

ORIGINAL RESEARCH

Learning and development: promoting nurses' performance and work attitudes

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Abstract

Aim. This paper is a report of a study of the relations of coaching and developing clinical practice on nurses' work place attitudes and self-reported performance, as mediated by role breadth self-efficacy and flexible role orientation.

Background. Previous research into the effectiveness of nurses' learning and development activities has mainly focused on specific skill and knowledge acquisition outcomes. Few studies investigate the relationship between learning and development activities and work attitudes or performance, or explore mediating mechanisms in this process. Previous literature suggests that malleable cognitive and motivational constructs may be important mechanisms for improving work attitudes and proactive performance.

Method. We surveyed 404 qualified nurses from a large, metropolitan public hospital in Australia in 2006 using validated measures from previous research. Descriptive statistics, correlation analysis and hierarchical regression analyses were conducted.

Results. The results show a clear association between learning and development activities and work attitudes and performance. Developing clinical practice improved self-rated performance and coaching improved work attitudes. In addition, role breadth self-efficacy and flexible role orientation mediated these relationships and emerge as important mechanisms in the link between learning and development and work attitudes and performance.

Conclusion. Investment in learning and development activities for nurses improves outcomes for nurses, the organization and patients.

Keywords: job satisfaction, learning and development programme, nurses, organizational commitment, work attitudes

Introduction

In Australia and other developed nations, the healthcare services are often depicted as 'in crisis', desperately short of

money and staff and facing enormous challenges, such as an ageing population, increasing levels of chronic disease and rising expectations from various stakeholders [National Health and Hospitals Reform Commission (NHHRC) 2008].

In the face of these challenges, there is growing appreciation of the critical role that nurses, the largest employee group in most healthcare organizations, play in dealing effectively with the demands of modern health care. There is also increasing recognition of the importance of investing in nurses' learning, training and development as a means of enhancing hospital viability and effectiveness (Whyte *et al.* 2000).

Learning is often referred to as an experience giving rise to a relatively permanent change in knowledge, skills or attitudes, whereas *training* involves systematic efforts to assist learning through instruction. *Development*, on the other hand, involves many forms of learning and training at both individual and group levels (Maurer & Tarulli 1994). For the purpose of this paper, we refer to learning and development (hereafter, referred to as L&D) as relating to specific training activities provided by a hospital or external agency.

Background

Numerous types of L&D activities are found in hospitals, with the expectation that they will lead to more satisfied, committed staff and improved patient care. Unfortunately, there has been relatively little systematic research investigating the outcomes of nurses' involvement in L&D activities that will help to justify the expense of such opportunities (Barriball *et al.* 1992). In the study reported in this paper, we empirically tested whether nurses' self-reported participation in two relatively distinct types of L&D activities (specifically, coaching and developing clinical practice) in a large public hospital affected nurse work attitudes and performance. We further investigated the psychological mechanisms of this process. The theoretical framework is shown in Figure 1.

Learning and development outcomes: work attitudes and performance

There is widespread evidence in the applied psychology literature that participation in L&D activities is associated with positive work attitudes, including higher organizational commitment and job satisfaction (Mikkelsen *et al.* 1999) and

organizational outcomes, such as recruitment and retention (Lund & Borg 1999). Providing employees with continuous L&D opportunities – a process sometimes referred to as being a 'learning organization' – have also been linked to positive financial outcomes for organizations (Ellinger *et al.* 2002).

Surprisingly, in the nursing literature there are few empirical studies addressing work attitude outcomes. Much of the research addresses only skill-based outcomes and knowledge acquisition (Ferguson 1994). In a review of the nursing literature on L&D, Barriball *et al.* (1992) argue the need to evaluate broader psychological outcomes such as work attitudes. Other researchers have also suggested the potential for L&D opportunities to improve the rates of staff retention, attract back nurses who have left the service (Mackereth 1989), and prevent burnout (Crotty 1987). There is also some evidence of improved self-confidence (Bignell & Crotty 1988) and personal satisfaction (Turner 1991) as a result of participating in L&D programmes.

In terms of performance outcomes, according to Griffin *et al.* (2007) employee performance is multidimensional, and includes typical or core performance and higher level proactive performance. Core performance refers to performing tasks which are a requirement of the job (i.e., meeting expectations) and providing effective patient care. Proactive performance, on the other hand, is about self-starting and forward thinking to prevent, rather than react to, workplace problems (e.g., to make suggestions to improve patients' long-term recovery) (Parker *et al.* 2006, Parker and Collins 2010). This aligns with the movement towards 'person-centred care' (McCormack & McCance 2006), which requires empowering nurses to go beyond their core task responsibilities and to accept greater accountability and responsibility for the delivery of patient care through critical thinking, reflective practices and application of clinical skills.

