The Effects of Behavioural Outcome Goals, Learning Goals, and Urging People to do Their Best on an Individual’s Teamwork Behaviour in a Group Problem-Solving Task

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

Abstract
Recent research shows that learning goals are superior to outcome goals on complex tasks. The effectiveness of behavioural outcome goals (set using behavioural observation scales (BOSS)), learning goals, and urging people to do their best was examined in the context of a training program designed to improve an individual’s teamwork behaviour in a group problem-solving task. Participants (n = 50) who set behavioural or learning goals had higher self-efficacy relative to those urged to “do their best”. Self-efficacy correlated positively with teamwork behaviour and goal commitment. Behavioural goals were superior to learning goals and being urged to “do your best” in bringing about teamwork behaviour. These findings suggest that behavioural outcome goals may mitigate the need for learning goals on complex tasks.

Résumé
La recherche récente démontre que les buts d’apprentissage sont supérieurs aux buts axés sur les résultats dans le contexte de tâches complexes. L’efficacité des buts axés sur les résultats comportementaux (établis à l’aide d’une échelle d’observation comportementale), les buts d’apprentissage et l’incitation des personnes à faire de leur mieux ont été examinés dans le contexte d’un programme d’apprentissage destiné à améliorer le comportement individuel en équipe dans le cadre d’une tâche de résolution de problème en groupe. Les participants (n = 50) qui ont établi des buts comportementaux ou des buts d’apprentissage ont connu une plus grande autoefficacité que ceux qui avaient été incités à faire de leur mieux. L’autoefficacité entraîne en corrélation positive avec le comportement en travail d’équipe et l’engagement envers un but. Ces conclusions suggèrent que les buts axés sur les résultats comportementaux peuvent atténuer la nécessité d’imposer des buts d’apprentissage dans le cas de tâches complexes.

Four decades ago, McGehee and Thayer (1961, p. ix) stressed that until organizational “training is submitted to systematic and carefully controlled research and evaluation, management will continue to use a tool of unknown worth, or, worse yet, jump from bandwagon to bandwagon.” Over the past three decades, authors have continued to criticize the training literature for its lack of systematic research and its atheoretical base. For example, Campbell (1971) stated that training research needed to be programmatic and grounded in theory; Latham (1988) voiced concern that practitioner journals appeared to be unaffected by empirical research grounded in theory; and Tannenbaum and Yukl (1992) stated that the training field, while improving, was still prone to atheoretical tendencies.

These criticisms are particularly salient with regard to training programs designed to improve teamwork behaviour. While practitioner journals and the popular press contain numerous articles advocating the implementation of team training programs, an examination of recent training literature reviews (e.g., Salas, Dickenson, Converse & Tannenbaum, 1992; Tannenbaum & Yukl, 1992) revealed a dearth of empirical research concerning the effectiveness of training programs designed to improve an individual’s teamwork behaviour. This lack of scientific research represents a critical problem, as the ability to work effectively in a team environment has been argued to be a core managerial competency for the 21st century (Allred, Snow, & Miles, 1996).

Given this void in the literature, the purpose of the present study was to build on the scientific research supporting goal-setting theory (Locke & Latham, 1990) in an effort to systematically develop and evaluate a training program to improve an individual’s teamwork behaviour. The training procedures were based on theory because theory provides a framework for designing the appropriate training methodology as well as a basis for explaining the success or failure of a training intervention (Latham & Crandall, 1991).
Goal-setting theory is considered to be among the most effective motivational theories in terms of validity and practicality (Lee & Earley, 1992; Miner, 1984). Pinder (1998, p. 384) concluded that it has “more scientific validity than any other theory or approach to work motivation.” Thus goal setting was the theoretical basis of this training program. Three core findings of this theory are as follows. First, individuals who set specific, difficult goals perform at higher levels than those who do not set goals or those who set vague, abstract goals such as being urged to “do their best.” Second, for individuals who are committed to their goal, there is a positive, linear relationship between goal difficulty and performance. Third, knowledge of results or feedback as well as incentives only affect behaviour to the extent that they lead to the setting of, and commitment to, specific, difficult goals. These core findings are supported by over 400 laboratory and field studies (Locke & Latham, 1990).

