Factors impacting on organisational learning in three rural health districts

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Keywords: organisational learning; leadership; teamwork

Abstract

Background: Access to quality health care in rural areas may be compromised not only by the inadequate numbers of skilled professional staff, but also by the lack of skills of the health professionals who are employed in rural facilities, due to inadequate continual professional learning and staff development. The objective of this paper is to examine the factors impacting on professional staff attendance of informal learning sessions in rural district hospitals and primary healthcare clinics.

Methods: Structured, self-administered surveys, adapted from the Dimensions of a Learning Organization Questionnaire, were completed by professional staff on duty during data collection in 18 rural hospitals and their associated primary healthcare services facilities in three rural districts. The impacts of characteristics of staff, such as age, gender, professional experience and length of service, staffing levels, and the dimensions of a learning organisation, viz leadership, culture of change and teamwork, on attendance of learning sessions were considered.

Results: Among professional nurses, attendance of learning sessions was significantly associated with the number of years of professional experience, length of service at the health facility, and scores on the teamwork dimension. While in the case of professional nurses attendance was not correlated with the staffing levels, the percentage of posts filled at the respective facilities and the assessment of hospital leadership as being supportive of learning were significant predictors of attendance among doctors.

Conclusions: Despite severe staff shortages in these rural districts, at facilities where there was a perception of leadership and teamwork the professional staff generally attended learning sessions.

SA Fam Pract 2009;51(2):138-142

Introduction

The ability to learn is essential in the healthcare environment, where knowledge and skills can rapidly become outdated by the continuous developments in science and medicine. The development of businesses and institutions into learning organisations has been proposed as a key strategy for improving their efficacy as well as their efficiency. While this principle has been applied extensively in the corporate environment, it is a relatively new concept in the healthcare system.[1]

A learning organisation has been defined as "an organisation that facilitates the learning of all its members and continually transforms itself".[2] However, facilitating the learning of members of an organisation has commonly been interpreted as the need to improve the number and quality of formal educational and training courses available to employees. While these courses have a place in training and updating staff on developments in their field, public sector efforts to create learning organisations tend to become restricted to ensuring staff attend such formal courses. The focus on formal courses then actually becomes a barrier to creating and institutionalising learning that is grounded in the knowledge and experience of individuals working in a particular context.[3]

Further, more formal types of learning opportunities, such as attending educational or training courses or conferences, present additional challenges to those working in a rural setting because of the distance from academic institutions in cities. The institution and the individual need to overcome barriers such as transport, lack of funding and longer periods of time away from their post.[4] Marais et al found that rural doctors in the Western Cape expressed enthusiasm not only for local, less formal learning opportunities, but for opportunities that were practical and relevant to their work situation.[5]

Another common misconception is that learning at the organisational level may simply be founded on the learning of individuals within the organisation. On the contrary, research has shown that individual learning does not necessarily lead to organisational learning.[6]

Organisational learning mechanisms, referred to as learning sessions in this paper, provide the link between individual level learning and organisational level learning.[7] In practical terms these are times and places at and in which experiences and knowledge of individuals are shared, then collectively analysed and translated into new standard operating procedures by the group. The recording and distribution of these sessions is the final step in the organisational learning process.[7]

Within a healthcare setting, continuing medical education or in-service training, teaching ward rounds, mortality reviews, and academic meetings held within the institution would be classified as learning sessions of this nature.[7,8]

Research has identified leadership committed to learning as facilitating onsite, informal learning in organisations.[9] Amitay et al found a strong positive association between transformational leadership, organisational learning values and the existence of learning sessions.[10] The leadership of a learning organisation should generate learning opportunities on the job, reward this type of learning, support innovative suggestions, and foster a culture of change.[8,9]

A culture of change may be defined as open-mindedness and preparedness to change entire routines and standard operating procedures embedded in organisational custom on the basis of new evidence. A culture of change supports the need to unlearn established ways of doing things, despite personal investment in a current competency. It requires individuals to acknowledge failures and learn from them. The positive aspect of this concept is the reward given for initiative.[8,11]

Teamwork, with an emphasis on mutual respect, trust and communication, influences learning at the organisational level.[3,8] Pisano et al found that learning is facilitated by cross-functional communication and stability of team membership.[12]

While formal learning opportunities and the availability of resources such as libraries and internet access may also be important in determining the extent of learning that occurs in a given organisation, this paper explores how the less tangible aspects of leadership, a culture of change and teamwork impact on the attendance of learning sessions in a resource-constrained district health setting.

