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The Relative Effectiveness of External, Peer, and Self-Coaches

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Deux recherches poursuivies sur deux continents ont fait appel à deux variables dépendantes différentes pour étudier l'efficacité relative du coach externe, du pair coach et de l'autocoaching sur la performance des participants (maîtrise de gestion). La première investigation concernait trente étudiants en gestion canadiens. Ceux qui étaient suivis par un coach extérieur présentaient une meilleure adaptation au travail collectif que ceux qui avaient un pair pour coach. La seconde recherche portait sur 23 managers en gestion australiens. Ceux qui étaient suivis soit par un coach externe, soit par eux-même, ont obtenu des résultats significativement plus élevés que ceux qui étaient accompagnés par un pair. Dans les deux études, le coach externe avait aux yeux de l'intéressé une plus grande crédibilité que le pair. Dans la seconde étude, l'autocoaching était mieux vu que le coaching du pair. La satisfaction relative à l'ensemble du processus était plus forte chez les managers pourvus d'un coach externe.

Two studies in two different continents using two different dependent variables examined the relative effectiveness of external, peer, and self-coaches on the performance of participants in two MBA programs. The first study involved MBA students in Canada (n = 30). Those who were coached by an external coach exhibited higher teamplaying behavior than did those who were coached by peers. The second study involved EMBA managers in Australia (n = 23).

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Those who were either coached by an external coach or who were self-coached had significantly higher grades than those who were coached by a peer. In both studies, an external coach was perceived by the participants to have higher credibility than their peers. In the second study, self-coaching was perceived to be more credible than coaching from peers. Satisfaction with the coaching process was highest among the managers who had an external coach.

INTRODUCTION

Hall and his colleagues defined a coach in an organisational setting as a person who works with others to develop and implement strategies to improve their performance. Typically, the coach is not the employee's supervisor and hence does not provide, and is not solicited for, input regarding the organisation's formal reward system for that employee (Hall, Otago, & Hollenbeck, 1999). For example, a global consulting firm, with offices in countries that include Australia, Canada, and the United Kingdom, uses self as well as peer coaching due to the fact that it is a partnership, and the partners work alone as well as in teams on assignments. The emphasis is on increasing the person's interpersonal skills within the firm as well as with the client so as to increase the firm's revenue. A nuclear power plant in Canada uses an external agent to coach its key managers on ways to increase their interpersonal skills, especially teamplaying, as does an investment bank in the United States.

Despite the voluminous practitioner literature on the value of coaching, there are few or no empirical studies that have evaluated the effectiveness of this practice on the subsequent performance of others. Moreover, there is little or no empirical evidence as to who is most effective as a coach. There is, at best, indirect evidence from social psychology, based on theories as well as empirical studies, that coaching may change behavior positively.

Evidence suggestive of the effectiveness of self-coaching can be inferred from Aronson's (1999a, 1999b) self-persuasion theory, which states that self-persuasion strategies produce more powerful and long lasting effects than do alternative sources. Attitude and behavior change induced from others is relatively short-term, especially when there is a strong emotional component (e.g. an adverse effect on one's job or career). With self-persuasion, there is no direct attempt from others to convince anyone to do anything. Hence, the theory states that self-persuasion allows individuals to convince themselves of the desirability of a behavior or behaviors. The empirical data in support of this theory, however, have been limited to social psychology experiments involving such diverse areas as use of condoms by teenagers (Aronson, Fried, & Stone, 1991; Stone, Aronson, Crain, Winslow, & Fried, 1994), and energy and water conservation among adults (Dickerson, Thibodeau, Aronson, & Miller, 1992). There are few or no studies of the effect of self-persuasion in organisational settings.

Peer assessments have a long history in I/O psychology because of their reliability and validity for predicting the subsequent performance of colleagues (e.g. Korman, 1968, 1970). Their effectiveness as a source of feedback that results in a positive change in the behavior of colleagues has yet to be investigated. Evidence suggesting their effectiveness can be inferred from Festinger's (1954) social comparison theory. The theory states that the drive for self-comparison is a force acting on a person to belong to a group. On subjective criteria (e.g. teamplaying), people assess their ability in comparison to others. "Given a range of possible persons for comparison, someone close to one's ability or opinion will be chosen for comparison . . . Those with whom one does not compare oneself are different kinds of people or members of different groups" (Festinger, 1954, p. 121).

