This is the peer reviewed version of the following article:


which has been published in final form at [DOI: 10.1111/jonm.12053]. This article may be used for non-commercial purposes in accordance with Wiley Terms and Conditions for self-archiving.
Testing the effects of an empowerment-based leadership development programme: Part 1 – leader outcomes

**Aim:** To determine if a leadership development programme based on an empowerment framework significantly increased leaders’ use of empowering behaviours.

**Background:** Leadership programmes are effective ways to prepare nurse leaders for their complex roles. Relational competencies, such as leader empowering behaviours, are associated with improved leader, staff and practice environment outcomes.

**Methods:** A quasi-experimental, pre-test–post-test design was used to compare perceptions and self-reported behaviours of leaders who participated in a year-long leadership programme with those of similar leaders who did not attend the programme. Multiple regression analyses were used to evaluate a conceptual framework of leader empowerment.

**Results:** The leadership programme was directly associated with leaders’ perceptions of using more empowering behaviours. Leader empowering behaviours were also associated with feelings of being structurally empowered, mediated through feelings of being psychologically empowered, although the source of empowerment needs further investigation.

**Conclusions:** Leaders’ use of empowering behaviours can be increased through focused training and through a workplace empowerment process.

**Implications for nurse management:** Leader empowering behaviours have been shown to be associated with more engaged staff and healthier work environments. Based on study results, we suggest that these behaviours are teachable, and they should be emphasized in leadership development programmes.

**Keywords:** empowerment, leader empowering behaviours, leadership, nursing
Introduction
Effective nurse leaders are associated with healthier work environments (Manojlovich & Laschinger 2007), more engaged staff (Laschinger & Finegan 2005) and enhanced patient outcomes (Wong & Cummings 2007). Complex healthcare systems are putting high demands on nurse leaders, challenging how they are trained and supported for success (Huston 2008). Leadership development programmes have been shown to be an effective way to enhance leadership behaviours and performance (Tourangeau 2003, Lee & Cummings 2008), but development efforts need to focus on those leadership competencies most often associated with successful leader outcomes, particularly relational competencies (O’Neil et al. 2008, Cummings et al. 2010).

Formal leadership development programmes are a strategy for building leader influence in the work environment (Battilana et al. 2010); they are also associated with increased leader job satisfaction (Lee & Cummings 2008) and emotional health and well-being (Lee et al. 2010). In turn, enhanced coping and emotional well-being have been linked to improved nurse leader retention (Shirey 2006, Shirey et al. 2008). Nurse leader engagement (defined by longevity and excellence) is also enhanced through organizational investment in leadership development (Mackoff & Triolo 2008).

Our study was based on a provincial, western Canadian leadership development programme for novice first-line nurse leaders, the Nursing Leadership Institute (NLI). The NLI is guided by an empowerment framework, and a curriculum that emphasizes strategies that leaders can use to empower staff. This study (Part 1) describes leader outcomes 1 year after participation in the NLI workshop; Part 2 examines staff outcomes 1 year after their leaders participated in the NLI.

The NLI consists of a 4-day residential workshop with didactic leadership content and interactive learning sessions; a year-long innovation project of relevance to the leaders’ respective organisations; mentorship from senior nursing leaders; organizational supports, such as release time for project work; and an online knowledge network to facilitate connections among leaders (MacPhee & Bouthillette 2008, MacPhee et al. 2011). The NLI targets novice first-line nurse leaders with less than 3 years’ experience because of their critical roles and responsibilities within healthcare facilities. First-line nurse leaders are the link between staff and upper management (Lee & Cummings 2008), and they are the driving force behind safe, quality practice environments: they ensure adequate staffing and access to resources; they advocate for nurses’ voices in care delivery decision-making; and they act as a buffer for staff, decreasing burnout and increasing retention (Leiter & Laschinger 2006, Manojlovich & Laschinger 2007, Laschinger et al. 2009). Given the organisational importance of these nurse leaders, it is imperative to maximize the effectiveness of their leadership training (Cummings et al. 2010, Laschinger et al. 2011).