As with work attitudes, there has been comparatively little empirical attention to whether L&D activities are effective in improving performance outcomes. Yu *et al.* (2008) investigated nurses' proactivity, and found that participation in a workplace coaching programme over a 6-month period was associated with statistically significantly enhanced

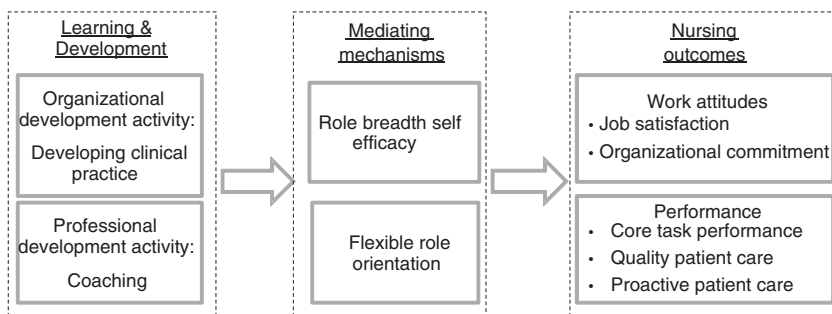


Figure 1 Theoretical framework.

proactivity, core performance, goal-attainment and motivation. In relation to core performance, empirical results are mixed. For example, although two United Kingdom studies showed that specific L&D programmes can improve clinical practice and enhance patient care (Bignell & Crotty 1988, Hughes 1990), other evidence suggests otherwise (Stanton & Crotty 1991). In addition, few researchers have controlled for age, tenure or seniority, factors which probably influence participation in L&D activities and work attitudes and performance. In a review of the literature, Perry (1995) concluded that studies of the relationship between continuing professional education and enhanced practice in nursing were inconclusive and in need of further empirical investigation.

Are all learning and development activities equal?

The mixed results in relation to L&D outcomes may, in part, be due to a lack of research comparing outcomes for different types of L&D activities. With most hospitals facing budget constraints, a more informed approach to commissioning L&D is called for.

In general, the psychological literature distinguishes between two main types of L&D activities: *organizational-development activities* (hereafter, referred to as ODAs) and *professional-development activities* (hereafter, referred to as PDAs). ODAs focus on organization-specific initiatives, which are designed to help nurses learn and apply organizationally relevant skills or information. Examples include quality improvement projects, evidence-based practice workshops and the development of clinical standards. PDAs, on the other hand, focus on profession-based initiatives, such as continuing education or attending workshops, designed to facilitate individual learning and applying professionally relevant skills or information. Examples include coaching, career development and mentorship activities.

A review of the organizational literature suggests that relatively more empirical work has focused on ODAs than on PDAs. Moreover, few researchers have examined ODAs and PDAs simultaneously. An exception is Blau *et al.* (2008), who compared differential antecedents of self-report participation in ODAs vs. PDAs and found that positive feelings about one's organization related to increased participation in ODAs, while positive feelings about one's occupation related to increased participation in PDAs.

Building on Blau *et al.*'s findings, we propose that participating in ODAs and PDAs will have positive, although possibly different, outcomes for nurses. However, there is little evidence on which to predict how the outcomes of these activities will differ. We examined two distinct activities: *developing clinical practice* vs. *coaching* as exemplars of

ODAs and PDAs, respectively. Developing clinical practice focused on nurse participation in the development and use of clinical standards and protocols to help reduce inappropriate variations in practice and ensure higher quality care. The coaching activities, on the other hand, focused on facilitating participants' development through setting goals, developing action plans, monitoring progress and evaluating outcomes (Yu *et al.* 2008). They included both group and individual coaching sessions which involved personal or career-related development plans.

An important initial question was whether these two activities are effective in promoting positive work attitudes and performance:

Hypotheses 1(a-e): Nurses' involvement in coaching and developing clinical practice (controlling age, tenure and seniority) will be positively related to: (a) job satisfaction, (b) commitment, (c) core performance, (d) quality patient care and (e) proactive patient care.

Cognitive mediators of L&D: How do L&D activities translate into positive work attitudes and performance?

In addition to examining the direct effect of L&D activities on work attitudes and performance, we proposed that this relationship was driven by two key cognitive mechanisms: flexible role orientation and role breadth self-efficacy.