Methods

The aim of the survey was to collect baseline data to set evidence-based priorities for an intervention to create learning organisations of district hospitals and their associated clinics. Data were collected as part of a cross-sectional survey conducted in April and May 2006.

The study population was professional staff working in public health facilities in the Zululand, Umkhanyakude and uThungulu districts. The Zululand, Umkhanyakude and uThungulu health districts situated in northern KwaZulu-Natal are predominantly rural. Outside of Empangeni, communities are mainly dispersed. This study area is served by two regional hospitals, 16 district hospitals and 158 fixed primary health care clinics.

The study sample included medical doctors and professional nurses who were on duty at the time of a two-day data collection visit by the research team to each hospital. Respondents at the 18 hospitals were asked to complete an anonymous, self-administered questionnaire. The primary healthcare supervisors at the hospitals were asked to distribute the self-administered questionnaire to all professional staff based in the fixed outlying clinics and working in the mobile teams.

Informed consent was obtained from each participant, and completion of the questionnaire was taken as consent. The study was approved by the Biomedical Research Ethics Committee of the University of KwaZulu-Natal, South Africa, reference number E271/05.

An adaptation of the "Dimensions of Learning Organisation Questionnaire" developed by Watkins et al was used as the self-administered questionnaire in this study.[13] In his review of eight learning organisation diagnostic tools, Moilanen describes this tool as the most comprehensive and scientifically supported.[14] Respondents were asked to rate 39 items on a 4-point Likert scale of strongly disagree, disagree, agree and strongly agree. There were 15 items on the teamwork dimension, 12 items on the leadership dimension, and 12 items on the culture of change dimension. Table I contains examples of items pertaining to each of the dimensions.

Table I: Examples of items pertaining to each dimension of learning

Teamwork	Leadership	Culture of change
People give open and honest feedback on work performance	Management builds a common vision across different levels and work groups	Professional staff are rewarded for learning
People listen to others' views before speaking	Managers empower others to help carry out the vision	This hospital recognises or rewards people for taking initiative
Professional staff spend time building trust between each other	Impact of management decisions on professional staff morale considered	Team members are confident that hospital will act on recommendations
Management enables people to access information quickly and easily	Senior staff set an example by looking for opportunities to learn	Management at this hospital measure the results of training
Supervisors measure the gap between actual and expected performance	The senior staff at this hospital mentor and coach those they lead	This hospital is a good place for learning and developing yourself

The data collection tool was piloted in two district hospitals in KwaZulu-Natal to ensure the items were easily understood and appropriate in the context of their planned use. As multiple statements within the questionnaire were used to construct the dimensions measuring leadership, culture of change and teamwork, Cronbach's alpha coefficient, a measure of the internal consistency or reliability, was calculated. The Cronbach alpha coefficient of the leadership scale was 0.79, the teamwork scale was 0.80 and the culture of change scale was 0.70. These are all within acceptable limits.[15]

Pre-coded data were double entered, cleaned and validated using Epi-Info (version 6.04). Analysis was conducted using Stata (Version 9.0). Chi-square tests were used to test for differences between doctors and nurses on categorical variables and T-tests were used for continuous variables.

Given the clear differences between the doctors and professional nurses, separate analyses were undertaken to determine which factors were significantly associated with attendance of the number of learning sessions considered a reasonable benchmark for the category of staff. As attendance of all four learning sessions was deemed too stringent, attendance of at least three learning sessions was set as the benchmark for doctors. As it is not practically feasible to expect that professional nurses in the peripheral primary health care clinics would be able to attend teaching ward rounds in the hospital and that those not working in maternity would be able to attend perinatal mortality reviews, attendance of two learning sessions was the benchmark for professional nurses.

Univariate binomial logistic regressions were used to determine which individual characteristics and dimensions of the learning organisation were significantly associated with attendance of the required number of learning sessions. Multivariate binomial logistic regressions were used to determine which factors remained significantly associated with attendance, when adjusting or controlling for other potential covariates.

Results

The response rate for each category of staff on duty during the data collection was 75% for doctors, 81% for the hospital based nursing staff, and 66% for the primary health care nurses.

Table II tabulates the demographic details of the 122 doctors and 531 professional nurses who participated in the study. The professional nurses were significantly older than the doctors, had more professional experience and a longer length of service in their current facilities. Professional nurses were significantly more likely to have completed a post-basic course than doctors. However, doctors were significantly more likely than professional nurses to have attended teaching ward rounds, mortality reviews and academic meetings. On average, doctors rated their institutions significantly lower on the teamwork, culture of change and leadership dimensions than the professional nursing staff did.