Support for the use of peers as coaches can also be found in sociotechnical systems theory (Trist, 1977). The theory states that it is the group who should monitor the individual's contribution. Productivity is fostered by the group allocating tasks and other rewards and punishments to control what the group considers to be a fair contribution by a group member (Emery & Thorsrud, 1976). Little, if anything, however has been published in the sociotechnical literature on the effectiveness of peers in increasing the performance of a colleague. Moreover, in evaluation studies, consistent with Kolodny's (1996) exhortation to "change everything at once", feedback from peers is confounded with sundry other variables embedded in a sociotechnical intervention.

Support for the use of an external agent as a coach can be inferred from the social psychology literature on persuasion. For example, Cialdini (2001) argued that authority is a key determinant of another person's attitudes and actions. He cited a classic study by Lefkowitz, Blake, and Mouton (1955) who found that a person could increase by 35 per cent the number of pedestrians who would follow him across the street against a traffic light by changing one simple thing. Instead of casual dress, he donned markers of authority, namely a suit and tie.

Cialdini argued that a person can harness the power of authority by touting experience, expertise, and credentials. People value the expertise of authorities because it helps them to choose both quickly and well. Expertise refers to the extent to which a person is perceived to be a source of valid assertions especially with regard to the task that is being performed (Hovland, Janis, & Kelley, 1953). The higher the perceived source credibility, the higher the likelihood that behavior will change as a result of it (Hovland & Weiss, 1951). There is a positive relationship between the credibility of the source of delivery and information retention (Zagona & Harter, 1966), feedback acceptance (Halperin, Snyder, Shenkel, & Houston, 1976), feedback favorability (Albright & Levy, 1995), intention to use feedback (Bannister, 1986),

and performance in a laboratory setting (Northcraft & Earley, 1989). Thus on the basis of the social psychology literature, one can infer that the use of an external agent as a coach is effective in bringing about a desired behavior change in others.

Because the present research was exploratory, the following question was asked: Is one source of coaching more effective than another? To answer this question, two studies in two different continents using two different dependent variables were conducted. In the first study a behavioral criterion was assessed, namely the behavior required to be an effective teamplayer in an MBA program. The use of MBA students increases external validity (Gordon, Slade, & Schmitt, 1986). In the second study, a hard criterion was used, namely, the grade earned in an Executive MBA class by experienced managers. Credibility of source in terms of expertise was measured to see if it is an intervening variable.

STUDY 1

Method

Sample. The sample consisted of first-semester students enrolled in a Master of Business Administration (MBA) program in a Canadian university. This sample was selected because both the administrators of, as well as the faculty who teach in the MBA program, and recruiters have emphasised to students that developing the technical knowledge traditionally provided in an MBA program is necessary but not sufficient for effective performance in an employment setting. To be effective, MBA students must develop interpersonal behavioral competencies. A coaching system that focuses on critical behaviors necessary for effective teamplaying performance was viewed by the administrators as beneficial to both the students and the reputation of the business school.

Thirty first-semester MBA students volunteered for and gave their informed consent to participate in the study. They were informed that while they would be randomly assigned to one of the three coaching conditions, they would be offered the opportunity to receive the coaching treatment they had not been randomly assigned to, after the completion of data collection. These volunteers were then randomly assigned to one of the three coaching conditions. This number represents 25 per cent of the first-year MBA class. Sixty-three per cent (n = 19) of the participants were males. The participants in the study had a mean age of 27.1 (SD = 3.27) with a mean of 3.9 years of full-time work experience (SD = 2.51). The participants did not differ significantly from the non-participants (n = 88) on sex (χ^2 = .42, ns), age (t = .63, ns), GMAT score (t = .52, ns), incoming GPA (t = 1.50, ns), or work experience (t = 1.31, ns).

Design. A one-factor between-groups (source of coaching: self, peer, or external) repeated measures design was used. Participants in the external and peer conditions were coached twice during the semester.