Leadership development
Earlier leadership models often portrayed leader-staff/follower relationships as hierarchical in nature, characterized by the traditional top-down chain of command (Pearce & Sims 2002, Uhl-Bien et al. 2007). More contemporary thinking views leader–staff relationships as reciprocal social processes that evolve over time within the context of the practice environment (Marion & Uhl-Bien 2001, Avolio 2007). This relational leader perspective complements organisational decentralization, adaptability and flexibility (Uhl-Bien et al. 2007). Relational leaders are associated with more innovative behaviours and creative engagement among staff (Zhang & Bartol 2010); a positive workplace climate and job satisfaction (Sellgren et al. 2008); a safety climate (Thompson et al. 2011); and teamwork effectiveness (Kalisch & Begeny 2005). Most importantly, higher quality leader–staff relationships have been associated with improved patient outcomes (Laschinger & Leiter 2006, Wong & Cummings 2007). This suggests that
leadership development programmes should focus on developing relational leaders who have the capacity to strengthen workplace relationships and enhance outcomes (Herrin & Spears 2007).

There are a number of leadership styles and behaviours associated with relational leadership, such as emotionally intelligent leadership and transformational leadership (Battilana et al. 2010). These styles emphasize leader attributes, such as self-awareness (emotional intelligence) and the capacity to inspire others (transformational leadership). However, another important aspect of relational leadership is the use of empowering behaviours to enable and support staff (Battilana et al. 2010). The NLI curriculum focuses specifically on training and applications for leader empowering behaviours. From a training perspective, these are behaviours that can be taught and assessed or measured (Greco et al. 2006, Laschinger et al. 2011). Five major categories of leader empowering behaviours have been typically studied: enhancing meaningfulness of the work; fostering participation in decision-making; facilitating goal accomplishment; providing autonomy or control over work; and removing bureaucratic barriers associated with powerlessness (Conger & Kanungo 1988, Hui 1994). Some researchers suggest that these behaviours may empower staff to take initiative and act on their own or in teams (Pearce & Sims 2002, Pearce et al. 2003), and these empowering behaviours may be particularly relevant as leaders’ direct involvement in the workplace is diminished by increased workloads and spans of control (Laschinger et al. 2007, Shirey et al. 2008). Spreitzer et al. (1999) found that Fortune 500 leaders who were perceived by staff as using more empowering behaviours were also perceived as being more innovative, inspirational and influential. In a study with staff nurses, Laschinger et al. (1999) demonstrated significant associations between leader empowering behaviours and staff nurse perceptions of work effectiveness.

**Workplace empowerment theory**

The over-arching conceptual framework for the NLI is workplace empowerment theory. Workplace empowerment is intimately associated with the study of power and power dynamics, and there are different theoretical approaches (Bradbury-Jones et al. 2008). The framework for the NLI is based on organizational and management theories (Kanter 1993) and social–psychological theories (Conger & Kanungo 1988, Spreitzer 1995). These two major theoretical approaches have focused on structural and psychological empowerment (Wagner et al. 2010). Structural empowerment refers to an individual’s access to organizational information, resources, supports and opportunities through informal power channels (e.g. peer networks) and formal chains of command (Kanter 1993). Psychological empowerment consists of an individual’s intrinsic beliefs about their capacity to work more effectively. There are four intrinsic psychological beliefs related to work: ‘meaning’ is congruence between individual values and workplace values; ‘impact’ refers to an individual’s beliefs that they can make a significant difference at work; ‘self-determination’ is related to workplace autonomy or an individual’s control over their work; and ‘competence’ is associated with work-related self-efficacy beliefs (Spreitzer 1995, 1996, 2007). Some researchers have shown that psychological empowerment is an intervening variable or mediator between structural empowerment and important employee outcomes. When individuals have access to organisational empowerment structures, their psychological beliefs about their work are positively influenced, resulting in enhanced outcomes, such as increased staff nurse job satisfaction (Laschinger et al. 2001, 2004); increased staff nurse organizational commitment (Laschinger et al. 2009); and increased staff nurse innovation (Knol & van Linge 2009).

The workplace empowerment process (structural empowerment ? psychological empowerment ? outcomes) has been primarily studied with staff nurses. In a systematic review that examined the relationship between structural and psychological empowerment for nurses, only one study was cited that pertained to nurse leaders and causal inferences were limited by its cross-sectional design (Wagner et al.
Laschinger et al. (2007) suggested that the quality of first-line leaders’ relationships with their immediate supervisors (i.e. mid-level leaders) acted as a catalyst for the workplace empowerment process, influencing first-line nurse leaders’ job satisfaction. Higher quality relationships were associated with greater access to organizational empowerment structures which, in turn, were associated with higher levels of psychological empowerment and job satisfaction.

In addition to the paucity of research on the workplace empowerment process in relation to leader outcomes, to our knowledge, researchers have not yet explored whether leadership development opportunities, such as leadership development programmes, can serve as catalysts for the workplace empowerment process with respect to leader and staff outcomes. Given the costs of organisational investment in leadership development, it is important to know whether and how leadership development opportunities influence leader and staff outcomes. The purpose of this two-part study was to address identified knowledge gaps using a longitudinal, quasi-experimental design to address some of the methodological limitations of prior studies.