Table III tabulates the analysis of attendance of two or more learning sessions by the professional nurses. In the bivariate (unadjusted or uncontrolled) analysis it was found that the professional nurses who had attended two or more learning sessions were significantly older, had more years of professional experience, and a longer period of service at their current institutions. They were also more likely to have a post-basic qualification. In terms of the dimensions of a learning organisation, those who had attended two or more learning sessions rated their current institution significantly more highly on the teamwork, leadership and culture of change dimensions.

In the adjusted multivariate analysis, the number of years of professional experience and length of service were the characteristics that remained significantly associated with attendance of at least two learning sessions in the previous month, while teamwork was the only dimension of a learning organisation to remain significantly associated with attendance.

Table IV shows that, among the doctors, in the bi-variate analysis the variables significantly associated with attendance of three or more learning sessions was the percentage of senior doctor posts filled, and the percentage scored on the teamwork, culture of change and leadership dimensions. In the adjusted analysis, only the leadership dimension remained a significant predictor, together with the percentage of posts filled, for attendance of three or more learning sessions.

Discussion

It was assumed that staff shortages would reduce the attendance of learning sessions by professional staff, so that both nurses and doctors working in facilities with a lower percentage of posts filled would be less likely to attend the required number of learning sessions. However, the results indicate that attendance of learning sessions is not dependent on the level of staffing by professional nurses, but the lack of senior doctors does appear to hamper participation in the learning activities of doctors.

While a significant relationship between the percentage of posts filled and attendance was only found for doctors it must be taken into account that there was a significantly higher proportion of professional nurse posts filled. This may mean that there is a critical point at which a shortage of staff begins to impact on the availability of time to meet, and share experience and new insights.

Furthermore, it is important to note that for doctors their subjective evaluation of the quality of leadership, along with the percentage of posts filled, remained a significant predictor of attendance of three or

Table II: Doctors and professional nurses: Characteristics, participation in learning sessions, and scores on each dimension of learning

	Doctors	Professional nurses	p-value
N	122	531	
Age: Mean	33.3 (31.4 – 35.2)	42.4 (41.7 – 43.2)	0.00
Gender: Female %	41.0 (32.6 – 49.9)	91.2 (88.4 – 93.3)	0.00
Professional experience: Mean number of years qualified	7.5 (5.9 – 9.0)	10.5 (9.8 – 11.2)	0.00
Length of service: Mean number of years employed at the facility	2.2 (1.6 – 2.9)	10.3 (9.6 – 11.0)	0.00
Percentage of posts filled: Mean number employed at the facility	43.2 (39.5 – 47.0)	56.4 (55.1 – 57.8)	0.00
Post-basic qualification: Yes %	31.1 (23.5 – 39.9)	70.2 (66.2 – 74.0)	0.00
Currently registered: Yes %	32.0 (24.3 – 40.8)	28.1 (24.4 – 32.0)	0.39
Learning sessions attended in the past month			
Teaching ward rounds: Yes %	54.9 (46.0 – 63.5)	45.0 (40.8 – 49.3)	0.05
Mortality review meetings: Yes %	54.9 (46.6 – 63.5)	28.8 (25.1 – 32.8)	0.00
In-service: Yes %	40.2 (31.8 – 49.1)	74.6 (70.7 – 78.1)	0.00
Academic meetings: Yes %	65.6 (56.7 – 73.5)	23.9 (20.5 – 27.7)	0.00
Number of learning sessions attended in the past month			
One or more	82.0 (74.1 – 87.8)	82.9 (79.4 – 85.8)	0.81
Two or more	66.4 (57.5 – 74.2)	55.9 (51.7 – 60.1)	0.03
Three or more	45.1 (36.5 – 54.0)	26.4 (22.7 – 30.3)	0.00
Four or more	22.1 (15.6 – 30.4)	7.1 (5.2 – 9.7)	0.00
Dimensions of a learning organisation			
Culture of change: Mean % scored	51.2 (47.2 – 55.0)	57.8 (56.0 – 59.6)	0.00
Teamwork: Mean % scored	61.0 (56.5 – 65.5)	68.8 (66.8 – 70.7)	0.00
Leadership: Mean % scored	53.7 (48.6 – 58.7)	60.1 (57.9 – 62.3)	0.02