Procedure. The procedure for coaching consisted of three steps, namely the development of behavioral observation scales (BOS), training in how to use BOS to set goals and provide feedback, and the training to increase objectivity in the observation of behavior.

Development of BOS. BOS were used because previous studies have shown that they are content valid, and they have high inter-observer reliability (e.g. Latham & Skarlicki, 1995; Latham & Wexley, 1994; Latham, Fay, & Saari, 1979). Moreover, they have been found to be effective in increasing rating objectivity once the observer has been trained (Fay & Latham, 1982). In addition, BOS have been shown to be effective in facilitating feedback (Tziner & Latham, 1989).

A job analysis using the critical incident technique (Flanagan, 1954) was conducted with 30 randomly selected second-year MBA students. They were asked to recall their observations of effective and ineffective behaviors of peers during their first year in this MBA program. Four faculty who had taught the first-year courses were also interviewed and asked to recall their observations of effective and ineffective performances of students.

The resulting BOS was administered to 31 full-time students who were members of the second-year MBA class, and who were former members of the first-year class. The students self-appraised their performance as first-year MBA students. An item analysis resulted in a scale consisting of 14 5-point Likert-type items. Visual inspection of the items suggested that these were related to performing effectively in a team while continuing to manage individual performance. This was not surprising since the MBA program, consistent with most MBA programs and organisations in North America, is increasingly incorporating a strong team-work component in their work and job designs (Allred, Snow, & Miles, 1996).

Cronbach's alpha coefficient for the 14-item scale was .73. The correlation between the second-year students' self-appraisals ($n = 31$) on the BOS and their GPA during their first semester in the MBA program was .61 ($p < .001$).

Training of Coaches. The procedures used to train the coaches were based primarily on principles of goal setting (Locke & Latham, 1990) and self-management techniques in which goal setting is embedded. Both theory and previous research have shown that only feedback that includes goal setting leads to increased performance that differs significantly from that of a control group (e.g. Latham, Mitchell, & Dossett, 1978). Self-management increases performance (e.g. Frayne & Latham, 1987; Latham & Frayne, 1989; Millman & Latham, 2001).

Training of external coaches and peers. One external coach was the Associate Director of the MBA program. The second external coach was a visiting assistant professor of Organizational Behavior with five years of teaching experience in a business school. These people were external coaches in that neither one had any influence on the assignment of grades to the students nor did they participate in any classroom activity or formal instruction of the participants. The peers who served as coaches were 10 members of the first-year class who were selected by a recipient to be a coach. This was done to increase the credibility of the source with the recipient.

The two external coaches and the 10 peers received a half-day of training on how to conduct an effective coaching session. The coaching technique was based on the principles developed by Maier (1976). The training consisted of lectures, discussion, and role-plays. The coaches were shown a videotape, developed by the first author, of two actors role-playing a coaching session. Behaviors that were the focus of the role-play were randomly chosen from the 14 behaviors contained in the BOS. Written descriptions of Maier's (1976) seven key coaching behaviors (active listening, respecting pauses, reflecting feelings, restating ideas, asking general exploratory questions, asking stimulating questions, summarising periodically) were interspersed as learning points on the videotape to make them distinctive (Mann & Decker, 1984).

Each coach role-played four coaching sessions, twice as the provider and twice as the recipient of coaching. Role-plays were used because, in combination with a lecture/discussion, they are effective for increasing self-efficacy, learning, and the desired behavior (Burke & Day, 1986; Cole & Latham, 1997).

Training of self-coaches. The 10 self-coaches were given an explanation of the usefulness of self-management/verbal self-guidance for developing skills such as creativity (Meichenbaum, 1975), coping with anxiety (Meichenbaum, 1972), job search (Millman & Latham, 2001), and job attendance (Frayne & Latham, 1987; Latham & Frayne, 1989). A videotape, developed by the first author, demonstrated self-management and verbal self-guidance skills. The videotape showed an MBA student progressing from thinking about reasons why he could not persuade himself to produce a high standard of work, to thinking of reasons why it is important to convince himself to produce a high standard of work and finally, thinking of what he would say or do to motivate himself to produce a high standard of work.