Figure 1 illustrates our conceptualization of the direct and indirect pathways through which a leader development programme may influence leader and staff outcomes. Our conceptual model reflects the following hypotheses: participation in a leader development programme, with the acquisition of new knowledge and skills, will lead directly to an increased use of behaviours that are empowering to staff. Indirect effects will also occur through the workplace empowerment process. That is, attendance at a leader development programme will influence the leaders’ perceptions of structural empowerment which, in turn, will influence the leaders’ feelings of psychological empowerment, leading to an increased use of behaviours aimed at empowering their staff. These pathways were tested in the present study (Part I – Leader Outcomes). The following study (Part II – Staff Outcomes) tested the second half of the integrative conceptual model which hypothesizes that staff nurses’ perceptions of structural and psychological empowerment will increase as a result of their leaders’ increased use of empowering behaviours, leading in turn to higher levels of perceived organisational support and organisational commitment.

**Study purpose**
To summarize, the NLI curriculum was designed to enhance nurse leaders’ relational competencies by focusing specifically on leader empowering behaviours.

In this Part 1 study, we tested three study hypotheses:
- **Hypothesis 1:** NLI participation will be associated with positive changes in leaders’ reports of using empowering behaviours.
- **Hypothesis 2:** Structural empowerment will mediate the relationship between the NLI and psychological empowerment.
- **Hypothesis 3:** Psychological empowerment will mediate the relationship between structural empowerment and leader empowering behaviours.

**Methods**
A quasi-experimental, pre-test–post-test design with an intervention and comparison group was used to explore the direct and indirect effects of the NLI 1 year after intervention group participation in the NLI residential workshop. The study received ethics approval from the affiliated university and the provincial health authorities.
Sample
The intervention group was recruited from the 225 nurse leaders who attended the NLI between 2007 and 2010. Of these, 198 (88%) agreed to take part in the study with 110 (49%) individuals completing data collection at both Time 1 (during NLI workshop attendance) and Time 2 (1 year after workshop attendance). Potential participants in the comparison group, nurses who had a similar level of leadership experience as those in the intervention group, but either had not applied to the NLI or had not been accepted, were identified by the Chief Nursing Officers who selected nurses to participate in the NLI. Twenty seven nurse leaders agreed to participate in the comparison group, returning their signed consents and a completed Time 1 questionnaire in a stamped, pre-addressed envelope, but only 18 (67%) completed both Time 1 and Time 2 data collection. Attrition analyses, conducted separately for the two groups, showed no significant differences in baseline measures of structural empowerment, psychological empowerment or leader empowering behaviours between those who participated at both data collection points and those who completed baseline data collection only.

Recruitment and data collection procedures
The NLI was advertised throughout the province via the chief nursing officers (CNOs) and their directors. Interested new nurse leaders were asked to complete a nomination form identifying their reasons for wanting to attend the NLI, and to submit an endorsement letter from a senior leader. A ‘new’ or novice nurse leader was defined as having less than 3 years’ first-line leadership experience. The CNOs made final selections of NLI participants based on their assessment of leadership potential. Although the NLI focused on first-line leaders, the CNOs extended the nomination process to include novice leaders in higher levels of leadership (e.g. mid-level leaders).

The study was explained to the NLI participants at the time of their workshop attendance. Consenting individuals agreed to complete the Time 1 questionnaire during the 4-day workshop and to complete and return a second questionnaire 1 year later, at Time 2. At approximately the same time as the NLI workshop, cover letters, consent forms and Time 1 questionnaires were mailed to individuals who had been identified as potential comparison group participants. They were also sent reminder letters 2 weeks later. Both groups were sent Time 2 questionnaires 1 year after the workshop, followed by reminder letters 2 weeks later. As an incentive, the names of individuals who returned their completed questionnaires were entered into a raffle draw at Times 1 and 2, with the winner receiving reimbursement for a professional conference fee not exceeding 400 dollars (a maximum established by the ethics review boards).