Table III: Professional nurses attendance of two or more learning sessions

Nurses (two or more learning sessions)				
	Univariate		Multivariate	
Characteristics	OR (95% CI)	p-value	OR (95% CI)	p-value
Age	1.03 (1.00 – 1.05)	0.01	0.98 (0.95 – 1.01)	0.20
Gender: Female	1.75 (0.95 – 3.22)	0.07	1.40 (0.72 – 2.71)	0.32
Professional experience	1.04 (1.02 – 1.06)	0.00	1.04 (1.01 – 1.07)	0.01
Length of service	1.03 (1.01 – 1.06)	0.00	1.03 (1.00 – 1.05)	0.05
Percentage of posts filled	1.00 (0.99 – 1.01)	0.96	1.00 (0.99 – 1.01)	0.93
Have a post-basic qualification	1.46 (1.00 – 2.12)	0.05	1.17 (0.76 – 1.79)	0.47
Currently registered	0.88 (0.60 – 1.29)	0.52	0.83 (0.56 – 1.25)	0.38
Dimensions of a learning organisation				
Culture of change	1.015 (1.007 – 1.023)	0.00	1.00 (0.99 – 1.02)	0.36
Teamwork	1.016 (1.008 – 1.024)	0.00	1.02 (1.00 – 1.03)	0.01
Leadership	1.008 (1.000 – 1.015)	0.01	1.00 (0.99 – 1.01)	0.44

Table IV: Doctors attendance of three or more learning sessions

Doctors (three or more learning sessions)				
	Univariate		Multivariate	
Characteristics	OR (95% CI)	p-value	OR (95% CI)	p-value
Age	0.99 (0.96 – 1.03)	0.75	0.97 (0.86 – 1.08)	0.56
Gender: Female	1.06 (0.52 – 2.20)	0.87	0.97 (0.40 – 2.36)	0.94
Professional experience	1.00 (0.96 –1.04)	0.90	1.02 (0.8 9 – 1.16)	0.82
Length of service	1.00 (0.92 –1.11)	0.87	1.03 (0.87 – 1.21)	0.76
Percentage of posts filled	1.04 (1.02 –1.06)	0.00	1.04 (1.02 – 1.06)	0.00
Have a post-basic qualification	1.33 (0.62 – 2.88)	0.46	0.84 (0.30 – 2.29)	0.73
Currently registered	1.07 (0.50 – 2.29)	0.87	1.44 (0.56 – 3.68)	0.45
Dimensions of a learning organisation				
Culture of change	1.03 (1.01 –1.05)	0.00	1.01 (0.97 – 1.04)	0.70
Teamwork	1.02 (1.01 – 1.04)	0.00	1.00 (0.97 – 1.03)	0.80
Leadership	1.03 (1.01 – 1.05)	0.00	1.03 (1.00 – 1.05)	0.02

more learning sessions. This suggests that the impact of staff shortages in this professional category may to some extent be ameliorated by the impact of leadership that is supportive of the principles of a learning organisation.

According to Carroll et al organisational learning requires leadership not only from top management but also from senior staff, throughout the organisation.[16] While hospital management may create vision and strategy, no learning is possible without a commitment from unit managers or senior doctors to encourageing and supporting professional staff in their practical experiments and learning efforts on a daily basis. Hospital management will support unit managers and senior doctors by creating an organisational culture supportive of change and by mentoring unit managers and senior doctors. Such a level of leadership will provide guidance and support to staff in ongoing endeavours to introduce change, even in cases where previous efforts may not have been successful.

Among the professional nurses, seniority, both in terms of years of experience and length of service in the hospital, and teamwork are associated with the attendance of learning sessions. The strictly hierarchical nature of the nursing profession[17] may be the reason that seniority was one of the major criteria for selection for attendance of learning sessions. However, this means that professional nurses with less practical experience but more current theoretical knowledge are less likely to have the opportunity to contribute to and benefit from learning sessions.

Pisano et al linked successful team learning with the initial selection of those due to take part in the activity.[12] This selection was not random, nor based on seniority. In this study the selection of team members, in the hospital that most rapidly decreased the time taken for a minimally invasive cardiac procedure using a new technology, was on the basis of their prior experience of working together and their demonstrated capacity to work together effectively.

It has been stated that the difficulties associated with promoting teamwork are often overlooked and the benefits exaggerated.[18] However, the accurate and coordinated group effort required to complete predominantly routine and ongoing activities in health facilities indicates that an emphasis on teamwork is justified, well beyond efforts to create a learning organisation.