The learning points on the videotape included self-goal setting; self-monitoring of ways in which self-talk may act as an enabler or barrier to goal attainment; self-evaluation of progress toward goal attainment; self-administration of rewards and punishers; written self-contracts that specify goals and reward contingencies for the behavior to be improved; and strategies to ensure the ongoing use of self-management and functional self-talk.

The videotape was approximately 28 minutes in duration. At the conclusion, the trainees practised the learning points.

Measures of Training Effectiveness. Reactions to the training program for the external agents, peers, and self were assessed using an 11-item measure adapted from Wexley and Latham (1991). Learning was assessed using a 10-item, paper-and-pencil test developed for this study. The items were designed to test knowledge of coaching behavior and the interpersonal skills required to be a coach. Self-efficacy with regard to conducting a coaching session was assessed using an 8-item measure developed in accordance with the recommendations of Lee and Bobko (1994).

Observer Objectivity. The external, peer and self-coaches were trained in ways to increase their objectivity in the evaluation of performance using the training procedure developed by Latham, Wexley, and Pursell (1975). A 10-item, 5-point Likert scale adapted from Wexley and Latham (1991) was used to assess the participants' reaction to this training.

Coaching Intervention. Each participant in the peer and external conditions met twice with their assigned coaches. The first coaching session for these participants was conducted in the fourth or fifth week of the 13-week first semester. The second coaching session was conducted in the tenth or eleventh week of the semester.

All participants performed a self-assessment. After doing so, those in the external and peer coaching conditions met with their respective coaches to discuss their self-assessment and ways to improve their performance. Similarly, after completing their self-evaluations, participants in the self-coaching condition focused on ways to attain performance improvement in terms of the BOS.

External coaching. The two external coaches observed the in-class performance of all participants. The external coaches also contacted the participants to arrange time periods when they would observe study group meetings. As an administrator of the MBA program, the Associate Director also met individually with students on an ongoing basis. She reported a mean of eight observation episodes per student. The second external coach reported a mean of five observation episodes for each student. The external coaches reached consensus regarding the evaluation of each participant prior to a coaching session.

Peer coaching. People in the peer condition both coached and received coaching. Each participant was observed in class and in their study group by two peers on an ongoing basis. The two peers independently evaluated a participant prior to each coaching session and then reached consensus on the evaluation. One peer, nominated by the recipient, then met with the recipient to discuss the evaluations.

Self-coaching. Participants self-evaluated their own performance using the BOS and devised ways to improve specific behaviours identified on the BOS. Consistent with self-management training, each participant met separately with the first author to report the results of a self-written behavioral contract that specified the behaviors that the participant wanted to change, how much improvement he/she wanted to attain, self-monitoring strategy, reward and punishment contingencies, as well as maintenance strategies.

Intervening and Dependent Variables. Credibility of coaching source was measured after the first and second coaching sessions using six items adapted from previous studies (e.g. Albright & Levy, 1995; Stone, Gueutal, & McIntosh, 1984; e.g. My [coach] . . . is sincere in wanting to help me to perform effectively in the MBA program; has considerable expertise; 1 = completely disagree, 5 = completely agree). Performance was defined as the total score on the 14-item, 5-point Likert type BOS (e.g. Coordinates upcoming work with group members who are involved in it; Keeps group members accurately informed of progress on projects). Performance was assessed by the external coaches, as they were the only ones who had the opportunity to observe all the recipients of coaching.

Results

Reaction Measures. As shown in Table 1, the responses of the external coaches and peers to the reaction, learning, and self-efficacy measures indicate that they were satisfied with the training on how to conduct a coaching session, they had learned how to conduct a coaching session, and they had high self-efficacy with regard to their coaching skills. For this analysis, external coach and peer responses were combined since they received the same training.

The responses of self-coaches to the reaction, learning, and self-efficacy measures were similarly positive. Analyses of variance indicated no significant

TABLE 1
Study 1: Reaction, Learning, and Self-Efficacy Measures of Coaches

	External Coaches and Peers Coaching Training				*Self-coaching Training*			
	α	M	*SD*	n	α	M	*SD*	n
Reaction (5-point Likert scale)	.72	4.39	.28	12	.82	4.42	.38	7
Learning (10 items)	.72	8.08	1.24	12	.63	8.20	1.03	10
Self-efficacy (10-point scale)	.88	7.97	.41	12	.84	7.82	.64	10

differences between the external/peer coaching versus self-coaching conditions on these three measures. Thus the motivation level of the coaches in the three conditions was ruled out as a rival hypothesis for explanation of a main effect for coaching source on participant performance.

