Transformational and Transactional Leadership and Exercise-related Self-efficacy

An Exploratory Study

MARK R. BEAUCHAMP
University of British Columbia, Canada

AMY S. WELCH & ANGIE J. HULLEY
University of Leeds, UK

Abstract

The purpose of this study was to examine the relationships between transformational and transactional leadership behaviors and the self-efficacy of participants involved in a structured 10-week exercise program. Three weeks into their exercise classes 174 females (M age = 25.36 years, SD = 8.48) provided ratings of their exercise instructor’s leadership behaviors as well as their personal efficacy related to scheduling, over-coming barriers and within-class capabilities. Results revealed that for exercise initiates, contingent rewards behaviors were able to explain unique variation in scheduling self-efficacy and barrier self-efficacy, but not within-class self-efficacy. For experienced exercisers, none of the leadership behaviors assessed in this study were associated with participant self-efficacy.

Keywords
- contingent rewards
- exercise
- leadership behaviours
- self-efficacy theory
A GROWING body of research has sought to understand the role of the exercise leader as an agent of influence, with the ability to foster adaptive functioning within people enrolled in exercise programs. A potentially important framework for understanding the effects of instructor behaviors on exercisers’ cognitions and behaviors corresponds to the ‘full range’ paradigm of leadership developed by Bass and colleagues (Bass, 1985; Bass & Avolio, 1994; Bass, Avolio, & Atwater, 1996), which conceptualizes transactional and transformational leadership. Although this approach has yet to be considered within the context of physical activity and structured exercise programs, a considerable amount of research has employed this model in contexts as varied as the military (Kane & Tremble, 2000), education (Sosik, Avolio, & Kahai, 1997) and business (Howell & Avolio, 1993). According to Bass, transactional leadership exerts influence by setting goals, providing feedback and exchanging rewards for achievement. Transformational leadership on the other hand, exerts influence by elevating followers’ goals and providing them with the confidence to go beyond minimally accepted standards. Bass theorized that transformational leadership is not a substitute for transactional methods, rather that transactional leadership provides the basis for effective leadership and that, ‘transformational leadership styles build on the transactional base in contributing to the extra effort and performance of followers’ (Bass, 1998, p. 5).

An important cognition that has been found to mediate the relationship between the provision of physical activity interventions and adherence behaviors is self-efficacy (McAuley, Courneya, Rudolph, & Lox, 1994). Self-efficacy refers to a ‘belief in one’s capabilities to organize and execute the courses of action required to produce given attainments’ (Bandura, 1997, p. 3). Research by Turner, Rejeski and Brawley (1997) suggests that some of the behaviors characteristic of transactional leadership may be related to enhanced self-efficacy among exercise participants. Specifically, Turner et al. (1997) found that socially enriched exercise conditions elicited higher levels of self-efficacy than bland conditions. Although the research by Turner et al. was not designed to examine the effects of transactional leadership per se, the behaviors characteristic of the ‘enriched condition’ demonstrated very close parallels with this leadership dimension (cf. Avolio, Bass, & Jung, 1999). For example, leadership behaviors expressed within the enriched condition included using participants’ names and giving frequent individual attention (i.e. individual consideration), and providing specific reinforcement for positive behaviors as well as rewarding effort and ability immediately after activities (i.e. contingent reward).

One of the fundamental features of transformationaltransactional leadership theory is the proposition that transformational leadership acts to augment the effects of transactional behaviors in explaining salient outcomes among followers (Bass, 1998). Evidence that transformational leadership may augment the effects of transactional leadership in elevating participants’ self-efficacy beliefs comes from recent organizational psychology research. In particular, research by Kark, Shamir and Chen (2003) suggests that transformational leadership may bolster followers’ self-efficacy by empowering them to successfully perform given tasks. Thus, the overall purpose of this study was to examine whether (a) transactional leadership is related to exercisers’ efficacy beliefs, and (b) transformational leadership augments the effects of transactional leadership in explaining variance in exercise-related self-efficacy.