Measures
Three standardized instruments were used to measure the key variables in our conceptual model. For each of the instruments, mean scale scores were created by computing means of the items, or by computing means of the subscale mean scores (as recommended by authors of the tests), so that a single total scale score was used in all analyses. Higher mean scores indicate higher levels of the construct. Demographic information (i.e. age, gender, education level, leadership rank, years of leadership experience and years of nursing experience) was also collected. Structural empowerment, based on Kanter’s organizational theory (1993), was measured using the 19-item ‘Conditions of Work Effectiveness (II) Scale’ (CWEQII) (Laschinger et al. 2001), which uses a 5-point response scale ranging from 1 (‘none’) to 5 (‘a lot’). Although the CWEQII has six subscales (opportunities, information, support, resources and formal and informal power), consistent with other nursing research, we used only the mean score for the total scale, with possible scores ranging from 1 to 5. Cronbach’s alphas for the total scale for the intervention and comparison groups were 0.85 and 0.91, respectively.
Psychological empowerment, based on Conger and Kanungo’s social-psychological theory (1988), was measured using the ‘Psychological Empowerment Scale’ (PES) (Spreitzer 1995) which is a 12-item instrument forming four separate subscales that correspond to four intrinsic beliefs about work: meaning, competence, self-determination and impact. Each subscale uses a 5-point Likert response scale. Cronbach alphas for the total scale were 0.84 for the intervention group and 0.78 for the comparison group. Again, we used only the mean score for the total scale, with possible scores ranging from 1 to 5.

Leader empowering behaviours, based on social–psychological theory (Conger & Kanungo 1988), were measured with the 27-item ‘Leader Empowering Behaviours Scale’ (LEBS) (Hui 1994), measured on a 7-point Likert response scale. The LEBS has five subscales that were designed to capture five broad categories of leader empowering behaviours: meaningful work, participation in decision making, confidence of employee, facilitating goal accomplishments and autonomy from bureaucracy. Cronbach’s alphas for the total scale were 0.95 for both groups, with a possible range of total scores from 1 to 7.

Statistical analysis
All analyses were conducted using SPSS v19 for Windows (SPSS Inc., Chicago, IL, USA). Hierarchical multiple regression analysis was used to evaluate the effects of the NLI on the leader empowering behaviours, controlling for demographic characteristics and baseline (Time 1) measures of the outcome variable, and assessing the main effects of structural empowerment and psychological empowerment at Time 2. Additional regression analyses were conducted to test the hypothesized mediation effects of structural empowerment and psychological empowerment.

Results
Demographic characteristics of participants Participants’ demographic characteristics are presented in Table 1. The majority of the participants were female (89%), had a BSc degree in nursing (60%) and were in a first-line leadership position (63%). The mean age of the sample was 45 years, and one half had at least 20 years of experience in nursing. Chisquare analyses indicated that the intervention and comparison groups differed in educational attainment and leadership experience. Fewer of the intervention group participants had a degree (BSc or MSc) in nursing (62% of the intervention group compared with 94% of the comparison group), v2(1, n = 124) = 5.52, P < 0.05. The intervention group also had less experience in a leadership position: 70% had less than 1 year of leadership experience compared with 6% of the comparison group, v2(1, n = 99) = 22.90, P < 0.001.

Preliminary analyses
Table 2 displays Pearson’s correlations among key study variables. In general, the strongest correlations occurred between Time 1 and Time 2 measures of the same variable. Also notable is that NLI attendance was negatively correlated with Time 1 Leader Empowering Behaviour scores (r = _0.18; P < 0.05). No other key variable was found to be significantly associated with NLI attendance.

Paired t-tests were used to examine differences over time within each group (see Table 3). Mean differences over time were found for the intervention group for two of the measures, Leader Empowering Behaviour and Psychological Empowerment. The intervention group showed higher mean scores for Leader Empowering Behaviour at Time 2 (mean = 5.62, SD = 0.68) compared with Time 1 (mean = 5.13, SD = 0.80), t(105) = 7.75, P < 0.001 (a medium-sized effect, Cohen’s d = 0.60). They also showed higher scores for Psychological Empowerment at Time 2 (mean = 4.05, SD = 0.54) compared with Time 1 scores
Independent t-tests were used to examine mean differences between the two groups for all measures at Time 1 and Time 2. Between-group t-tests are not shown in Table 3 because there was only one significant finding: Leader Empowering Behaviour at Time 1 for the intervention group (mean = 5.13, SD = 0.80) showed a lower mean score than the comparison group (mean = 5.53, SD = 0.54), t(124) = -2.08, P < 0.05, although the magnitude of the difference was small (Cohen’s d = -0.18). The mean scores for Leader Empowering Behaviour at the two time points are further illustrated in Fig. 2, showing that the intervention group had lower scores than the comparison group at Time 1, but had ‘caught up’ to the comparison group at Time 2, 1 year after the NLI workshop.