The coefficient alpha of the reaction measure to the training on ways to increase objectivity in the evaluation of performance was .86. The participants perceived it to be very worthwhile ($M = 4.05$, SD = .23).

A concern of small sample size studies (e.g. Wood, Atkins, & Bright, 1999) is adequate power to detect an effect and avoid a type II error (i.e. accepting the null hypothesis when it is false). For this reason, a repeated-measures ANOVA was conducted whenever measures from two time periods were available because repeated-measures analyses have greater statistical power than simple randomised designs (Stevens, 1992). This is because within-subjects variability is completely removed from the error term. Consequently, repeated-measures designs require fewer subjects than a single measure study to detect an effect size. Consistent with Beyer, Chattopadhyay, George, Glick, Ogilvie, and Pugliese (1997), power analyses (Cohen, 1988) were conducted to determine whether there was sufficient power to detect any effect sizes.

Conversely, to minimise a type I error, post-hoc mean comparison tests that adjust the observed significance level depending on the number of comparisons made were conducted to determine whether mean differences between the sources of coaching were significantly different (Norusis, 1999). The Scheffé method was chosen because of its versatility in handling comparison means that are based on unequal cell sizes (Pedhazur & Pedhazur Schmelkin, 1991). Moreover, it is the most conservative of the post-hoc tests; so, it is less likely than any other post-hoc approach to indicate that a given comparison is statistically significant (Pedhazur & Pedhazur Schmelkin, 1991). Correlations among all study variables appear in Table 2.

TABLE 2
Study 1: Correlations among Coaching Source, Credibility, and Performance

Variables	*Mean*	*SD*	*1*	*2*	*3*	*4*	*5*
1. External coach	–	–	–				
2. Peer coach	–	–	−.50**	–			
3. Self-coach	–	–	−.50**	−.50*	–		
4. Credibility of coach	3.97	.52	.55**	−.22	−.34	(.85)	
5. Performance (behavior)	2.21	.41	.38*	−.36	−.03	.02	(.81)

Note: External, peer, and self-coach are dummy coded. The mean values for credibility and performance from sessions 1 and 2 were used to calculate the correlations. Cronbach's alpha coefficients for time 2 measurement of credibility and performance are listed on the diagonal. Two-tailed *t*-test. * $p < .05$; ** $p < .01$; $28 \leq n \leq 30$.

TABLE 3
Study 1: Means and Standard Deviations (Mean of Sessions 1 and 2) for Performance, and Credibility by Coaching Condition

	External (n = *10*)	*Peer* (n = *10*)	*Self* (n = *10*)
Performance (behavior)	2.42 (.35)	1.99 (.49)	2.19 (.31)
Credibility of coach	4.36 (.32)	3.82 (.48)	3.73 (.53)

Performance. Cronbach's alpha coefficients for the BOS at the first and second coaching sessions were .81 and .81, respectively. The test-retest reliability was .59.

A repeated-measures ANOVA revealed a main effect of source of coaching on the total BOS score ($F(2, 25) = 3.51$, $p < .05$, $\eta^2 = .22$). The η^2 value indicates that the effect size is large. It was detected even though the observed power, .60 at the alpha .05 level, did not meet the .80 convention (Cohen, 1988). The Scheffé test indicated that coaching from an external agent resulted in higher performance than coaching from a peer (*Mean difference* = .48, $p < .05$). No other comparisons between sources of coaching were significant.

Credibility of Coach. Cronbach's alpha coefficients for the credibility of the coach on the first and second sessions were .75 and .85, respectively. The test-retest reliability was .67.

