is consistent with previous findings that when people are in a learning mode, setting a specific, difficult performance goal does not improve performance (Kanfer & Ackerman, 1989; Seijts & Latham, 2001). In the present study, the task of mastering the MBA curriculum and the requisite interpersonal skills,

required more than motivation in terms of choice, effort, and persistence; it required learning interpersonal skills. This finding supports Locke's (2000) conclusion that the highest level of performance occurs when participants have high task knowledge and high motivation. In the present study, performance was highest in the condition where participants were trained to use VSG and to set a high performance goal that motivated them to apply their newly acquired knowledge and skill.

Second, this study, when examined in conjunction with the four previous industrial-organizational psychology studies involving VSG, suggests three tentative answers to the question: "When is VSG training effective?" First, VSG appears to be a skill that requires multiple training sessions of several hours duration. In the present study, and that of both Brown (2003) and Millman and Latham (2001), trainees took part in two or more training sessions where the total training program lasted at least 100 minutes. In contrast, a single, short training session of less than 40 minutes failed to result in a significant main effect (Waung, 1995). Second, VSG appears to be effective when people lack the knowledge and skill to perform the task at hand. When participants have already mastered a task, and thus have the requisite knowledge and skill, VSG does not appear to increase performance. This argument is supported by the findings of Neck and Manz (1996), where VSG did not increase the performance of employees. In that study, the sample consisted of experienced employees who had already gained the knowledge and skill needed to effectively perform their jobs. Third, Bobko's (1986) ordinal interaction analysis suggests that the main effect for VSG on GPA as well as the composite criterion was spurious. VSG appears to be most effective when combined with an explicitly set behavioural goal.

An unexpected finding was that there was not an ordinal interaction when the dependent variable was interpersonal skills, despite the moderately high correlation between the two performance measures (i.e., GPA and BOS score). As previously mentioned, behavioural measures are prone to observation errors such as halo and leniency. With a mean of 36.26 on the 11-item BOS, most participants received a rating of greater than three for each of the 11 items on the BOS scale, where the maximum score for each item was four. Restriction in range is likely responsible for the present finding.

Third, the results of this study may prove useful for increasing the persuasiveness of MBA directors' messages regarding the importance of teamwork skills for people who enter the MBA program with little appreciation for interpersonal effectiveness. Interpersonal skills are important for one's GPA. The present study shows that only five hours of training (i.e., 270 minutes for VSG plus 30 minutes for goal setting) can provide MBA students the self-regulation skills necessary for increasing their overall performance. Training in VSG is a practical intervention that can be included in existing organizational behaviour courses (e.g., courses on management skills).

Potential limitations of this experiment include the sample and the context. In this study, participants were adults enrolled in an educational institution. While the participants were, on average, 29 years old with 4 1/2 years of work experience, the extent to which the findings from the present sample generalize to older adults, particularly adults working in the public and private sector organizations, remains to be tested.

This study was funded in part from an American Compensation Association grant to the first author and a Social Sciences and Humanities Research Grant to the second author.

Correspondence concerning this article should be addressed to Travor C. Brown, Faculty of Business Administration, Memorial University of Newfoundland, St. John's, Newfoundland, Canada A1B 3X5 (Tel: (709) 737-2615; Fax: (709) 737-7680; E-mail: travorb@mun.ca).

References

Bobko, P. (1986). A solution to some dilemmas when testing hypotheses about ordinal interactions. *Journal of Applied Psychology, 71,* 323-326.

Brown, T. C. (2003). The effect of verbal self-guidance training on collective efficacy and team performance. *Personnel Psychology*, *56*, 935-964.

de Janasz, S. C., Dowd, K. O., & Schneider, B. Z. (2002). *Interpersonal skills in organizations.* Toronto, ON: McGraw Hill.

Flanagan, J. C. (1954). The critical incident technique. *Psychological Bulletin, 51,* 327-358.

Halpern, D. F. (2004). The development of adult cognition: Understanding constancy and change in adult learning. In D. Day, S. Zaccaro, & S. Halpin (Eds.), *Leader development for transforming organizations*. Mahwah, NJ: Lawrence Erlbaum.

Jack, I. (2001, December 31). FP CEO Poll: MBAs good on theory, lack people skills, CEOs say. *National* Post, pp. FP1, FP2.

James, L. R., Demaree, R. G., & Wolf, G. (1993). RWG: An assessment of within-group interrater agreement. *Journal of Applied Psychology, 78*, 306-309.

James, W. (1892). *Psychology.* London, UK: Macmillan.