Hypothesis 1: the effects of NLI attendance on leader empowering behavior

Hierarchical multiple regression analysis was performed to assess the effects of the NLI on Leader Empowering Behaviour after controlling for baseline levels of the outcome variable. The analysis also assessed the main effects of Structural Empowerment and Psychological Empowerment. We controlled for age, education, leadership rank and years of leadership experience, and tested for possible interactions with NLI attendance. We also tested for a possible interaction effect between NLI attendance and baseline measures of Leader Empowering Behaviour. None of the demographic variables or interactions was found to be significantly related to the outcome measures and, therefore, these variables and interaction terms were removed from the final models to retain degrees of freedom.

Table 4 shows the series of steps followed for the final set of regressions. In Model 1, we entered the Time 1 measure of Leader Empowering Behaviour. We introduced the NLI variable in Model 2, followed by Structural Empowerment in Model 3 and Psychological Empowerment in Model 4. Preliminary analyses and a review of the diagnostic statistics suggested no major violation of the assumptions underlying multiple regression analysis.

The results indicate that NLI attendance had a positive effect on Leader Empowering Behaviour at Time 2 over and above the influence of Time 1 scores (b = 0.19, P < 0.05), explaining an additional 3% of the variance, F change (1, 121) = 6.70, P < 0.05. Time 1 Leader Empowering Behaviour explained 36% of the variance. Structural empowerment at Time 2 was also predictive of Leader Empowering Behaviour after controlling for Time 1 Leader Empowering Behaviour and the NLI, explaining an additional 6% of the variance, F change (1,120) = 12.1, P < 0.001.

This relationship became non-significant (b = 0.05, P > 0.05) after adding Psychological Empowerment at Time 2 to the equation in Model 4, suggesting the possibility that Psychological Empowerment may be mediating the effects of Structural Empowerment Leader Empowering Behaviour at Time 2. Time 2 Psychological Empowerment explained an additional 9% of the variance in Leader Empowering Behaviour scores at Time 2. Total variance explained by Model 4 was 54%, F(4, 119) = 34.5, P < 0.001, with Time 1 Leader Empowering Behaviour remaining the strongest predictor (b = 0.45, P < 0.001), followed closely by Time 2 Psychological Empowerment (b = 0.39, P < 0.001).

Hypotheses 2 and 3: the mediating effects of structural and psychological empowerment

We assessed for mediation using a series of regression analyses, following the causal step approach outlined by Baron and Kenny (1986), and controlling for the baseline measure of each outcome measure at
each step. In the Baron and Kenny approach, statistical support for mediation requires that there be a significant relationship between: the predictor and outcome variables (Regression 1); the predictor and mediator variables (Regression 2); and the mediator and outcome measure, after controlling for the predictor (Regression 3). Finally, the coefficient relating the predictor to the outcome variable in Regression 3 should be smaller than the coefficient for the same relationship obtained in Regression 1.

Hypothesis 2. Our hypothesis that Structural Empowerment would mediate the effect of NLI attendance on Psychological Empowerment at Time 2 was not supported. No significant relationship was found between NLI attendance and Time 2 Structural Empowerment (the purported mediator) before or after controlling for Time 1 Structural Empowerment (r = 0.12, P = 0.17 and b = 0.10, P = 0.19, respectively), so no further sub-analyses were conducted.

Hypothesis 3. Our findings supported the hypothesis that Psychological Empowerment mediates the effects of Structural Empowerment on Leader Empowering Behaviour. Time 2 Structural Empowerment showed a positive relationship with Time 2 Leader Empowering Behaviour (b = 0.27, P < 0.001, Regression 1) and Time 2 Psychological Empowerment (b = 0.43, P < 0.001, Regression 2). In the third regression, the relationship between Structural Empowerment and Leader Empowering Behaviour became non-significant (b = 0.08, P = 0.32) with the mediator (Psychological Empowerment) in the equation, whereas Psychological Empowerment continued to show unique effects on Leader Empowering Behaviour (b = 0.39, P < 0.05).

Additional analyses

After failing to find a significant pathway from NLI attendance to Leader Empowering Behaviour through Structural Empowerment, we considered and tested an alternative meditational model: that Psychological Empowerment would mediate the effects of NLI attendance on Leader Empowering Behaviour at Time 2. As in Hypothesis 2, no significant relationship was found between NLI attendance and the purported mediator (Time 2 Psychological Empowerment), before or after controlling for Time 1 Psychological Empowerment (b = 0.06, P = 0.39). Finally, we explored the possibility of an interaction between Structural Empowerment at Time 1 and NLI attendance, but failed to find evidence that Structural Empowerment was exerting a moderating effect on the direct or indirect effects of NLI attendance on Leader Empowering Behaviour.