A repeated-measures ANOVA indicated a main effect of source of coaching ($F(2, 24) = 5.42$, $p < .05$, $\eta^2 = .31$). The observed power was .80, indicating that the sample size was sufficient to detect the effect of source of coaching on credibility. The post-hoc Scheffé test indicated that external coaches were perceived to have higher credibility than either peer (*Mean difference* = .54, $p < .05$) or self-coaches (*Mean difference* = .62, $p < .05$). There were no significant differences in the perceived credibility of peer versus self-coaches. Means and standard deviations for all variables, averaged across sessions 1 and 2, appear in Table 3.

Discussion

The results of this study indicate that an external coach is superior to peers in increasing the teamplaying effectiveness of first-year MBA students. Consistent with the social psychology literature on persuasion, this appears to be due to the fact that the external coach was seen by the participants as more credible than a peer or one's self.

That external coaches were more effective in bringing about performance changes than peers is also consistent with a previous study by Hillery and

Wexley (1974). They found that student teachers preferred to be evaluated solely by an experienced teacher rather than participate in their own performance appraisal. In addition, they had higher performance than those who participated in their own appraisal.

A limitation of this study is that there was no control group. This is often an impediment to rigorous field experiments. In the present study, the client would not allow us to deny people in the MBA program any form of coaching.

The external coaches assessed performance across conditions because only they were able to observe all the participants in all three conditions. Thus another possible limitation of this study is that the effectiveness of the external coaches may reflect a self-serving bias (Greenberg, 1991). This rival hypothesis was rejected because the recommendations of Wherry and Bartlett (1982) and Nieva and Gutek (1980) on ways to reduce observer bias were implemented. Specifically, there were multiple raters who used rating scales that had objective behavioral referents that minimised the need to infer performance. Second, all the raters were trained on which behaviors to observe, and how to minimise rating bias. Third, the raters were blind to the hypotheses of the study. Most importantly, the finding that the external coaches were more effective than the peers or self in bringing about a behavior change is corroborated by the participants' evaluation of their credibility.

A third possible limitation of the present study is that the findings may be restricted to MBA students in North America. To overcome this and the previous limitation, a second study was conducted where the criterion was a course grade assigned by an instructor who did not serve as a coach, and the MBA students were in a country that was not in North America.

STUDY 2

A limitation of the findings of much of organisational psychology is that they are based on samples drawn from North America (Erez, 2000). Thus issues of external validity need to be addressed. To determine the external validity of the findings of study 1, the second study was conducted in Australia.

Ashkanasy (1997) found that there are deeply embedded differences between the Australian and Canadian cultures. In a survey, he found a national bias on the part of Australian supervisors toward individuation and personal factors, as well as a bias toward achievement based on personal effort rather than ability. Canadians, more so than Australians, were found to prefer the use of extrinsic rewards and punishment.

In contrast with the first study, the participants in this second study were experienced managers who were enrolled in an advanced course in an EMBA program on human resource development and training. To overcome the need in the first study for an observer of the managers' behavior, a hard criterion was used, namely grade earned in the course.

Based on the findings of the first study, three hypotheses were tested, namely, that coaching from an external coach leads to a higher course grade than coaching from a peer or one's self, and source credibility is highest for an external coach. The third hypothesis was that coaching from an external agent leads to more satisfaction with the coaching process than coaching from either a peer or from self. This is because empirical research on feedback suggests that the recipient's perception of the credibility of the source affects their satisfaction (Bannister, 1986; O'Reilly & Anderson, 1980). In addition, satisfaction was included as a criterion because of its practical significance to Deans of business schools.

Method

Sample. The sample consisted of all 23 managers in a second-year EMBA course. The managers were randomly assigned to one of the three conditions, namely, external, peer, and self-coaching. Thirty per cent ($n = 7$) of the participants were males. The mean age was 30.2 years (SD = 7.46). The mean full-time work experience was 10.2 years (SD = 8.11).

Procedure. The procedure was identical to the previous study with two exceptions. First, one external coach was used. This coach was an associate lecturer who was not involved in the teaching and grading of the managers. This person had graduated with high distinction from this MBA program. Second, the same peer coached each manager in the peer condition. This was done to ensure the quality and consistency of the coaching process.

Training. Both the external coach and the peer received the training described in Study 1. The managers assigned to the self-coaching condition were trained to use the self-management skills described in Study 1.