Recent empirical studies (e.g., Earley, Connolly, & Ekegren, 1989; Huber, 1985) have raised doubts concerning the effectiveness of specific, difficult goals in improving performance on tasks where the person has not yet to acquire the requisite knowledge, skill, or ability (KSA). In particular, Kanfer and Ackerman (1989), in a field study of Air Force trainees who were mastering a flight simulator, showed that setting a specific difficult goal had a deleterious effect on performance in the initial stages of learning. This is because goal setting is primarily a motivational technique (Locke & Latham, 1984, 1990). When primarily learning rather than motivation is required, the setting of a specific, difficult performance outcome goal can cause individuals to focus on the consequences of failure rather than developing and encoding the appropriate strategies or behaviours to attain their goal.

A subsequent study by Winters and Latham (1996) suggests that the findings of these previous studies may have been caused by the type of goal that was set. They replicated the findings of Kanfer and Ackerman (1989) regarding the benefit of urging people to do their best on a task that is complex for them rather than setting specific, difficult goals. However, Winters and Latham also found that when a specific, difficult learning goal, rather than an outcome goal, was set, performance was significantly higher than in the “do your best” condition. Hence, Kanfer and Ackerman’s findings were not due to the effects of goal setting per se, but rather, due to the type of goal that was set, namely a performance outcome goal (i.e., achieve a specific quantity or quality target) rather than a learning goal (i.e., discover a specific number of strategies or behaviours to accomplish the task).

In summary, it would appear that performance outcome goals are effective on tasks where an individual has the knowledge and skill necessary to perform it. Learning goals are effective in improving performance on complex tasks where the person lacks the requisite knowledge and skill to perform it effectively. The issue at hand for the researchers was whether teamwork was a complex task.

Based on Wood’s (1986) definition, teamwork behaviour is a complex task. He argued that there are three dimensions of task complexity: (1) component complexity, or the number of distinct acts and information cues that are inputs to the task product; (2) coordinative complexity, or the number and nature of the relationships between the task inputs (i.e., acts and information cues) and the task product; and (3) dynamic complexity, or the number and the nature of the task inputs and the relationships between them over time. Stevens and Campion’s (1994) knowledge, skill, and ability (KSA) requirements for teamwork include two major categories of KSAAs, interpersonal and self-management, which are further divided into five subcategories and 14 specific KSAAs. Hence, the task has a large number of inputs and thus meets the first dimension of task complexity, namely, component complexity. The task is coordinatively complex, as it contains task inputs that require integrating cues in judgment and coordinating simultaneous information from different sources. An example is the “KSA to maximize consonance between non-verbal and verbal messages, and to recognize and interpret the non-verbal messages of others” (Stevens & Campion, 1994, p. 309). Finally, teamwork meets the definition of being dynamically complex due to the ongoing changes in the acts and information cues required to perform the task. On this basis, it would appear that a learning, rather than a performance, outcome goal should be set to discover specific ways to accomplish the above.

A specific, difficult learning goal requires the individual to generate a specific number of strategies or behaviours to perform the task effectively (Winters & Latham, 1996). The necessity to do so on a complex task might be removed, however, if subject matter experts, through a job analysis, prescribe the requisite behaviours for performing the task effectively. This hypothesis has not yet been tested. In all the preceding studies where urging people to do their best resulted in higher performance than giving people a performance outcome goal to attain, the requisite behaviours were unknown to the participants. The practical significance of setting a behavioural outcome goal is that the job analysis from which the behaviours are derived may eliminate the necessity for people to generate or discover the appropriate strategies or behaviours needed to successfully perform the task, as
well as eliminate the possibility of them choosing inappropriate behaviour. Thus, the purpose of the present study was to assess the relative effectiveness of behavioural versus learning goals.

Specifically, the study assessed the relative effectiveness of behavioural outcome goals, learning goals, and being urged to do your best (DYB) for improving an individual’s teamwork behaviour. Based on the findings of Winters and Latham (1996), we hypothesized that participants who set a specific, difficult learning goal demonstrate more teamwork behaviour than participants who are urged to do their best. Based on the prescriptive value of behaviours derived from a job analysis, the second hypothesis was that people who set a specific, difficult behavioural outcome goal demonstrate more teamwork behaviour in a group problem-solving task than those who set a learning goal.