Flexible role orientation refers to nurses' perceptions of their roles in terms of whether they feel responsible for work beyond their immediate operational tasks. Narrow role orientations are often characterized by the phrase 'That's not my job'. Narrow role orientation is a learned response to early job experiences (Karasek & Theorell 1990), where using initiative may have been penalized as overstepping boundaries, and where nurses may have observed more experienced nurses using very narrow role orientations. Over the last 25 years, health care has moved to having an increasingly flexible workforce, with a greater strategic orientation focusing on innovation, preventive problem-solving and a culture of continuous improvement (Parker *et al.* 1997). This change has required nurses to change their view of their own work responsibilities. To embody a broader and more proactive approach, nurses need to take ownership and feel responsibility for work beyond their immediate assigned tasks, and to adopt a flexible rather than a narrow role orientation (Parker 2007).

Based on this evidence, we expected both types of L&D activities to counteract narrow role orientations. Specifically, we expected coaching to broaden role orientation through support for initiation of new projects, setting goals and exploring career options, and developing clinical practice to

broaden role orientation through a focus on improving existing practice. In both cases, thinking 'outside the box' and being rewarded for putting new ideas into practice was expected to encourage and promote a more flexible role orientation.

A second cognitive motivational process that has been shown to be important in explaining performance, and to a lesser extent work attitudes, is *role breadth self-efficacy* (Parker 1998). In general, self-efficacy is characterized as judgment or beliefs that individuals have about their capability to perform a particular task and has been found to be a strong predictor of behaviour (Bandura 1986, Stajkovich & Luthans 1998). Role breadth self-efficacy is a type of self-efficacy that has been shown to be particularly important for the development of proactive work behaviour (Parker 1998, Axtell & Parker 2003), especially in the contexts of employee innovation (Axtell *et al.* 2000) and proactive performance (Griffin *et al.* 2007). Role breadth self-efficacy is not about actually performing more proactive behaviours, but rather about a nurse's perceived capability to perform them. Bandura (1986) suggested that self-efficacy can be enhanced through vicarious experience (seeing others model the behaviours), persuasion (coaches and instructors) or enactive mastery (repeated performance accomplishments in incremental steps). Furthermore, there is evidence that organizations can enhance role breadth self-efficacy. For example, Axtell and Parker (2003) found that being involved in active improvement groups and having increased control over tasks enhances role breadth self-efficacy. Furthermore, they found that involvement in L&D activities increases role breadth self-efficacy, although they did not examine whether this translated into improved performance and work attitudes. Based on this evidence, we proposed that different types of L&D activities can enhance role breadth self-efficacy, enabling nurses to respond to more challenging, dynamic and complex environments, which will lead to improved work attitudes and more proactive performance:

Hypotheses 2(a-e): Flexible role orientation and role breadth self-efficacy will mediate the relationship between coaching and developing clinical practice (controlling age, tenure and seniority) and (a) job satisfaction, (b) commitment, (c) core performance, (d) quality patient care and (e) proactive patient care.

The study

Aim

The aim of the study was to examine the relations of coaching and developing clinical practice on nurses' work place

attitudes and self-reported performance, as mediated by role breadth self-efficacy and flexible role orientation.

Design

A cross-sectional correlational survey design was adopted and the study was conducted at a large metropolitan hospital in Australia with over 400 beds and approximately 45,000 admissions per year.

Participants

The participants were 404 nurses, who provided information about their participation in L&D activities offered at the hospital. The sample was broadly representative of the hospital, with a response rate of around 53%, which is in line with typical response rates for this type of research (Baruch 1999). Nurses of all grades and teams were represented. A statistical power calculation for multiple regression with alpha set at 0.05, with seven independent variables and small effect size (Cohen 1988) of $f^2 = 0.10$ suggested that a sample size of 127 participants would provide 80% power to detect an effect.

Data collection

The data were collected in 2006 as part of a wider organizational-development project. We distributed questionnaires during ward meetings, and time was allocated for nurses to complete them. Questionnaires were either collected by the researchers or mailed via a reply paid envelope.

Measures

We sought biographical information and data on participants' prior involvement in hospital-wide L&D activities, and measured work attitudes, performance and mediating cognitive processes. Unless otherwise indicated, the latter were measured on 5-point Likert-type scales, where higher numbers indicated greater extent of, or greater agreement with, the construct. Nearly, all measures were taken from the literature and had been validated in previous research. Internal consistency estimates for all multi-item measures were satisfactory, with Cronbach's alpha values ranging from 0.77 to 0.91 (see Table 1).

Biographical information

Participants indicated their age, gender, seniority (ranging from Enrolled Nurse to Nurse Manager/Co-Director) and length of employment at the hospital (tenure).