Further, according to Bassi et al, a focus on the dimensions of a learning organisation will positively impact on the retention of staff by enhancing personal growth and fostering mutual respect and connectedness.[19] (It is therefore recommended that future studies consider the impact of organisational learning on job satisfaction and staff turnover.)

While this study was limited to professional staff who were present at the facility on the day the study team visited the facility, it is reasonable to expect that they are not significantly different from the staff not on duty at the time as the professional nurses on the wards routinely rotate through the shift roster.This study demonstrated that the development of a learning organisation is not dependent on the level of staffing, and that attendance of learning sessions by doctors is possible despite staff shortages, provided that the leadership of their organisations is demonstrably committed to the principles of a learning organisation. Among professional nurses, a teamwork approach ensures that younger and less experienced individuals are also given the opportunity to attend learning sessions beyond in-service training.

However, it should be noted that attendance of learning sessions is only the first step toward organisational learning and that managers need to ensure that the content of the learning sessions is accurate and relevant. Most importantly, as an organisation is said to have learned only when its actions have changed as a result of new knowledge or insight,[1] future research should evaluate whether (and how) variations in the way the lessons learned and executed impact on changes in standard operating procedures. Additionally, the impact of staff turnover on the ability of the organisation to accumulate competency and capacity by incorporating new knowledge into new work structures, routines, and norms should be investigated.[11]

Finally, there is a need to investigate whether improvements in outcome or quality of care can be attributed to better organisational learning.

References

1. Bohmer RM, Edmondson AC. Organizational learning in health care. Health Forum Journal. 2001 Mar-Apr;44(2):32–5.
2. Pedler M, Burgoyne J, Boydell T. The learning company: A strategy for sustainable development. New York: McGraw-Hill; 1991.
3. Dilworth RL. Institutionalizing learning oganizations in the public sector. Public Productivity and Management Review. 1996;19(4):407–21.
4. Beatty RM. Continuing professional education, organizational support, and professional competence: dilemmas of rural nurses. Journal of Continuing Education in Nursing. 2001 Sep–Oct;32(5):203–9.
5. Marais BJ, De Villiers M, Kruger J, Conradie H, Jenkins L, Reuter H. The role of educational strategies to reverse the inverse performance spiral in academically isolated rural hospitals. South African Journal of Family Practice. 2007;49(7):15.
6. Ikehara H. Implications of gestalt theory and practice for the learning organisation. The Learning Organization 1999;6(2):63–9.
7. Lipshitz R, Popper M. Organizational learning in a hospital. Journal of Applied Behavioral Science. 2000;36(3):345–61.
8. Vassalou L. The learning organization in health-care services: theory and practice. Journal of European Industrial Training 2001;25(7):354–65.
9. Agashae Z, Bratton J. Leader–follower dynamics: developing a learning environment. The Learning Organization 2001;13(3):89–102.
10. Amitay M, Popper M, Lipshitz R. Leadership styles and organizational learning in community clinics. The Learning Organization 2005;12(1):57–70.
11. Davies HT, Nutley SM. Developing learning organisations in the new NHS. BMJ (Clinical research ed. 2000 Apr 8;320(7240):998–1001.
12. Pisano GP, Bohmer RMJ, Edmondson AC. Organizational differences in rates of learning: Evidence from the adoption of minimally invasive cardiac surgery. Management Science 2001 June;47(6):752–68.
13. Watkins K, Marsick V. Dimensions of the Learning Organization Questionnaire (Survey). Warwick: Partners for the Learning Organization 1997.
14. Moilanen R. Diagnostic tools for learning organisations. The Learning Organization 2001;8(1):6–20.
15. Nunnally JC. Psychometric theory. New York: McGraw-Hill; 1978.
16. Carroll JS, Edmondson AC. Leading organisational learning in health care. Quality & Safety in Health Care 2002 Mar;11(1):51–6.
17. Marks S. Divided Sisterhood: Race, Class, and Gender in the South African Nursing Profession: St. Martin's Press; 1994.
18. Drew S, Coulson-Thomas C. Transformation through teamwork: the path to the new organization. Volume 3: Emerald Group Publishing Limited; 1997. p.162–78.
19. Bassi S, Polifroni EC. Learning communities: the link to recruitment and retention. J Nurses Staff Dev. 2005 May–Jun;21(3):103–9.