Bandura’s (1986) social cognitive theory is complementary to goal-setting theory in that it too emphasizes the importance of goal setting (Bandura, 1997; Locke & Latham, 1990). A second key variable of social cognitive theory is self-efficacy, defined as “beliefs in one’s capability to organize and execute the courses of action required to produce given attainments” (Bandura, 1997, p. 3). Self-efficacy is a critical variable for training effectiveness (Gist & Mitchell, 1992; Saks, 1995). In fact, posttraining self-efficacy is positively related to training outcomes such as mastery of a computer software program (Gist, Schwoerer, & Rosen, 1989), job attendance (Frayne & Latham, 1987), idea generation (Gist, 1989), and work adjustment of new employees (Saks, 1995).

A goal cannot be a goal unless there is commitment to it (Bandura, 1986; Locke, Latham, & Erez, 1988). In turn, goal commitment is influenced by self-efficacy (Hollenbeck, Williams, & Klein, 1989; Locke & Latham, 1990). Locke, Latham, and Erez (1988) have argued that there is a linear relationship between self-efficacy and goal commitment, with individuals who have high self-efficacy being more likely to commit to difficult goals than those with low self-efficacy. Empirical studies have supported this hypothesis (e.g., Huber & Neale, 1986; Locke, Frederick, Lee, & Bobko, 1984; Mento, Cartledge, & Locke, 1980). As such, self-efficacy can affect the goal setting-performance relationship. Specifically, performance and goal commitment decrease when individuals do not believe that they can attain a given level of performance, and increase when individuals believe that they can attain a given level of performance. Hence, the third hypothesis was that the correlations between posttraining self-efficacy and teamwork behaviour, as well as posttraining self-efficacy and goal commitment, are significant.

Winters and Latham (1996) found that the self-efficacy levels of participants who set learning goals was significantly higher than those in the “do your best” (DYB) condition. Thus, the fourth hypothesis was that participants who set a specific, difficult learning goal have higher self-efficacy than those who are urged to DYB.

By definition, learning goals require an individual to discover and develop the strategies and behaviours necessary to effectively perform a task. Given that behavioural outcome goals are set on Behavioural Observation Scales (BOS; Latham & Wexley, 1977, 1994) that list the behaviours that define teamwork, our final hypothesis was that participants who set a specific, difficult behavioural outcome goal in terms of the score that they wish to attain have higher self-efficacy concerning their ability to demonstrate teamwork behaviour relative to those who set a learning goal.

In summary, the hypotheses of this study were as follows:

1) Teamwork behaviour is significantly higher in the training condition where a learning goal is set than in the condition where individuals are urged to do their best.

2) Behavioural outcome goals result in significantly more teamwork behaviour than do learning goals.

3) Post-training self-efficacy correlates positively with both the individual’s teamwork behaviour and goal commitment.

4) Self-efficacy is significantly higher when the person sets a learning goal rather than focusing on doing one’s best.

5) Behavioural outcome goals result in significantly higher self-efficacy than do learning goals.

**METHOD**

**Sample**

The sample consisted of 50 business school students recruited from Managerial Skills Development courses in a Canadian university. The mean age of the sample was 25.3 years (SD = 7.7); 46% (n = 23) of the sample was male. Participants were randomly assigned to one of three conditions, namely, behavioural outcome goals, learning goals, and “do your best” (DYB). These individuals were then randomly assigned to work in teams of 4-6 people.

**Training Task**

The Subarctic Survival Situation (Lafferty, 1987) was used as the training task, as it was designed specifically to improve an individual’s interpersonal skills, in
TABLE 1
BO5 Items and Associated Teamwork KSA Requirements From Stevens and Campion (1994)