Table 1 Mean values, standard deviations, Pearson correlation coefficients and reliability coefficients (Cronbach’s alpha) of all study measures (N = 404)

	Mean	SD	Alpha	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
1. Age (years)	36.33	10.60	-													
2. Gender [†]	0.15	0.36	-	0.00	-											
3. Seniority [‡]	-	-	-	0.23**	-0.07	-										
4. Tenure	5.65	6.15	-	0.53**	-0.06	0.41**	-									
5. ODA: developing clinical practice	0.47	0.74	-	0.10	-0.01	0.20**	0.15**	-								
6. PDA: coaching	0.85	1.16	-	0.17**	-0.03	0.32**	0.11*	0.09	-							
7. Role breadth self-efficacy	3.46	0.96	0.91	0.20**	0.05	0.39**	0.20**	0.18**	0.18**	-						
8. Flexible role orientation	4.01	0.70	0.80	0.11*	0.05	0.39**	0.13*	0.17**	0.20**	0.36**	-					
9. Job satisfaction	3.74	0.77	0.89	0.02	-0.01	0.09	0.01	0.01	0.18**	0.02	0.19**	-				
10. Organizational commitment	3.25	0.94	0.91	0.16**	0.05	0.15	0.15**	0.01	0.18**	0.07	0.19**	0.47**	-			
11. Core performance	4.25	0.65	0.77	0.02	0.02	-0.12*	0.03	0.06	0.01	0.17**	0.10*	0.23**	0.03	-		
12. Quality patient care	4.10	0.61	0.78	0.08	-0.01	0.14**	0.06	0.11*	0.11*	0.39**	0.29**	0.18**	0.07	0.33**	-	
13. Proactive patient care	3.71	0.81	0.85	0.06	0.04	0.18**	0.07	0.12*	0.05	0.36**	0.32**	0.07	-0.02	0.17**	0.49**	-

*P < 0.05 (two-tailed); **P < 0.01 (two-tailed).

[†]Coded as 0 = female, 1 = male.

[‡]Coded as 1 = Enrolled Nurse, 2 = Registered Nurse, 3 = Clinical Nurse Specialist, 4 = Nurse Educator/Clinical Nurse Consultant/Nurse Unit Manager, 5 = Nurse Manager/Co-Director. ODA, organizational-development activities; PDA, professional-development activities.

Learning and development activities
A list of L&D activities offered over the previous year was generated by consulting nurse educators and other senior nurses. Respondents were asked to indicate the number of times they had participated in these activities.

The L&D activities were grouped based on discussions with nurse educators about their goals and expected outcomes; two distinct groups of activities were chosen for further analysis, based on whether the focus was broadly organizational or professional. The ODA was *developing clinical practice* and included activities such as developing and using evidence-based protocols or guidelines for delivering safe and effective patient care, and the PDA was both formal and informal *coaching and career development*.

Work attitudes
Job satisfaction was measured with a 6-item scale developed for a previous study at this site by Fairbrother *et al.* (2009). A sample item is: ‘My job gives me a lot of satisfaction’. *Organizational commitment* was measured with three items from the affective commitment scale (Allen & Meyer 1990). A sample item is: ‘[Hospital] has a great deal of personal meaning for me’.

Performance
Core performance was measured using two items from Williams and Anderson (1991), chosen based on their discriminant validity with both organizational citizenship behaviour and proactive work behaviours. A sample item is: ‘Perform the tasks that were expected as part of your job’.

The measure of *quality patient care* was based on a 4-item measure (Griffin *et al.* 2007) and adapted for the research context. A sample item is: ‘When dealing with patients, to what extent do you provide quality patient care?’.

As no established and validated measure could be located in the literature for *proactive patient care*, we developed items based on interviews with nurses at different levels, using the critical incident technique. Nurses were asked to identify and discuss situations in which they solved problems, were self-starting, exhibited goal directed behaviour and persisted in the face of obstacles. Five items were developed from these interviews. A sample item is: ‘To what extent do you inform the patient about what might happen after your shift?’.

Mediating variables
Role breadth self-efficacy was assessed using a 4-item measure developed by Parker (1998). Nurses were asked how confident they were carrying out a specific task. Examples of

tasks include 'analysing a long-term problem to find a solution'. *Flexible role orientation* was measured with a 5-item scale adapted from Parker *et al.* (1997), using the interviews described above. Nurses indicated the extent to which they felt personal concern for problems that might occur, such as 'a lack of team work within your ward'.

Ethical considerations

The study was approved by university and hospital ethics committees. Written informed consent was obtained, participation was voluntary and confidential. Codes were substituted for names during data entry.

