

Learning in practice



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The questionnaire is available on bmj.com

Postal survey of approaches to learning among Ontario physicians: implications for continuing medical education

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Abstract

Objectives To understand the approaches to learning of practising physicians in their workplace and to assess the relation of these approaches to their motivation for, preferred methods of, and perceived barriers to continuing medical education.

Design Postal survey of 800 Ontario physicians.

Participants 373 physicians who responded.

Main outcome measures Correlations of approaches to learning and perceptions of workplace climate with methods, motives, and barriers to continuing medical education.

Results Perceived heavy workload was significantly associated with the surface disorganised ($r=0.463$, $P<0.01$) and surface rational approach ($r=0.135$, $P<0.05$) to learning. The deep approach to learning was significantly correlated with a perception of choice-independence and a supportive-receptive climate at work ($r=0.341$ and 0.237 , $P<0.01$). Physicians who adopt a deep approach to learning seem to be internally motivated to learn, whereas external motivation is associated with surface approaches to learning. Heavy workload and a surface disorganised approach to learning were correlated with every listed barrier to continuing medical education. The deep approach to learning was associated with independent learning activities and no barriers.

Conclusions Perception of the workplace climate affects physicians' approaches to learning at work and their motivation for and perceived barriers to continuing medical education. Younger, rural, family physicians may be most vulnerable to feeling overworked and adopting less effective approaches to learning. Further work is required to determine if changing the workplace environment will help physicians learn more effectively.

Introduction

Doctors face enormous challenges in managing the growth of knowledge throughout their careers. Medical schools have responded by developing methods to foster independent self directed lifelong learning. Regulatory bodies also increasingly assess continuing medical education in order to ensure the continued competence of physicians to practice.¹

These forces have focused attention on the effectiveness of continuing medical education. Didactic

lectures are not effective in changing doctors' behaviour.² New techniques have therefore been developed to facilitate learning.^{3–4}

Approaches to learning and the complex interaction of the environment, personal factors, and opportunities are known to affect undergraduate learning.^{5–8} Knapper studied the effect of the workplace environment on learning of students in work-study programmes.⁹ He found that the workplace promoted a deep approach to learning (rote memorisation, lack of understanding) divided into surface rational and surface disorganised approaches.¹⁰

Kirby et al adapted items from Ramsden and Entwistle's course perceptions questionnaire to examine variations in perceptions of the workplace climate.^{7–10–11} Three factors emerged, reflecting perceptions of good supervision, choice-independence, and heavy workload (box). Good supervision and choice-independence were positively associated with the deep approach and negatively associated with the surface disorganised approach to learning. Workload was strongly related to the surface disorganised approach. If the factors that affect physicians' learning were known, providers of undergraduate and continuing medical education could improve the conditions for effective learning, including organisation of work and the development of skills for lifelong learning.

Definitions

Approaches to work

Surface disorganised—Feeling overwhelmed by work. For example, being unsure what is needed to complete a task, finding it difficult to organise time effectively, reading things without really understanding them
Surface rational—Preference for order, detail, and routine. For example, likes to know precisely what is expected, puts a lot of effort into memorising important facts when learning something new
Deep approach—Integrative approach that leads to personal understanding. For example, tries to relate new ideas to situations where they might apply

Workplace climate

Choice-independence—Perception of control over what one does and how one does it
Supportive-receptive—Perception that help is available in the workplace and colleagues are understanding
Workload—Perception of heavy workload and having to cope alone

Table 1 Correlations between approaches to learning at work and workplace climate (based on 373 returned questionnaires)

	Approaches to learning			Workplace climate		
	Surface rational	Surface disorganised	Deep	Choice-independence	Workload	Supportive-receptive
Approach to learning:						
Surface rational	1.00					
Surface disorganised	0.131*	1.00				
Deep	-0.032	-0.024	1.00			
Workplace climate:						
Choice-independence	-0.012	-0.171**	0.341**	1.00		
Workload	0.135*	0.463**	0.103	-0.112*	1.00	
Supportive-receptive	0.029	-0.107*	0.237**	0.299**	-0.182**	1.00

*P<0.05, **P<0.01.

Table 2 Correlations of approaches to work and workplace climate with methods of continuing medical education and motivations

	Approaches to learning			Workplace climate		
	Surface rational	Surface disorganised	Deep	Choice-independence	Workload	Supportive-receptive
Consultations	0.030	0.114*	0.026	0.046	0.141**	-0.009
Independent learning	0.171**	-0.016	0.340**	0.022	0.046	0.127*
Standard	0.104	0.022	0.043	0.084	0.031	0.073
Problem based learning	0.048	0.037	0.133*	-0.034	0.125*	0.001
External motivation	0.246**	0.259**	-0.102	-0.125*	0.211**	-0.079
Professional competence	0.149**	0.094	0.156**	-0.057	0.230**	-0.012
Internal motivation	0.155**	-0.058	0.404**	0.144**	0.084	0.028

*P<0.05, **P<0.01.

Participants and methods

We revised the workplace learning questionnaire for use by practising physicians (see bmj.com for full details).¹⁰ We asked physicians to rate their most valued continuing medical education activities, barriers to, and motivations for continuing medical education on a five point scale ranging from “agree strongly” (5) to “disagree strongly”(1). The learning activities were categorised into consultations, independent learning (reading journals, literature searches, reading a textbook, and searching the internet), standard continuing medical education (workshops and conferences) and problem based learning. The motivations for continuing medical education were categorised as internal (“the pleasure of learning something new”), external (“the requirements of my professional college,” “fear of a lawsuit”), and professional competence (“the need to maintain my competence,” “unfamiliar patient problems”).