<table>
<thead>
<tr>
<th>Teamwork Behavioral Observation Scales (BO5) Items</th>
<th>Teamwork Knowledge, Skill, and Ability (KSA) Requirements Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Helps the group reach consensus.</td>
<td>Collaborative Problem-Solving KSA s</td>
</tr>
<tr>
<td>Explains the logic/rationale for his/her ideas and position.</td>
<td>Communication KSA s</td>
</tr>
<tr>
<td>Focuses the group on the task at hand.</td>
<td>Planning and Task Coordination KSA s</td>
</tr>
<tr>
<td>Listens actively and nonjudgmentally to others’ viewpoints.</td>
<td>Communication KSA s</td>
</tr>
<tr>
<td>Solicits the opinion of all team members.</td>
<td>Collaborative Problem-Solving KSA s</td>
</tr>
<tr>
<td>Mediates any conflicts among team members.</td>
<td>Conflict Resolution KSA s</td>
</tr>
<tr>
<td>Actively participates in group discussion.</td>
<td>Collaborative Problem-Solving KSA s</td>
</tr>
<tr>
<td>Is courteous with teammates.</td>
<td>Communication KSA s</td>
</tr>
<tr>
<td>Assertively defends viewpoint as opposed to giving in or being stubborn.</td>
<td>Communication KSA s; Collaborative Problem-Solving KSA s</td>
</tr>
<tr>
<td>N/A</td>
<td>Goal Setting and Performance Management KSA s</td>
</tr>
</tbody>
</table>

particular those related to group problem-solving and decision-making (Lafferty, 1988). We chose a problem-solving/decision-making task as it is a key activity of teams (Katzenbach & Smith, 1994), and it also is a key activity contributing to team effectiveness (Guzzo, 1995). As such, it is an organizationally relevant task. The simulation requires groups to imagine that their small plane has crashed. They have 15 minutes to individually rank 15 items that they had taken from the plane in terms of importance to their survival. Once this ranking is completed, they have 40 minutes to reach consensus concerning the rankings. At the end of the simulation, the results of the individual and team rankings are compared to those of the experts, namely the Rescue Squad of the Canadian Forces. After the scoring activity has taken place, participants debrief one another in terms of one another’s individual behaviour that helped, or hindered, the consensus process.

**Teamwork Behaviour**

In the present study, a job analysis was conducted, using the critical incident technique (Flanagan, 1954), to define teamwork behaviour. Consistent with Latham and Wexley (1977, 1994), Behavioural Observation Scales (BOS) were developed on the basis of this job analysis to evaluate each person’s behaviour.

In brief, 12 students, who did not participate in this study, but who had completed the Subarctic Survival task, participated in the job analysis. Each person provided a list of effective and ineffective critical incidents that they observed take place in the simulation. A total of 72 incidents were collected. Using these 72 incidents, the following steps were taken. First, four Human Resources/Organizational Behaviour doctoral students (“judges”) combined incidents that were similar into a single behavioural item (e.g., “Helps the group reach consensus”). Nine behavioural items were developed using this inductive process. Second, the doctoral students inductively derived two behavioural dimensions on the basis of these nine items, namely, interpersonal skills and facilitation/group process management skills. Third, the content validity of the two dimensions and the behaviours that defined them were assessed. Specifically, 10% of the critical incidents were set aside prior to the development of the behavioural items and the performance dimensions. Once the behavioural items had been created, the judges then analyzed whether the excluded 10% of incidents described behaviours that had already been captured in the nine behavioural items. They found that all of the excluded incidents were redundant; thus, the BOS were deemed to have content validity. Fourth, the original critical incidents and the behavioural dimensions generated inductively by the doctoral students were given to an external trainer who was familiar with the Subarctic Survival exercise. The trainer then reclassified the critical incidents into items and dimensions. The interjudge agreement was assessed and found to be acceptable with ratios of .94 and .81, respectively. Fifth, a 5-point Likert-type scale was attached to each of the nine behavioural items. Sixth, an additional 15 people took part in the Subarctic activity and had their performance assessed by their peers.

The resulting nine-item BOS was reliable (Cronbach’s alpha = .76). Table 1 lists the nine items. Convergent validity of the BOS is suggested by the comparison of these behaviours with that of Stevens and Campion (1994), who, based on their review of the literature, developed teamwork KSAs for the individual.