Kanfer, R., & Ackerman, P. L. (1989). Motivation and cog-

nitive abilities: An integrative/aptitude-treatment interaction approach to skill acquisition. *Journal of Applied Psychology, 74,* 657-690.

Klein, H. J., Wesson, M. J., Hollenbeck, J. R., Wright, P. M., & DeShon, R. P. (2001). The assessment of goal commitment: A measurement model meta-analysis. *Organizational Behavior and Human Decision Processes, 85*, 32-55.

Latham, G. P. (1997). *Correlates of executive education program revenue, repeat business and the satisfaction of client organizations and individual participants.* Millington, NJ: University Consortium for Executive Education (UNICON).

Latham, G. P., & Wexley, K. N. (1977). Behavioral observation scales for performance appraisal purposes. *Personnel Psychology, 30*, 255-268.

Latham, G. P., & Wexley, K. N. (1994). *Increasing productivity through performance appraisal* (2nd ed.). Reading, MA: Addison-Wexley.

Locke, E. (2000). Motivation, cognition, and action: An analysis of studies of task goals and knowledge. *Applied Psychology: An International Review, 49,* 408-429.

Locke, E. A., & Latham, G. P. (1990). *A theory of goal setting and task performance.* Englewood Cliffs, NJ: Prentice-Hall.

Mason, J. C. (1992). Business schools: Striving to meet customer demand. *Management Review, 81*, 10.

Meichenbaum, D. (1975). Enhancing creativity by modifying what subjects say to themselves. *American Educational Research Journal, 12*, 129-145.

Meichenbaum, D. H. (1971). Examination of model characteristics in reducing avoidance behavior. *Journal of Personality and Social Psychology, 17*, 298-307.

Meichenbaum, D. H. (1977). *Cognitive behavior modification. An integrative approach*. New York: Plenum Press.

Meichenbaum, D., & Goodman, J. (1971). Training impulsive children to talk to themselves: A means of developing self-control. *Journal of Abnormal Psychology, 77*, 115-126.

Millman, Z., & Latham, G. P. (2001). Increasing reemployment through training in verbal self-guidance. In M. Erez, U. Kleinbeck, & H. Thierry (Eds.), *Work Motivation in the Context of a Globalizing Economy* (pp. 87-97). Mahwah, NJ: Lawrence Erlbaum.

Neck, C. P., & Manz, C. C. (1996). Thought self-leadership: The impact of mental strategies training on employee cognition, behavior, and affect. *Journal of Organizational Behavior, 17*, 445-467.

Olian, J., Caldwell, L., Frank, H., Griffin, A., Liverpool, P., Thomas, H., et al. (2002, April). *AACSB International: Management Education Task Force* (Draft IV). St. Louis, MO: The Association to Advanced Collegiate Schools of Business International.

Pfeffer, J. (1998). *The human equation: Building profits by putting people first*. Boston, MA: Harvard Business School Press.

Schmidt, F. J., & Kaplan, L. (1971). Composite vs. multiple criteria: A review and resolution of the controversy. *Personnel Psychology, 24*, 419-434.

Schunk, D. H., & Rice, J. M. (1984). Strategy self-verbalization during remedial listening comprehension instruction. *Journal of Experimental Education, 53*, 49-54.

Schunk, D. H., & Rice, J. M. (1985). Verbalization of comprehension strategies: Effects on children's achievement outcomes. *Human Learning, 4*, 1-10.

Seijts, G. H., & Latham, G. P. (2001). The effect of distal learning, outcome, and proximal goals on a moderately complex task. *Journal of Organizational Behavior, 22,* 291-302.

Sue-Chan, C., & Latham, G. P. (2004). The relative effectiveness of external, peer, and self-coaches. *Applied Psychology: An International Review, 52*, 260-278.

Taggar, S., & Brown, T. C. (2001). Problem-solving team behaviors: Development and validation of BOS and a hierarchical factor structure. *Small Group Research, 32*, 698-726.

Vygotsky, I. (1962). *Thought and language.* Cambridge, MA: MIT Press.

Waung, M. (1995). The effects of self-regulatory coping orientation on newcomer adjustment and job survival. *Personnel Psychology, 48*, 633-651.

Whetten, D. A., & Cameron, K. S. (2002). *Developing management skills* (5th ed.). Don Mills, ON: Addison-Wesley.

Winters, D., & Latham, G. P. (1996). The effect of learning versus outcome goals on a simple versus a complex task. *Group & Organization Management, 21*, 236-250.

Received August 4, 2004
Revised April 22, 2005
Accepted April 26, 2005