Data analysis

We first analysed the data (using SPSS 15) to generate descriptive statistics, correlation coefficients and Cronbach's alpha reliability coefficients. Confirmatory factor analysis (CFA) was also conducted to assess the discriminant and convergent validity of our measures. To conduct hierarchical regression analyses, for each respondent, an average value of scale items was computed for each measure. To estimate how much of the total variance in the outcome variables could be explained by a group of explanatory variables when the effect of other explanatory variables had been accounted for, three hierarchical multiple linear regression analyses were conducted following Baron and Kenny's (1986) method. In step 1 of Regression 1, demographic variables were entered to control for their effect on both the explanatory variables and outcomes. The two L&D variables were added in step 2 to measure their direct effect on the outcomes, as specified in hypothesis 1. In Regression 2, we repeated these two steps using the two proposed cognitive mediators as outcome measures to test the direct effect of the L&D variables on the mediators. The full model (Regression 3) measured the variance each mediator accounted for in the association between the L&D activities and work attitude and performance outcomes, as specified in hypothesis 2.

Results

Descriptive statistics

Eighty-five per cent of participants were female, with an average age of 36 years (ranging from 19 to 64 years) and average tenure at the hospital of 5.7 years. Eighty-one per cent of participants worked full-time, 16% part-time and 3% were casual workers. The mean values, standard deviations,

Cronbach's alpha and correlations for all variables are shown in Table 1. One hundred twenty-eight nurses had participated in developing clinical practice and 187 in coaching and career development activities. Seventy-seven had participated in both L&D activities. Not surprisingly, senior nurses who had worked at the hospital longer were statistically significantly more likely to have participated in both types of L&D activities in the previous year ($r = 0.20$, $P < 0.01$ and $r = 0.32$, $P < 0.01$) and to have higher levels of role breadth self-efficacy ($r = 0.39$, $P < 0.01$) and flexible role orientation ($r = 0.39$, $P < 0.01$). Interestingly, seniority had a negative association with task performance ($r = -0.12$, $P < 0.05$), but a statistically significant positive association with quality patient care ($r = 0.14$, $P < 0.01$) and proactive patient care ($r = 0.18$, $P < 0.01$). Tenure was also statistically significantly related to L&D activities ($r = 0.15$, $P < 0.01$ and $r = 0.11$, $P < 0.05$), role breadth self-efficacy ($r = 0.20$, $P < 0.01$), flexible role orientation ($r = 0.13$, $P < 0.01$) and organizational commitment ($r = 0.15$, $P < 0.01$). However, it was not related to the performance measures. Finally, age was statistically significantly associated with coaching activities ($r = 0.17$, $P < 0.01$), role breadth self-efficacy ($r = 0.20$, $P < 0.01$), flexible role orientation ($r = 0.11$, $P < 0.05$) and organizational commitment ($r = 0.16$, $P < 0.01$). Gender was not related to any of our study variables and was therefore excluded from further analysis. All other demographic variables were included in the regression analyses to control for their influence.

Interestingly, there was no statistically significant relationship between the two L&D activities, ($r = 0.09$, n.s.), indicating that these two types of activities are separate. There were low to moderate intercorrelations between our outcome variables, suggesting that multi-collinearity was not a serious problem (Kennedy 1980, Tsui *et al.* 1995).

To assess the convergent and discriminant validity of our constructs, a measurement model of all multi-item measures was subjected to CFA. The overall fit statistics for our model indicated a good fit to the data: $\chi^2(356, N = 404) = 706.49$, $P < 0.00$; comparative fit index = 0.93; incremental fit index = 0.93; root mean square error of approximation = 0.05. The model fit was statistically significantly better than that for a one-factor model: ($\Delta\chi^2[21] = 2871.35$, $P < 0.00$).

To provide further evidence of the discriminant validity of constructs in our measurement model, we followed the procedures outlined by Fornell and Larcker (1981), who suggested that the average variance extracted for two constructs should exceed the square of the correlation between the constructs to demonstrate discriminant validity. All constructs showed sufficient discriminant validity.

Regression analysis

Hierarchical regression analyses were conducted to test our study hypotheses. Hypothesis 1 suggested that nurses’ involvement in both coaching and developing clinical practice activities would be positively related to their work attitudes (job satisfaction and commitment) and performance (core performance, quality and proactive patient care). To test this hypothesis, we conducted hierarchical regression analyses with age, tenure and seniority entered as control variables in the first step, and both coaching and developing clinical practice entered in the second step. The results are shown in Models 1 of Table 2 (for work attitude outcomes) and Table 3 (for performance outcomes). As can be seen in Table 2, the regression of work attitude outcomes on L&D variables revealed that coaching activities were a statistically significant positive predictor of both job satisfaction ($\beta = 0.20, P < 0.01$), and commitment ($\beta = 0.15, P < 0.01$). Results for developing clinical practice, on the other hand, were not statistically significant. In other words, only one of the L&D activities, coaching, had a positive relationship with work attitudes, whereas participation in developing clinical practice did not.