**Goal Setting**

All participants were given the BOS. Participants in the behavioural outcome goal condition (n = 17) were informed that setting a specific, difficult goal improves performance. In conjunction with the trainer, they set
TABLE 2  
Means, Standard Deviations, and Correlations of Key Variables  

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean (SD)</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Learning Goal Set</td>
<td>4.8 (1.1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Outcome Goal Set</td>
<td>30.5 (1.6)</td>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Goal Commitment</td>
<td>21.1 (2.7)</td>
<td>.50*</td>
<td>.67**</td>
<td>.44†</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Initial Self-Efficacy</td>
<td>40.2 (9.7)</td>
<td>.58*</td>
<td>.39*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Post-Task Self-Efficacy</td>
<td>37.4 (11.0)</td>
<td>.39</td>
<td>.35*</td>
<td>.84***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Teamwork Behaviour</td>
<td>27.6 (3.7)</td>
<td>.11</td>
<td>.42**</td>
<td>.23</td>
<td>.29*</td>
<td></td>
</tr>
</tbody>
</table>

Note. Correlations for variables 3 through 5 are based on total sample. Correlations for variables 1 and 2 are for learning goal and outcome goal participations, respectively.  
† p < .10; * p < .05; ** p < .01; *** p < .001.

a specific, difficult goal concerning the score they wanted to attain from their peers on the BOS. A participative goal was set, as participation can lead to the setting of a more difficult goal than one that is assigned (Latham, Mitchell, & Dossett, 1978). Goal commitment and initial self-efficacy measures were assessed at this time. Immediately following these surveys, the subarctic simulation was started.

The learning goal and DYB conditions replicated the preceding procedure with the following exceptions. In the former condition, participants (n = 17) were asked to set a specific, difficult learning goal. That is, they were asked to specify the number of ideas or strategies that they would generate to enable them to demonstrate the teamwork behaviours listed on the BOS. These instructions were consistent with those of Winters and Latham (1996). In the DYB condition, the trainer explained to the participants (n = 16) the necessity of doing their best to demonstrate the behaviours listed on the BOS because teamplaying was critical to doing well on the task.

**Self-Efficacy and Teamwork Behaviour**

Given the previously discussed research concerning the relationship between self-efficacy and post-training performance, self-efficacy was hypothesized to play an influential role in this study. Self-efficacy magnitude and strength were assessed consistent with the recommendations of Lee and Bobko (1994). Self-efficacy magnitude was assessed by asking participants if they believed that they could achieve specific BOS scores (yes or no). Self-efficacy strength was assessed by asking participants their confidence in their ability to achieve these BOS scores (on a 10-point scale) when their peers assessed their teamwork behaviour at the end of the session. To calculate total self-efficacy, “we took the raw scores of self-efficacy strength (10-point scale) and then summed these across self-efficacy levels that were answered yes” (Lee & Bobko, 1994, p. 365). Self-efficacy was measured immediately after goal setting and DYB interventions, and again after the subarctic simulation had ended, but before the peer assessments were received. Cronbach’s alpha coefficients for the initial and post-task self-efficacy scales were .86 and .86, respectively. The test-retest reliability was .84 (p < .001).

The dependent variable in this study was teamwork behaviour, measured by BOSs at the end of the study. Peer ratings were used as they are both reliable and valid measures of behaviour (Kane & Lawler, 1978). Peers completed the BOS on each individual teammate anonymously. Each behaviour was assessed on a 5-point Likert-type scale (almost never/always demonstrates the behaviour). The mean number of peer ratings per participant was 4.6 (SD = 0.5). These peer evaluations were completed immediately after the subarctic simulation had ended. The level of agreement between peer raters was calculated using the average interrater agreement statistic, $r_{ag}$ (James, Demaree, & Wolf, 1993). The average $r_{ag}$ across the nine items was .71. Cronbach’s alpha coefficient for the BOS was .89.

**RESULTS**

**Preliminary Analysis**

The preliminary analysis included an examination of means, standard deviations, and two-tailed Pearson correlations, which are presented in Table 2.

**Manipulation Checks**

Manipulation checks in this study consisted of across condition comparisons of task complexity, perceived goal difficulty, perceived goal specificity, and goal commitment. As only behavioural outcome and learning goal participants set goals, participants in the DYB condition did not complete surveys assessing these latter three manipulation checks. This is consistent with previous goal-setting studies (see review in Locke & Latham, 1990).
Task complexity. Task complexity was assessed at the end of the study using a measure adapted from that of Winters and Latham (1996), as well as the criteria of Wood (1986). Specifically, the scale included four, 5-point Likert-type items, two of which measured component complexity (e.g., “To be a good team-player, I had to think about a number of things at once”) and two that measured dynamic complexity (e.g., “I could just about predict which action I needed to take to help the team move forward.”) reverse scored.