Coaching Intervention. As in Study 1, each participant was coached twice during the 13-week semester. In each coaching session, the external coach or peer reviewed the manager's own self-assessment of course performance and advised the person on ways to attain a high grade.

Variables Measured. As in the first study, the credibility of the source of coaching was assessed. Items were adapted from Meglino, DeNisi, Youngblood, and Williams (1988) as well as from Mayer and Davis (1999). These items were added to those from the first study to form an 11-item credibility (e.g. My coach is well qualified; My coach is a very capable coach), 5-point Likert scale (1 = completely disagree, 5 = completely agree).

Satisfaction with the coaching session was assessed using a 2-item (i.e. From my perspective, my coaching session was a satisfying experience;

In general, I am satisfied with my coaching session), 5-point Likert-type scale (1 = completely disagree, 5 = completely agree) developed for the study.

Performance was assessed in terms of the grade earned. The course instructor, who did not participate in this study, was blind to the coaching condition to which the managers had been randomly assigned.

Results

Performance. Correlations among all study variables appear in Table 4. Since performance was assessed as final course grade, a between-groups ANOVA was used to assess the impact of source of coaching on performance. This analysis revealed a significant difference across conditions for course grade ($F(2, 20) = 7.14$, $p < .01$, $\eta^2 = .42$). The η^2 value indicates that the effect size is a large one. The observed power was .89 at the .05 alpha level. Consistent with the analysis in study 1, a post-hoc Scheffé test was used. Managers who had been coached by an external coach earned a higher grade than those who were coached by a peer (*Mean difference* = 7.84, $p < .01$). Moreover, managers who coached themselves also earned a higher grade than managers who were coached by a peer (*Mean difference* = 5.97, $p < .05$). There were no significant differences in the course grade between the external and self-coaching conditions.

Source Credibility. Cronbach's alpha coefficients for the perceived credibility of the coach for the first and second coaching sessions were .86 and .92, respectively. The test-retest reliability was .70. Since credibility was measured twice, a repeated-measures ANOVA was conducted. There was a significant difference in perceived source credibility across coaching

TABLE 4
Study 2: Correlations among Coaching Source, Credibility of Coach, Satisfaction with Coaching, and Performance (Grade)

Variables	*Mean*	*SD*	*1*	*2*	*3*	*4*	*5*	*6*
1. External coach	–	–	–					
2. Peer coach	–	–	–.48*	–				
3. Self-coach	–	–	–.53**	–.48*	–			
4. Credibility	3.88	.64	.52*	–.65**	.11	(.92)		
5. Satisfaction	3.60	.90	.75***	–.59**	–.19	.76**	(.93)	
6. Performance	75.52	5.19	.44*	–.63**	.17	.57*	.48*	–

Note: External, peer, and self-coach are dummy coded. The mean values for credibility and satisfaction from sessions 1 and 2 were used to calculate the correlations. Cronbach's alpha coefficients for time 2 measurement of variables are listed on the diagonal. Performance (grade) is final course grade. Two-tailed *t*-test. * $p < .05$; ** $p < .01$; $n = 23$.

conditions ($F(2, 20) = 9.10$, $p < .01$, $\eta^2 = .48$). The η^2 value indicates that the effect size is a large one. The observed power was .95 at the .05 alpha level. The post-hoc Scheffé test indicated that managers perceived the external coach to be more credible than the peer coach (*Mean difference* = 1.05, $p < .01$). Self-coaches were also rated significantly higher in credibility than the peer coach (*Mean difference* = .70, $p < .05$). The external coach was not rated more credible than the self as coach.

Satisfaction. Cronbach's alpha coefficients for the participants' satisfaction with their coaching sessions for the first and second sessions were .91 and .93, respectively. The test-retest reliability was .43. Since satisfaction was measured twice, a repeated measures ANOVA was conducted. This analysis indicated that there was a significant difference in satisfaction with the coaching process ($F(2, 20) = 16.89$, $p < .001$, $\eta^2 = .63$). The η^2 value indicates that the effect size is a large one. The observed power was .99 at the .05 alpha level. The post-hoc Scheffé test indicated that managers who were coached by an external coach were more satisfied with their coaching sessions than were those coached by a peer (*Mean difference* = 1.68, $p < .001$) or those who coached themselves (*Mean difference* = 1.13, $p < .01$). There was no significant difference in satisfaction between peer and self-coaches. Means and standard deviations for all study variables, averaged across sessions 1 and 2, appear in Table 5.