Method
Participants
Participants were 174 females ($M$ age = 25.36 years, $SD$ = 8.48) enrolled in 10-week exercise classes at two universities in the United Kingdom. Seventy-eight participants reported that they had been enrolled in structured fitness classes for at least six months prior to the point at which data were collected and so, in line with the criteria outlined by Bray, Gyurcsik, Culos-Reed, Dawson and Martin (2001), were classified as ‘experienced’ exercisers. Eighty-six participants were classified as exercise ‘initiates’, as they had not participated in regular exercise classes over the same period. Ten people did not provide any information about their exercise history and so were left as unclassified.

Measures
Leadership
A modified version of the Multifactor Leadership Questionnaire (MLQ) Form 5x—Short Form (Bass & Avolio, 1995) was used to assess two transformational leadership dimensions (charismatic behaviors and inspirational motivation—12 items; intellectual stimulation—four
items) and two transactional leadership dimensions (individual consideration—four items; contingent reward—four items). Although various factor solutions have been presented for the MLQ, Avolio et al. (1999) recently suggested that the four aforementioned dimensions represent the most parsimonious model fit for transactional and transformational leadership. Participants were required to rate the frequency with which their exercise instructors displayed each leadership behavior on a five-point scale anchored by 0 (Not at all) and 4 (Frequently, if not always). With the exception of the individual consideration subscale, all internal consistency values exceeded Nunnally’s (1978) suggested criteria of .70 (see Table 1). An alpha value of .67 was recorded for the individual consideration subscale, and given the exploratory nature of the study data from this subscale were retained for subsequent analysis.

**Self-efficacy**

Three measures of self-efficacy were employed. *In-class self-efficacy* relates to exercisers’ confidence to complete salient within-class tasks, and was assessed using the six-item scale developed by Poag-DuCharme and Brawley (1993). *Barrier self-efficacy* was assessed using the four-item scale employed by Bray et al. (2001). This scale measures exercisers’ beliefs in their capabilities to overcome barriers to exercise. *Scheduling self-efficacy* was assessed using a 10-item scale that was initially developed by DuCharme and Brawley (1995), but was modified by Bray et al. (2001). This measure assesses exercisers’ confidence to complete specific behaviors required to attend their scheduled exercise class. Participants rated their confidence to perform each behavior ‘over the next four weeks’ on a scale anchored by 0 (Not at all confident) to 100 (Extremely confident). Acceptable internal consistencies were recorded for each of the three efficacy scales (see Table 1).

**Procedures**

Participants were recruited through initial contact with exercise instructors working at two universities in the United Kingdom. Before questionnaires were administered at the end of each exercise class participants were informed of the voluntary nature of the study and were assured of confidentiality and their informed consent obtained. Data were collected three weeks into each exercise class because research has consistently found self-efficacy to be a better predictor of adherence behaviors when it is assessed early as opposed to later in an exercise program (Dawson & Brawley, 2000).

### Table 1. Descriptive statistics and correlations for leadership behaviors and exercise self-efficacy

<table>
<thead>
<tr>
<th>Measure</th>
<th>Experienced Exercisers M (SD)</th>
<th>Exercise Initiates M (SD)</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Charisma and inspiration</td>
<td>.91 2.37 (.84)</td>
<td>2.17 (.96)</td>
<td>–</td>
<td>.65**</td>
<td>.71**</td>
<td>.87**</td>
<td>.26*</td>
<td>.07</td>
<td>.30**</td>
</tr>
<tr>
<td>2. Intellectual stimulation</td>
<td>.73 2.24 (1.06)</td>
<td>2.11 (.98)</td>
<td>.78**</td>
<td>–</td>
<td>.57**</td>
<td>.62**</td>
<td>.08</td>
<td>.06</td>
<td>.11</td>
</tr>
<tr>
<td>3. Individual consideration</td>
<td>.67 2.55 (.92)</td>
<td>2.26 (.92)</td>
<td>.68**</td>
<td>.64**</td>
<td>–</td>
<td>.68**</td>
<td>.30**</td>
<td>.12</td>
<td>.31**</td>
</tr>
<tr>
<td>4. Contingent reward</td>
<td>.73 2.34 (.92)</td>
<td>2.19 (1.02)</td>
<td>.81**</td>
<td>.76**</td>
<td>.67**</td>
<td>–</td>
<td>.30**</td>
<td>.13</td>
<td>.35**</td>
</tr>
<tr>
<td>5. Barrier self-efficacy</td>
<td>.81 77.11 (15.70)</td>
<td>67.48 (18.05)**</td>
<td>–.08</td>
<td>.03</td>
<td>.06</td>
<td>.02</td>
<td>–</td>
<td>.66*</td>
<td>.83**</td>
</tr>
<tr>
<td>6. In-class self-efficacy</td>
<td>.86 87.72 (11.67)</td>
<td>80.84 (15.19)**</td>
<td>.07</td>
<td>.12</td>
<td>.12</td>
<td>.15</td>
<td>.53**</td>
<td>–</td>
<td>.67**</td>
</tr>
<tr>
<td>7. Scheduling self-efficacy</td>
<td>.89 77.63 (14.65)</td>
<td>66.82 (18.48)**</td>
<td>-.03</td>
<td>.17</td>
<td>-.07</td>
<td>.05</td>
<td>.72**</td>
<td>.54**</td>
<td>–</td>
</tr>
</tbody>
</table>