Principle components factor analysis (unrotated) revealed two factors with Eigen values of 1.6 and 1.2, respectively. Together, these factors accounted for over 69% of the variation. Two-tailed Pearson correlations showed that the correlation ($r = .30, p < .05$) between the two component items was significant as was the correlation ($r = .42, p < .001$) between the two dynamic items. The correlation between the component and dynamic items was not significant. As such, the measure appeared to effectively measure the two components of task complexity. Moreover, a grand mean of 14.3 ($SD = 2.0$; maximum score = 20) indicates that the task was viewed by the participants as moderately complex. ANOVA revealed no significant differences among the three training conditions ($f = 0.86$, $p > .05$, eta$^2 = .04$) on this measure. Thus the task and the perceived complexity of the task did not differ across conditions.

Perceived goal difficulty. Perceived goal difficulty was assessed at the end of the study using two questions adapted from Latham et al. (1978) and Winters and Latham (1996). Both questions were assessed using a 5-point Likert-type scale, where 1 = strongly disagree and 5 = strongly agree. Cronbach’s alpha for this two-item scale was .65. The grand mean was 6.4 ($SD = 1.6$), indicating that participants viewed their goal as moderately difficult. ANOVA revealed no significant differences between the two goal-setting conditions ($f = 0.00$, $p > .05$, eta$^2 = .00$).

Perceived goal specificity. Goal specificity was measured using three questions adapted from Winters and Latham (1996). Participants were asked the extent to which they believed that their goal was specific, vague (reverse scored), and uncertain (reverse scored). Again, a 5-point Likert scale was used. Cronbach’s alpha of the scale was .84. The grand mean was 10.4 ($SD = 2.6$), suggesting that participants viewed their goals as moderately specific. There was no significant difference between the goal specificity levels of behavioural outcome and learning goal conditions ($f = 0.38$, $p > .05$, eta$^2 = .00$).

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Teamwork Behaviour</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Behavioural Outcome Goal</td>
<td>29.8</td>
<td>2.4</td>
</tr>
<tr>
<td>Learning Goal</td>
<td>26.6</td>
<td>3.7</td>
</tr>
<tr>
<td>Do Your Best (DYB)</td>
<td>26.1</td>
<td>3.9</td>
</tr>
<tr>
<td>B. Initial Self-Efficacy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Behavioural Outcome Goal</td>
<td>41.3</td>
<td>7.8</td>
</tr>
<tr>
<td>Learning Goal</td>
<td>37.1</td>
<td>10.7</td>
</tr>
<tr>
<td>Do Your Best (DYB)</td>
<td>42.2</td>
<td>10.2</td>
</tr>
<tr>
<td>C. Post-Task Self-Efficacy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Behavioural Outcome Goal</td>
<td>39.1</td>
<td>9.8</td>
</tr>
<tr>
<td>Learning Goal</td>
<td>36.9</td>
<td>12.3</td>
</tr>
<tr>
<td>Do Your Best (DYB)</td>
<td>36.1</td>
<td>11.2</td>
</tr>
</tbody>
</table>

Goal commitment. Goal commitment was assessed immediately after goal setting using the five-item goal commitment scale developed by Klein, Wesson, Hollenbeck, Wright, and DeShon (2001). Cronbach’s alpha coefficient for the scale was .73. The grand mean was 21.1 ($SD = 2.7$), indicating that participants were highly committed to their goal in both goal-setting conditions. Again, ANOVA indicated that there was no significant difference in the level of commitment between the two goal-setting conditions ($f = 0.25$, $p > .05$, eta$^2 = .01$).

Hypothesis Tests

Table 2 presents descriptive information and intercorrelations for key variables. Table 3 presents group means and standard deviations for teamwork behaviour and self-efficacy.

Teamwork behaviour. ANOVA indicated that there was a main effect for goals ($f = 6.01$, $p < .01$, eta$^2 = .20$). Two-tailed planned $t$-tests failed to detect a significant difference between the learning goal and DYB conditions ($t = .36$, $p > .05$). Thus Hypothesis 1 was rejected (see Table 3, section A). However, Hypothesis 2 was supported. Two-tailed planned $t$-tests revealed that participants who set behavioural outcome goals had significantly higher teamwork behaviour than those who set learning goals ($t = 3.03$, $p < .01$). Moreover, their teamwork behaviour was significantly higher than those who were urged to do their best ($t = 3.35$, $p < .01$).