Data collection

We sent questionnaires to a random sample of 800 Ontario physicians. We needed 240 participants for a reliable factor analysis.

Results

Of the 390 surveys returned, 17 were undeliverable and 27 had greater than 10% missing data, leaving 346 for analysis. The proportions of specialists, women, and younger physicians responding were slightly higher than those in the population surveyed. Specialists worked predominantly in urban settings, whereas just over half of family physicians worked in rural settings. Most physicians (208, 60%) worked 40-60 hours a week, 48 (14%) more than 60 hours a week, and 90 (26%) less than 40 hours a week.

The mean score for the surface disorganised approach to learning (2.72) was substantially lower than the means for the surface rational or deep approaches (3.33 and 3.59).

Family physicians, physicians from rural or remote practices, and those who had undergraduate problem based learning had higher surface disorganised learning scores than other groups. Rural and remote practice location was associated with higher workload scores.

Correlations

Perceptions of high workload were associated with higher scores on the surface disorganised scale, whereas choice-independence and supportive-receptive climate were associated with a deep approach to learning (table 1). The only significant correlation between the scales and age or sex, was a negative correlation of 0.23 (P<0.05) between age and the scores on the surface disorganised scale, implying that inexperience or immaturity may interfere with learning early in the career.

Independent learning activities and internal motivation for continuing medical education were most highly correlated with a deep approach to learning (table 2). The surface disorganised approach was correlated with external motivation and the surface rational approach was correlated with many factors. Workload was associated with preference for consultations, external motivation, and professional competence motivation. Table 3 shows the correlations of barriers to continuing medical education activities with the approaches to learning and workplace climate scales. The surface disorganised approach and workload were positively correlated with every barrier to continuing medical education listed.

Discussion

Most physicians take either a deep or a surface rational approach to learning at work. However some physicians seem disorganised in their approach to learning at work.

The relation between perception of heavy workload and surface disorganised approaches to learning among physicians is consistent with studies in other

Table 3 Correlations of approaches to learning and workplace climate with barriers to continuing medical education

Barriers	Approaches to learning			Workplace climate		
	Surface rational	Surface disorganised	Deep	Choice-independence	Workload	Supportive-receptive
Cost	0.153**	0.181**	-0.068	-0.229**	0.150**	-0.163**
Time	0.095	0.314**	-0.061	-0.186**	0.401**	-0.137
Access to information resources	0.164**	0.308**	0.049	-0.060	0.194**	-0.113
Distance to conferences	0.102	0.183**	0.106*	-0.089	0.187**	-0.041
Finding replacements/coverage	0.071	0.273**	-0.057	-0.186**	0.264**	-0.130*
Tailored to fit needs	0.076	0.249**	0.124*	0.012	0.226**	-0.028
Practice responsibilities	0.108*	0.237**	0.035	-0.172**	0.352**	-0.098

*P<0.05, **P<0.01.

What is already known on this topic

Throughout their careers physicians face enormous challenges in managing the growth of medical knowledge

Students who perceive choice, independence, and good teaching at university take a deep, integrative approach to learning whereas those who feel overworked or overwhelmed tend to learn by rote

What this study adds

Feeling overwhelmed at work is associated with a disorganised and superficial approach to learning and perception of many barriers to continuing medical education

Physicians who believe they have choice, independence, and support in their work take a deep approach to learning, are internally motivated, and use independent learning methods

Younger, rural, and family physicians are most likely to feel overworked

workplace situations.¹⁰⁻¹² Physicians who adopt a deep approach perceive choice and independence in the workplace and a supportive-receptive atmosphere. Studies of undergraduate students indicate that the learning environment affects the approach to learning, independent of the preferred learning style.⁷⁻¹⁵ Yet medical students with a deep approach to learning were more likely to take an intercalated degree and pursue a career in research or laboratory medicine, indicating that their approach to learning may affect the environment they choose.¹⁶

Family physicians and younger and rural hospital physicians had higher scores on the surface disorganised scale, and rural physicians scored more highly on the workload scale. Overworked young primary care physicians in isolated environments may be most vulnerable to ineffective approaches to learning at work. Further studies are needed to determine whether changing the work environment can aid learning and support new physicians. External motivators for learning by regulatory bodies are unlikely to lead to effective learning in overloaded physicians.

Motivation

Motivation for learning is complex. Miller and colleagues found that motivation to learn in both new and experienced physicians was unstable and related to external factors.¹⁷ We found a strong association between a deep approach to learning and internal motivation for learning, although desire for professional competence is an important driver. The unique relation between the surface disorganised approaches to learning and external motivation for continuing medical education is a concern. The association of external moti-

vation and professional competence motivation with perception of heavy workload suggests that the stress of work may stimulate or inhibit learning.

Limitations

The response rate in this study does not allow generalisation. Although the respondents were similar demographically to the non-respondents, we do not know how the non-respondents differed. It is likely that physicians who feel overworked did not respond. The focus of the study was to show the patterns of relations. These patterns suggest that attention to environments and different activities will be needed for effective learning among different physicians. Further studies are needed to confirm these findings and the reliability of the workplace learning questionnaire.

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