Note: N = 174, nexperienced exercisers = 78, ninitiates = 86. The asterisks in the exercise initiates column (**p < .01, ***p < .001) highlight significant (univariate) differences between exercise initiates and experienced exercisers within the MANOVA model. Correlations for exercise initiates are presented above the diagonal and below the diagonal for experienced exercisers (*p < .05, **p < .01).
Results

Preliminary analysis
In light of the possibility that experienced exercisers and initiates may differ in their perceptions of their exercise environment, an initial one-way MANOVA was conducted with the two groups (i.e., experienced exercisers versus initiates) as independent variables and three efficacy variables and four leadership variables as dependent variables, to determine whether any meaningful differences existed between these groups. A multivariate effect was found to exist ($\lambda = .88$, $F(7, 155) = 2.94$, $p < .01$), and so the two samples were subsequently analyzed separately. Descriptive statistics and correlations for each of the study measures are presented in Table 1. Closer inspection of the univariate statistics revealed that exercise initiates reported significantly lower levels of all the three types of self-efficacy than experienced exercisers (see Table 1).

Relationships between leadership behaviors and exercise participants’ self-efficacy
Hierarchical multiple regression analyses were conducted to ascertain the relationship between exercise instructors’ leadership behaviors and participants’ self-efficacy beliefs. This involved regressing the two transactional variables against the dependent variable (self-efficacy) on the first step, with the two transformational dimensions entered on step two of the regression equation. Given that three forms of efficacy were assessed as dependent variables, a more conservative alpha value of $p < .016$ was employed by employing a Bonferroni correction procedure. For exercise initiates, contingent reward behaviors were able to explain 9 percent of the variance in barrier self-efficacy on the first step ($\beta = .30$, $F(1, 84) = 8.55$, $p < .01$, $R^2 = .09$), however, none of the transformational behaviors were able to account for additional variance in barrier self-efficacy in the second step. For initiates, contingent reward behaviors were able to account for 12 percent of the variance in scheduling self-efficacy on step one ($\beta = .35$, $F(1, 84) = 11.44$, $p < .01$, $R^2 = .12$), but again, neither of the two transformational leadership variables were able to explain additional variance when entered on the second step. Contrary to our hypotheses, none of the leadership variables were predictive of within-class self-efficacy, and none of the leadership variables were predictive of variance in any of the self-efficacy variables for the experienced exercisers.

Discussion
The purpose of this study was to examine the relationships between the behaviors exhibited by exercise instructors and the self-efficacy beliefs of the participants within their classes. Overall, the results revealed that for exercise initiates contingent reward behaviors were able to explain significant variance in both scheduling self-efficacy and barrier self-efficacy. However, none of the leadership behaviors were related to self-efficacy beliefs among experienced exercisers.