As shown in Model 1 of Table 3, the results for performance outcomes were reversed, with developing clinical practice – but not coaching – emerging as a statistically significant predictor of core performance ($\beta = 0.12, P < 0.05$), and a marginally statistically significant predictor of quality patient care ($\beta = 0.10, P < 0.08$), and proactive patient care ($\beta = 0.12, P < 0.06$). Thus, we found differential relationships between the two types of L&D activities and work attitudes and performance. Whereas coaching activities seemed mainly to affect nurses’ work attitudes, developing clinical practice activities appeared to be a main driver of performance.

Hypothesis 2 suggested that two cognitive mechanisms, flexible role orientation and role breadth self-efficacy, would mediate the relationship between L&D activities and work attitudes and performance. To test this hypothesis, we followed Baron and Kenny’s (1986) approach to testing for mediation described earlier. As shown in Models 2 of Tables 2 and 3, the regression of role breadth self-efficacy and flexible role orientation revealed that coaching was positively associated with flexible role orientation ($\beta = 0.10, P < 0.07$), and developing clinical practice was positively associated with both flexible role orientation ($\beta = 0.12,$

Table 2 Standardized regression coefficients (β s) from the hierarchical regression analysis for work attitude outcomes ($N = 404$)

Independent variables	Model 1		Model 2		Model 3	
	Job satisfaction	Commitment	Flexible role orientation	Role breadth self-efficacy	Job satisfaction	Commitment
Step 1: Control variables						
Age	-0.01	0.08	0.03	0.11 [†]	-0.02	0.07
Tenure	-0.02	0.07	-0.02	-0.02	-0.01	0.06
Seniority [‡]	0.00	0.05	0.30**	0.34**	-0.06	-0.00
R ²	0.01	0.04	0.13	0.17	0.00	0.03
Adjusted R ²	-0.00	0.03	0.12	0.16	-0.01	0.02
ΔR^2	0.01	0.04**	0.13**	0.17**	0.00	0.03*
Step 2: Main effects						
PDA: coaching	0.20**	0.15**	0.10 [†]	0.05	0.18**	0.14*
ODA: developing clinical practice	0.00	-0.03	0.12*	0.11*	0.00	-0.02
R ²	0.04	0.06	0.15	0.18	0.04	0.05
Adjusted R ²	0.03	0.04	0.14	0.17	0.02	0.03
ΔR^2	0.04**	0.02*	0.02*	0.02 [†]	0.03**	0.02*
Step 3: Mediator						
Flexible role orientation					0.20**	0.18**
Role breadth self-efficacy					-0.07	-0.08
R ²					0.07	0.07
Adjusted R ²					0.05	0.05
ΔR^2					0.03**	0.03**

* $P < 0.05$; ** $P < 0.01$; [†] $P < 0.10$.

[‡]Coded as 1 = Enrolled Nurse, 2 = Registered Nurse, 3 = Clinical Nurse Specialist, 4 = Nurse Educator/Clinical Nurse Consultant/Nurse Unit Manager, 5 = Nurse Manager/Co-Director.

ODAs, organizational-development activities; PDAs, professional-development activities. All standardized regression coefficients (β s) are from the final step in the hierarchical regression.

Table 3 Standardized regression coefficients (β s) from the hierarchical regression analysis for performance outcomes ($N = 404$)

Independent variables	Model 1			Model 2		Model 3		
	Core performance	Quality care	Proactive care	Flexible role orientation	Role breadth self-efficacy	Core performance	Quality care	Proactive care
Step 1: Control variables								
Age	0.00	0.05	0.05	0.03	0.11 [†]	-0.12	0.01	0.01
Tenure	0.10	-0.03	-0.03	-0.02	-0.02	0.10	-0.02	-0.02
Seniority [‡]	-0.24**	0.07	0.17**	0.30**	0.34**	-0.34**	-0.12 [†]	0.01
R ²	0.03	0.02	0.04	0.13	0.17	0.04	0.01	0.04
Adjusted R ²	0.03	0.01	0.03	0.12	0.16	0.03	0.00	0.03
ΔR^2	0.03**	0.02	0.04**	0.13**	0.17**	0.04**	0.01	0.04**
Step 2: Main effects								
PDA: coaching	0.06	0.06	0.01	0.10 [†]	0.05	0.04	0.05	-0.02
ODA: developing clinical practice	0.12*	0.10 [†]	0.12 [†]	0.12*	0.11*	0.09	0.04	0.05
R ²	0.05	0.03	0.05	0.15	0.18	0.05	0.03	0.05
Adjusted R ²	0.04	0.01	0.04	0.14	0.17	0.04	0.01	0.04
ΔR^2	0.02*	0.01	0.01	0.02*	0.02 [†]	0.02 [†]	0.02 [†]	0.01
Step 3: Mediator								
Flexible role orientation						0.09	0.16**	0.20**
Role breadth self-efficacy						0.20**	0.35**	0.31**
R ²						0.10	0.18	0.20
Adjusted R ²						0.08	0.16	0.18
ΔR^2						0.05**	0.15**	0.14**