Correlations. As shown in Table 2, post-task self-efficacy correlated significantly with peer assessments of the individual’s teamwork behaviour ($r = .29$, $p < .05$), as well as with the person’s goal commitment ($r = .35$, $p < .01$).
The correlation between goal commitment and team-playing behaviour was significant \( r = .42, p < .01 \). As such, there was support for Hypothesis 3.

**Self-efficacy.** Prior to the simulation, there was no significant difference in the self-efficacy levels of participants in the three conditions \( F = 1.33, p > .05, \eta^2 = .05 \). The means and standard deviations are reported in Table 3, section B. ANCOVA, using initial self-efficacy as the covariate, revealed a significant main effect for goals \( F = 4.74, p < .01, \eta^2 = .18 \). The results of this analysis are presented in Table 3, section C. Two-tailed pairwise comparisons showed that participants in the behavioural outcome goal and learning goal conditions had higher self-efficacy than those in the DYB condition \( t = 2.04, p < .05; t = 3.02, p < .01 \), respectively. Thus, Hypothesis 4 was supported. There was no significant difference in self-efficacy between the two goal-setting conditions \( t = 1.11, p > .05 \).

**DISCUSSION**
The theoretical and practical significance of the present study can be understood in terms of the history of goal-setting research. The vast majority of studies have compared a specific-difficult performance outcome goal with the abstract goal of urging people to do their best. Kanfer and Ackerman (1989), as noted in the introduction, found that the positive effect on performance of setting a performance outcome goal (e.g., produce n widgets) is vitiated when the task is complex for people and when knowledge acquisition, rather than sheer effort or persistence, is required to excel at the task. Under these circumstances, they found that urging people to do their best led to higher performance than goal setting.

This finding led to research on learning goals. Goal-setting theory (Locke & Latham, 1990) states that for a goal to affect behaviour, it must be specific and difficult. Research that employed a specific, difficult learning goal (e.g., discover n behaviours or strategies), when the person lacked the requisite knowledge to perform the task effectively, showed that it led to higher performance than a DYB intervention, which in turn led to higher performance than setting a performance outcome goal (e.g., Winters & Latham, 1996).

Behavioural outcome goals, with few exceptions (e.g., Latham, Mitchell, & Dossett, 1978), have not been used in goal-setting studies, as many researchers prefer a hard criterion (e.g., number of widgets produced). Yet most middle- and upper-level jobs do not lend themselves to hard criterion measures at the level of the individual employee (Latham & Wexley, 1994). Moreover, hard criteria are usually affected by factors beyond the control of the individual (Campbell, Dunnette, Lawler, & Weick, 1970); hence, the importance placed on job analysis in I/O psychology for defining the behaviours that are necessary on the part of employees for increasing an organization’s effectiveness.

The significance of the present study is four-fold. First, the results show that on a task that is moderately complex for people, namely, teamwork, a behavioural goal that is set on the basis of a systematic job analysis mitigates the necessity, inherent in a learning goal, to discover the requisite desired behaviours. An additional advantage of behavioural goals derived from a job analysis is that in specifying the desired behaviour the mistaken discovery and implementation of the wrong strategy or behaviours is minimized.

Second, the present study showed that task complexity is not necessarily a boundary variable for goal-setting theory when the outcome goal is behavioural. A task that is complex, as defined by Wood (1986), can be straightforward for people who are presented with the requisite knowledge to perform it effectively. In such cases, learning is not necessary and learning goals do not need to be set.

In the present study, the BOS operationally defined teamwork for the participants. Hence, the BOS made clear to the participants the teamwork behaviours necessary for attaining their goal. Anecdotal comments from the participants during the course of this study support this conclusion (e.g., “The strategies necessary are listed on the BOS”).