The finding that contingent reward behaviors were related to higher levels of self-efficacy is consistent with theorizing by Bandura (1997), who suggested that the effective provision of feedback is necessary to foster one’s perceived capabilities. This result is also consistent with research by Turner et al. (1997) who found that the provision of an enriched exercise environment, that includes contingent reward behaviors, was related to increased self-efficacy. It is also particularly interesting that leadership–efficacy relations were only observed for initiates, but not for experienced exercisers. Exercise initiates will not have the same mastery experiences (cf. Bandura, 1997) as experienced exercisers, and so their perceived capabilities may be more susceptible to be influenced by a given exercise instructor. Interestingly, similar findings were reported by Bray et al., who found that ‘beginner exercisers’ perceptions of their instructor’s behavior, communication, and motivational capabilities were related to their own exercise-related self-efficacy beliefs’ (2001, p. 433). Indeed, it seems plausible to suggest that because experienced exercisers are able to draw from a greater range of past experiences of success they are less likely to be reliant on their exercise instructor to give them confidence that they can ‘stick with it’. Exercise initiates, on the other hand, may be more likely to be affected by the rewarding behaviors displayed by their exercise instructor.

Although transactional leadership was predictive of barrier and scheduling efficacy, it is noteworthy that neither of the transformational leadership dimensions were able to explain significant variance in self-efficacy above and beyond that accounted for by contingent reward. This suggests that in the context of structured exercise classes transformational leadership may not act to augment transactional leadership in the same way that it does in organizational settings. It is possible that the limited contact...
time between leader and follower that exists within exercise classes does not provide sufficient opportunity for transformational behaviors to play out and influence follower cognition. That said, a recent meta-analysis by Judge and Piccolo (2004) suggests that for some follower outcomes (e.g., follower satisfaction) contingent reward may be at least as influential as transformational behaviors, if not more so. Although transformational-transactional leadership theory suggests that contingent reward is conceptually distinct from transformational leadership, Judge and Piccolo found in their meta-analysis contingent reward to be very highly related to transformational leadership (estimated true score correlation = .80), a finding replicated in this study ($r_s = .62–.87$).

In relation to salient follower outcomes, Judge and Piccolo concluded by suggesting that ‘both transformational and contingent reward leadership’ are valid, and the superiority of one relative to the other seems to depend on the context’ (2004, p. 763). In the context of structured exercise classes it is possible that the feedback provided through contingent reward may act as the principal determinant of exercisers’ perceived capabilities.

Although transactional leadership was found to be related to scheduling and barrier self-efficacy, variance in within-class self-efficacy was not explained by any of the leadership dimensions assessed in this study. This finding was somewhat unexpected, especially in light of the fact that previous research has found behaviors that include individual consideration and positive reinforcement to be related to elevated levels of in-class self-efficacy (Turner et al., 1997). It is possible that the exhibition of transactional behaviors may have had a greater enabling impact on getting participants to their exercise classes, than on elevating participants’ within-class capabilities. It is also possible, as a reflection of the high mean scores of within-class self-efficacy that a ceiling effect was evident, thereby limiting the extent to which transactional leadership could explain variability in within-class efficacy.

Nevertheless, the fact that contingent reward behaviors were predictive of barrier and scheduling self-efficacy for initiate exercisers does have practical implications for interventions and applied practice. Given that barrier self-efficacy and scheduling self-efficacy have both been found to be predictive of exercise adherence among beginner exercisers (e.g., DuCharme & Brawley, 1995), those concerned with the training of exercise instructors may seek to encourage exercise leaders to become well versed in the practical benefits of understanding transformational-transactional leadership theory. Despite the contributions of this study to the extant leadership literature, it should also be noted that the correlational nature of the design precludes any inferences of causality being made. In future, longitudinal and experimental designs should be considered that seek to examine the effects of transformational and transactional leadership on the cognitions (e.g., self-efficacy) and behaviors (e.g., adherence and dropout) of exercise participants in various physical activity contexts.

References


**Author biographies**

**MARK R. BEAUCHAMP** is with the School of Human Kinetics, University of British Columbia, Vancouver, Canada.

**AMY S. WELCH and ANGIE J. HULLEY** are with the School of Sport and Exercise Sciences, University of Leeds, UK.