Exploratory Mediation Analyses. A mediating hypothesis was not advanced in Study 2; however, the correlations suggest that both satisfaction with and credibility of the coach are possible mediators. Consistent with Wood et al. (1999), separate ANCOVAs were used to examine this possibility. The satisfaction and credibility ratings from time 1 and time 2 were both entered in their respective ANCOVAs as the covariate terms. A significant *F*-value would have indicated that the covariate is a mediator. However, neither satisfaction nor credibility was significant.

TABLE 5
Study 2: Means and Standard Deviations for Credibility of Coach, Satisfaction with Coaching Session (Mean of Sessions 1 and 2), and Performance by Coaching Condition

	External (n = 8)	*Peer* (n = 7)	*Self* (n = 8)
Credibility of coach	4.32 (.45)	3.27 (.53)	3.98 (.46)
Satisfaction with coaching session	4.50 (.38)	2.82 (.64)	3.38 (.67)
Performance (grades)	78.56 (3.76)	70.71 (3.40)	76.69 (5.04)

In summary, the hypothesis that coaching from an external agent leads to higher performance than coaching from a peer was supported. Similarly, the hypothesis that source credibility of an external agent is higher than that of peers was also supported. Contrary to the hypothesis, self-coaching led to higher performance than coaching from a peer. Self-coaching was also viewed as more credible than coaching from peers. Consistent with the third hypothesis, satisfaction with the coaching process was highest when the coach was an external agent.

DISCUSSION

The findings of these two studies underscore the importance of coaching by a credible source in increasing the effectiveness of MBA students on two different dependent variables, teamplaying behavior and academic achievement. The practical significance of these two studies is that they provide strong empirical support for the use of an external coach. External coaches are perceived as highly credible sources by Australians as well as by Canadians. As both Ashkanasy (1997) and Triandis (1994) have noted, research findings from different cultures increase confidence in the data when they are convergent.

Anecdotal evidence also supports the use of an external coach. Participants in Canada who had been assigned an external coach stated that the coach gave them "excellent focus". The Australian managers who had an external coach also noted that the "ideas from the coaching sessions were brilliant because I immediately put these into effect . . . with great results. I wanted a high distinction [A] . . . and I got it".

Canadians in the peer condition noted that they were surprised by the honesty of the feedback, but that they did not perceive a peer to be sufficiently knowledgeable to give them useful feedback. Australian managers were even less enthusiastic. One noted that "there was very little that was either effective or ineffective about peer coaching".

Future research should examine the effect of peers serving as coaches in work contexts where the peer has much more expertise than the person who is being coached. In such a context, a peer who is viewed as an expert is likely to be a much more credible coach than was the case in the two present studies. That peers in the two present studies were not effective coaches appears to have been due to their perceived lack of expertise.

Participants in the self-coaching condition in the first study stated that they had difficulty identifying which behaviors to improve on in the future. The Australians who coached themselves, however, reported that the process was effective. As one Australian manager noted, "self-coaching raised my awareness of 'positive' and 'bad' behaviours". Thus, the contrary findings of the present two studies suggest a boundary condition for Aronson's

(1999a, 1999b) theory of self-persuasion, namely, the extent to which the person possesses the knowledge and ability to perform the task. In all of Aronson's studies of self-persuasion, the person already possessed the requisite knowledge and skill to make the behavior change. The issue confronting the individual was primarily one of motivation to do so. In the present study, the students in Canada lacked the knowledge and skill necessary to improve themselves as teamplayers. In the second study, the Australians were experienced managers from industry. They had little difficulty in coaching themselves using the behavioral checklist provided to them for attaining a high grade.

Whether credibility or satisfaction, as well as other cognitive or affective reactions, are mediators of the coaching–performance relationship warrants further investigation. In the second study, the observed effect sizes of these two variables in the mediation analyses suggest that they range in magnitude from small to large effects. The correlations suggest that these two variables likely determine whether a person will be effective as a coach.

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