Discussion

The purpose of this study was to determine if a leadership development programme (the NLI) based on an empowerment framework significantly increased leaders’ use of empowering behaviours. To date, researchers studying the workplace empowerment process (antecedent ? structural empowerment ? psychological empowerment ? outcomes) have focused predominantly on staff and work environment outcomes (Cummings et al. 2010). Less is known about leader outcomes with respect to workplace empowerment, particularly the effect of leadership development opportunities such as the NLI.

There were two key findings from this study: (i) Participation in the NLI was associated with increases in leaders’ self-reported use of empowering behaviours 1 year after workshop attendance, and (ii) the workplace empowerment process significantly influenced leaders’ self-reports of using more empowering behaviours, although the NLI itself was not shown to be the antecedent for this leader empowerment process. The NLI participants increased their use of leader empowering behaviours from Time 1 to Time 2.
whereas there were no significant differences between Time 1 and Time 2 scores for the comparison group leaders. Significantly fewer of the NLI participants had BSc or MSc degrees and fewer years of formal leadership experience than the comparison group. Our interpretation of these findings is that leader empowering behaviours are teachable. As discussed by Mackoff and Triolo (2008), programmes such as the NLI should emphasize strategies that are teachable vs. dispositional (difficult to change). Leadership development experts (Conger 1989, Day 2001, Popper 2005, Yukl 2006) have suggested that a variety of adult teaching and learning strategies be used to enable new leaders to maximize learning outcomes (i.e. transfer knowledge to practice) through vicarious (e.g. role modelling, mentoring feedback and peer networking) and experiential learning (e.g. hands-on project work). Critical reflection is another recommended adult learning strategy that assists new leaders with becoming more aware of themselves and their influence on others (Densten & Gray 2001). These are the strategies that were used in the NLI curriculum. While we showed that the empowerment process is an important pathway to leaders’ use of empowering behaviours, the NLI itself was not shown to be the antecedent to the empowerment process. We had reasoned that NLI attendance would be viewed as a source of organisational structural empowerment for leaders, providing access to organisational information, resources, opportunities and supports — and serving as a catalyst for workplace empowerment. Although this non-significant finding may be partially attributable to the small size of the comparison group, it is more likely that there were other more proximal and more powerful organisational and environmental factors driving leaders’ perceptions of structural and psychological empowerment than NLI attendance. Gardner et al. (2005) suggested that there are empowering workplace climates or cultures known for enabling members’ learning and development.

Organisational climate is a complex conglomerate of members’ attitudes, feelings and behaviours that ‘characterize life in an organisation’ (Sellgren et al. 2008, p. 580). Researchers have shown that leaders often play a major role in fostering these types of organisational climates (Gardner et al. 2005, Sellgren et al. 2008). A cyclical process may exist whereby empowering organisational climates catalyse the leader empowerment process resulting in leader empowering behaviours that in turn, support the presence of an empowering organisational climate. Given the complex nature of healthcare organisations and their members’ perceptions about workplace empowerment (Spreitzer et al. 1999, Spreitzer 2007), more research is needed to identify the organizational and contextual sources of the leader empowerment process. From a relational leader perspective, the quality of leader–other relationships (e.g. leader–staff, leader–supervisor and leader–interprofessional team) may serve as the most powerful catalyst for the leader empowerment process and leaders’ subsequent use of empowering behaviours (Uhl-Bien 2006). Graen and Uhl-Bien (1991) developed a ‘leader making’ model based on findings from two longitudinal field studies conducted in the service sector. As stated by Graen and Uhl-Bien (1995, p. 232) ‘It is this mutual trust, respect and obligation toward each other which empowers and motivates both to expand beyond the mutual work contract and formalized work roles: to grow out of their prescribed jobs and develop a partnership based on mutual reciprocal influence’. Researchers studying relational leadership have shown how high quality leader–other relationships are associated with positive staff outcomes, such as empowerment, organizational commitment and turnover (Graen & Uhl-Bien 1995, Wong & Cummings 2009), but there is a lack of research related to leader outcomes. Laschinger et al. (2007) found that the quality of leaders’ relationships with their supervisors had a direct effect on the leaders’ perceptions of structural and psychological empowerment, which, in turn, led to greater work satisfaction. More research is needed, therefore, to determine the links between the quality of leader–other relationships and the leader
empowerment process. Through this study, we have clearly demonstrated how the leader empowerment process is linked to leaders’ use of empowering behaviours.