* $P < 0.05$; ** $P < 0.01$; [†] $P < 0.10$.

[‡]Coded as 1 = Enrolled Nurse, 2 = Registered Nurse, 3 = Clinical Nursing Specialist, 4 = Nurse Educator/Clinical Nurse Consultant/Nurse Unit Manager, 5 = Nurse Manager/Co-Director.

ODA, organizational-development activities; PDA, professional-development activities. All standardized regression coefficients (β s) are from the final step in the hierarchical regression.

$P < 0.05$) and role breadth self-efficacy ($\beta = 0.11$, $P < 0.05$). Finally, Model 3 of Table 2 shows flexible role orientation as a statistically significant predictor of job satisfaction ($\beta = 0.20$, $P < 0.01$) and commitment ($\beta = 0.18$, $P < 0.01$) when controlling for L&D activities. A comparison of the main effect in Model 1 with the main effect in Model 3 showed support for a partial mediating effect. Thus, our results show that flexible role orientation partially mediates the effects of coaching on nurses' work attitude measures.

We followed the same procedure, with our performance outcomes with the full Model 3 in Table 3 showing that role breadth self-efficacy predicted core performance ($\beta = 0.20$, $P < 0.01$), quality patient care ($\beta = 0.35$, $P < 0.01$), and proactive patient care ($\beta = 0.31$, $P < 0.01$), once L&D activities were controlled for. A comparison of the main effect in Model 1 with the main effect in Model 3 showed support for full mediating effects. Specifically, adding role breadth self-efficacy as a predictor of core performance reduced the effects of developing clinical practice on change in core performance, and adding both role breadth self-efficacy and flexible role orientation as predictors of quality

and proactive patient care reduced the effects of developing clinical practice on change in quality and proactive care. Overall, these results offer partial support for Hypotheses 2 in showing that role breadth self-efficacy and flexible role orientation appeared to be a driving force in the relationship between nurses' participation in L&D activities and resulting work attitude and performance outcomes.

Discussion

Study limitations

Several limitations of this research should be acknowledged. The study was cross-sectional and therefore we cannot completely rule out reverse causality, in that having higher job satisfaction and commitment may create a more flexible outlook on work role, which in turn may increase the likelihood of seeking out coaching opportunities. The same could apply to the performance outcomes. However, the differential effect on the psychological mechanisms and outcomes tends to mitigate against the possibility of reverse

What is already known about this topic

- Research on nurses' participation in learning and development activities is primarily descriptive and focuses on skill and knowledge acquisition.
- There are mixed findings about whether learning and development enhance work attitudes and performance.
- Cognitive and motivational beliefs about an individual's ability and confidence to work flexibly and beyond narrow role definitions affect work attitudes and performance outcomes.

What this paper adds

- Involvement in professional-development activities, such as coaching and career development improved work attitudes and involvement in organizational-development activities, such as developing clinical practice increases performance outcomes.
- Coaching enhanced a flexible role orientation, which in turn enhanced work attitudes, such as job satisfaction and organizational commitment.
- Developing clinical practice enhanced both flexible role orientation and role breadth self-efficacy, which in turn enhanced quality patient care and proactive patient care.

Implications for practice and/or policy

- Investment in nurses' participation in learning and development activities can result in positive organizational outcomes, such as higher job satisfaction, commitment and improved quality of patient care.
- When retaining and attracting nurses is a priority, professional-development activities may be more effective, whereas when developing proactive patient care is important, organizational-development activities may be more effective.
- Flexible role orientation and role breadth self-efficacy, both malleable constructs, can be elicited through learning and development opportunities, which in turn can lead to positive changes in performance and work attitudes.

causality. Another limitation was that all the variables were measured at the same time, which can lead to common method variance. However, the nurses were asked about their previous involvement in a predefined list of L&D activities. This type of response is unlikely to be influenced in the same

way as responses to attitudinal survey items. However, longitudinal data are needed to examine further the effects of these variables on the outcomes. Finally, all the data were self-reports, which is also vulnerable to biases. Ideally, it would have been better to use external ratings of performance and other more objective measures.