That there was no significant difference in the teamwork behaviour between the learning goal and DYB conditions is explainable in terms of Kanfer and Ackerman’s (1989) resource allocation theory. They argued that outcome goals are beneficial after the initial phase of skill acquisition (i.e., declarative knowledge). This is because focusing on the outcome goal does not “...shift critical resources away from the task during the intermediate phase, of skill acquisition” (p. 676). In the learning goal condition, participants in the present study appear to have remained in the declarative knowledge phase, searching for information that they failed to realize they already possessed on the BOS, rather than focusing on the task at hand, teamplaying. This conclusion is supported by the fact that the strategies listed by the participants were frequently identical to the behaviours they already had on their BOS. In other instances, the participants appear to have “over analyzed” what was required of them to be effective. For example, a behaviour such as “mediates complaints among team members” (Item 6) informed the participants what to do, but not how to do so. One can ask one’s peers to reach consensus, listen openly to other viewpoints, restate the issue in
terms of what is best for the team overall, separate team members, etc. Prior to conducting this study, there was no way of knowing whether a behavioural goal would lead to results superior to a learning goal.

That setting a behavioural outcome goal led to a higher peer-based teamplaying score than urging people to do their best supports both goal-setting theory and previous empirical research. The theory states that knowledge affects performance only to the extent that it leads to the setting of and commitment to a specific, difficult goal. In a performance appraisal study, Latham, Mitchell, and Dossett (1978) found that engineers and scientists who were given BOS as well as praise, public recognition or monetary rewards, did not perform significantly better than those in a control group. However, those engineers/scientists who set a specific high goal in terms of a BOS score had significantly higher performance than people who did not do so. In the present study, the control group was given the BOS, but they were not asked to set a specific goal. Consistent with goal-setting theory, their teamplaying scores were significantly lower than those who set a specific, difficult behavioural outcome goal.

Third, consistent with goal-setting and social cognitive theories, the correlation between goal commitment and self-efficacy were significant, as was the correlations with teamwork. That self-efficacy at the end of the study was significantly higher in both goal-setting conditions than in the DQB condition is also supportive of both theories. This is because the setting of specific goals facilitates evaluation of one’s own performance. As people perceive that they are making progress toward their goal (enactive mastery), self-efficacy increases.

A fourth contribution of the present study is that it fills a void in the training literature. As discussed in the introduction, practitioners have been advocating the use of teamwork training even though there have been limited scientific investigations concerning ways of developing an individual’s teamwork behaviour. As such, the present study fills this void using a theory-based training method to develop teamwork behaviour, namely, goal-setting theory. Moreover, the study has developed Behaviour Observation Scales that identify the behaviours necessary to be an effective team member on group problem-solving tasks. These BOS can now be used as the starting point for other training interventions, and as dependent variables in future studies.

A potential limitation of this study is the lack of consequences to the participants for their outcomes. Therefore, there is a need to replicate these findings in a field setting. McGrath (1964) advocated the use of laboratory experiments for hypothesis testing and validation of theoretical models, and the use of field studies to cross-validate these findings in a real-life situation. Similarly, Webster and Kervin (1971, p. 269) suggested that researchers use the laboratory to test and confirm theory, as “it can give important evaluative information which is needed before the theory is applied to a natural setting.” In the present case, it was the participants’ comments that indicated that in setting behavioural outcome goals they realized that the strategies sufficient for performing the task were listed on the BOS. The information contained on the BOS went unnoticed by those in the learning goal and control conditions. Had the study not taken place in a well-controlled environment, where participants could be observed, it is unlikely that the researchers would have acquired this information. Future research should now test the generalizability of the present findings in field settings.

Participants in this study perceived the task as moderately complex. Future research is also needed on the type of goal that should be set for people when the task is highly, rather than moderately, novel or complex for people. In such tasks, a job analysis may not be feasible. In addition, research is needed to integrate the present findings regarding the benefit of behavioural outcome goals with earlier findings on the benefit of proximal plus distal performance outcome goals where the task is characterized by high environmental uncertainty (Latham & Sejts, 1999).

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. An earlier version of this paper was presented to the Annual Meeting of the Administrative Sciences Association of Canada, Saint John, New Brunswick, 1999.

Correspondence concerning this article should be addressed to Travis C. Brown, Faculty of Business Administration, Memorial University, St. John’s, Newfoundland A1B 2X5, Canada.

References


Received August 17, 2000
Revised August 26, 2001
Revised May 21, 2002
Accepted June 2, 2002