Limitations
A strength of this study was its two-group, repeated measures design which allowed us to account for variations in baseline levels of the leader outcomes of interest, and provided some control for changes in context over time. However, the power of the study was limited by the small size of the comparison group. We had expected to recruit an equal number of participants into the intervention and comparison groups, but the very success of the NLI programme in attracting participants was detrimental to the study’s ability to recruit comparison group members. Anecdotal evidence (i.e. discussions with senior nurse leaders) suggests that the majority of novice first-line nurse leaders were nominated to attend the NLI between 2007 and 2010, significantly reducing the pool of potential comparison group participants. Another limitation of this study was its reliance on leader self-reports which may have yielded biased measures, particularly with respect to self-reported behaviours. Researchers have shown the importance of including staff as a source of data (Yukl 2006), and the Part 2 – Staff Outcomes study includes a staff-reported measure of their leader’s use of empowering behaviours.

Conclusions
Our interpretation of study findings is that the NLI accomplished its primary purpose of teaching novice nurse leaders how to implement empowering behaviours. Attendance at the NLI led to an increased use of leader empowering behaviours 1 year later. Leader empowering behaviours are teachable, relational skills that make significant, positive differences for staff and the work environment (Cummings et al. 2010). In addition to the direct, instructional effects of the NLI on leader’s use of empowering behaviours, the leader empowerment process was another pathway to leader empowering behaviours. The fact that structural empowerment was shown to influence leader empowering behaviours through its effect on psychological empowerment provides support for basing a nurse leadership programme on workplace empowerment theory. Factors within leaders’ immediate practice environments, particularly factors that promote the formation of leader-other relationships, are no doubt more important determinants of leader empowerment than training opportunities. Organisational leadership, therefore, should provide opportunities for leaderbuilding, workplace social processes to flourish within their practice settings (Uhl-Bien 2006).

Source of funding
This research was funded through the Canadian Health Services Research Foundation (RC2-1612) with support from the British Columbia Ministry of Health Nursing Directorate, the Chief Nursing Officers and Vancouver Coastal Health Authority and Fraser Health Authority.

Ethical approval
The University of British Columbia Behavioural Ethics Review Board (H07-01559) gave ethical approval for this research.

Acknowledgements
This research was funded through the Canadian Health Services Research Foundation (RC2-1612) with support from the British Columbia Ministry of Health Nursing Directorate, the Chief Nursing Officers and Vancouver Coastal Health Authority and Fraser Health Authority. We would like to thank Dr Pamela A. Ratner, University of British Columbia, for her statistical and methodological assistance. We would also like to thank the nurse leaders and nurses in British Columbia who participated in this study. A special thanks to our project director, Dr Nitya Suryaprakash.
References


Figure 1
Conceptual model. Staff outcomes: OC, organisational commitment; POS, perceived organisational support.

Table 1
Demographic characteristics of leaders at Time 1

<table>
<thead>
<tr>
<th></th>
<th>Total N = 128</th>
<th>NLI intervention group N = 110</th>
<th>Comparison group N = 18</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>114</td>
<td>89</td>
<td>99</td>
</tr>
<tr>
<td>Male</td>
<td>13</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>Leader rank</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First line</td>
<td>80</td>
<td>63</td>
<td>68</td>
</tr>
<tr>
<td>Mid level</td>
<td>40</td>
<td>31</td>
<td>35</td>
</tr>
<tr>
<td>Executive level</td>
<td>3</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Staff</td>
<td>5</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospital Diploma</td>
<td>16</td>
<td>13</td>
<td>15</td>
</tr>
<tr>
<td>College Diploma</td>
<td>26</td>
<td>21</td>
<td>26</td>
</tr>
<tr>
<td>BScN</td>
<td>74</td>
<td>60</td>
<td>59</td>
</tr>
<tr>
<td>MScN</td>
<td>8</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Age in years (mean, SD)</td>
<td>45.0 (7.9)</td>
<td>44.5 (7.5)</td>
<td>48.3 (8.9)</td>
</tr>
<tr>
<td>Months in leadership</td>
<td>0 (0–240)</td>
<td>0 (0–210)</td>
<td>27 (2–240)</td>
</tr>
<tr>
<td>Years in nursing</td>
<td>20 (3–38)</td>
<td>20 (3–38)</td>
<td>20 (5–38)</td>
</tr>
</tbody>
</table>

NLI, Nursing Leadership Institute; SD, standard deviation.
Table 2
Correlations for key study variables (n = 128)