Effects of L&D

Much of the research into the effects of L&D has shown mixed results (Hutton 1987). Some has shown that general L&D opportunities have positive effects on work attitudes and patient care (Bignell & Crotty 1988, Hughes 1990, Turner 1991). However, there is a lack of research linking specific L&D opportunities to specific outcomes. Our results provide more clarity about the specific effects of L&D activities. From a theoretical perspective, it contributes by distinguishing the effect of two different types of L&D activities: PDAs and ODAs. Previous literature (e.g., Blau *et al.* 2008) has demonstrated preliminary evidence of differential *antecedents* to participation in these two types of L&D activities. However, to our knowledge this is the first demonstration of differential *outcomes* of participation in PDAs and ODAs. Thus, our results suggest that there is considerable utility in identifying the extent to which a particular L&D activity is focused on professional development vs. organizationally significant skills, and matching activities to desired outcomes, for example, as identified through individual professional-development plans.

From a practical perspective, there are two key messages. The first is that we were able to identify overarching benefits to organizations from having offered L&D activities to their nursing staff. This is very encouraging for a number of reasons. First, while L&D is often offered to nurses to fulfil accreditation requirements or to 'sign off' formally on a set of skills, our results show that it will also translate into improved work attitudes such as job satisfaction and commitment and increased overall performance. While the effect sizes were relatively small (ranging from 2% to 4% of the additional variance explained in work attitudes and 2% of additional variance explained in performance), they will nevertheless make a difference to nurses' well-being and engagement with their work. The second reason is that this research provides some guidance in choosing different types of L&D activities to achieve specific outcomes. When retaining and attracting nurses is a priority, PDAs are likely to be more effective in achieving this aim. On the other hand, if the priority is to develop a more proactive workforce with a greater emphasis on performance, ODAs are likely to give the greatest return on investment. From a practical perspective,

greater understanding of the effect of different types of L&D activities would be useful in matching staff learning needs to design and planning training activities. Finally, our results also suggest that ODAs on their own will not automatically improve work attitudes, just as only providing PDAs will not automatically improve work performance.

Interestingly, the pattern of results in our study is not entirely consistent with previous research. For example, Yu *et al.* (2008) found that participation in a relatively long-term (6 months) solution-focused, cognitive behavioural workplace coaching programme was associated with enhanced proactive and core performance and role breadth self-efficacy, but not work attitudes. However, Yu *et al.* (2008) investigated a small group of senior nurses working in management roles, which may explain the different results. In our study, coaching activities did not lead to measurable performance effects. One possible interpretation is that coaching may have to be highly structured, specific and focused to achieve performance outcomes.

When nurses participate in L&D that is designed for the purpose of developing clinical practice, the effects are seen in increased performance and a more proactive approach to patient care. That this type of activity may encourage a more proactive approach that goes beyond the immediate effective delivery of clinical practice is very encouraging.

Another main contribution of our research is to identify role breadth self-efficacy and flexible role orientation as two key cognitive mechanisms through which participation in L&D activities enhances both work attitudes and performance outcomes. Our results suggest that L&D activities enhance different cognitive motivational states, which in turn lead to improved outcomes. This finding is in line with previous research showing that flexible role orientation is critical for developing proactive performance in other industries (Parker 2007). Our results suggest that the intervening cognitive motivational mechanisms are both malleable constructs that can be elicited through L&D opportunities, which in turn can lead to changes in performance.

Conclusion

Overall, these results suggest that if L&D activities increase cognitive and motivational constructs, such as role breadth self-efficacy and flexible role orientation, knowledge and skills gained will flow through to work attitudes and performance, and in particular proactive performance. In this study, the coaching activities enabled nurses to look at potential opportunities for themselves and the organization and to think beyond their current role. This may provide different perspectives and enable new insights which feed into a greater

job satisfaction and commitment. Developing clinical practice, on the other hand, may increase belief in nurses' ability to work with more advanced skills and to expand their view of their roles, resulting in improved and more proactive patient care. With this knowledge, nurse managers and educators can intentionally include opportunities for increasing these two cognitive and motivational constructs to facilitate translating L&D activities into improved performance and work attitudes and, ultimately, well-being.

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Conflict of interest

No conflict of interest has been declared by the authors.

Author contributions

SKP, AJ and HH were responsible for the study conception and design. AJ and HH performed the data collection. AJ, HH and MG performed the data analysis. AJ and HH were responsible for the drafting of the manuscript. MG and SKP made critical revisions to the paper for important intellectual content. AJ, HH, MG and SKP provided statistical expertise. SKP obtained funding.

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