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>NLI (1 = Yes, 0 = No)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T1-Structural Empowerment</td>
<td>0.05</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T1-Sychological Empowerment</td>
<td>-0.10</td>
<td>0.51**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T1-Leader Empowering Behaviour</td>
<td>-0.18*</td>
<td>0.22*</td>
<td>0.47**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T2-Structural Empowerment</td>
<td>0.12</td>
<td>0.57**</td>
<td>0.27**</td>
<td>0.22*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T2-Psychological Empowerment</td>
<td>0.01</td>
<td>0.39**</td>
<td>0.55**</td>
<td>0.41**</td>
<td>0.57**</td>
<td></td>
</tr>
<tr>
<td>T2-Leader Empowering Behaviour</td>
<td>0.07</td>
<td>0.16</td>
<td>0.31**</td>
<td>0.60**</td>
<td>0.39**</td>
<td>0.61**</td>
</tr>
</tbody>
</table>

NLI, Participation in Nursing Leadership Institute.
*P < 0.05.
**P < 0.01.

Table 3
Means and standard deviations for key variables, by time and group

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Mean Time 1</th>
<th>SD Time 1</th>
<th>Mean Time 2</th>
<th>SD Time 2</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intervention group (n = 110)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leader Empowering Behaviour</td>
<td>5.13</td>
<td>0.80</td>
<td>5.62</td>
<td>0.68</td>
<td>7.75**</td>
</tr>
<tr>
<td>Structural Empowerment</td>
<td>3.45</td>
<td>0.46</td>
<td>3.49</td>
<td>0.52</td>
<td>0.90</td>
</tr>
<tr>
<td>Psychological Empowerment</td>
<td>3.89</td>
<td>0.48</td>
<td>4.05</td>
<td>0.54</td>
<td>3.31*</td>
</tr>
<tr>
<td>Comparison group (n = 18)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leader Empowering Behaviour</td>
<td>5.53</td>
<td>0.54</td>
<td>5.48</td>
<td>0.75</td>
<td>-0.38</td>
</tr>
<tr>
<td>Structural Empowerment</td>
<td>3.39</td>
<td>0.54</td>
<td>3.29</td>
<td>0.78</td>
<td>-0.64</td>
</tr>
<tr>
<td>Psychological Empowerment</td>
<td>4.02</td>
<td>0.52</td>
<td>4.03</td>
<td>0.67</td>
<td>0.09</td>
</tr>
</tbody>
</table>

P < 0.05. *P < 0.01, *P < 0.001.

Figure 2
Leader empowering behaviour (LEB) mean scores for the intervention and comparison groups at Times 1 and 2. Scale range = 1–7.
Table 4
Hierarchical regression results for Leader Empowering Behaviour at Time 2 (n = 124)

<table>
<thead>
<tr>
<th>Model</th>
<th>Predictor</th>
<th>β</th>
<th>CI (95%)</th>
<th>R²</th>
<th>Change in R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 1</td>
<td>Leader Empowering Behaviour T₁</td>
<td>0.60***</td>
<td>0.40–0.66</td>
<td>0.36</td>
<td>0.36***</td>
</tr>
<tr>
<td>Model 2</td>
<td>Leader Empowering Behaviour T₁</td>
<td>0.63***</td>
<td>0.43–0.68</td>
<td>0.39</td>
<td>0.03*</td>
</tr>
<tr>
<td></td>
<td>NLI</td>
<td>0.19*</td>
<td>0.1–0.64</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model 3</td>
<td>Leader Empowering Behaviour T₁</td>
<td>0.57**</td>
<td>0.38–0.63</td>
<td>0.44</td>
<td>0.06**</td>
</tr>
<tr>
<td></td>
<td>NLI</td>
<td>0.14*</td>
<td>0.01–0.54</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Structural Empowerment T₂</td>
<td>0.25**</td>
<td>0.13–0.48</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model 4</td>
<td>Leader Empowering Behaviour T₁</td>
<td>0.45***</td>
<td>0.27–0.52</td>
<td>0.54</td>
<td>0.09***</td>
</tr>
<tr>
<td></td>
<td>NLI</td>
<td>0.14*</td>
<td>0.02–0.52</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Structural Empowerment T₂</td>
<td>0.05</td>
<td>−0.12–0.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Psychological Empowerment T₂</td>
<td>0.39***</td>
<td>0.29–0.68</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NLI, Participation in Nursing Leadership Institute (1 = Yes, 0 = No); T₁, Time 1; T₂, Time 2; β, standardized beta coefficient; CI (95%), 95% confidence interval.

*P < 0.05.

**P < 0.01.

***P < 0.001.