How hospital trainees prefer to learn

Formal postgraduate training curricula must be delivered effectively and efficiently. This survey identifies the learning situations trainees prefer and the elements that constitute a learning experience. Greater understanding of these factors may help tutors plan more effective teaching and learning opportunities.

The UK health-care system is undergoing a major restructuring of postgraduate medical education under the umbrella of the Modernising Medical Careers (MMC) programme (Department of Health, 2003; UK Strategy Group, 2004). Both recent and proposed changes to the structure of postgraduate medical training in the UK place great emphasis on the provision of formal teaching of high quality over a shortened training period.

A training curriculum for the early postgraduate years has been defined and implemented underpinned by specific assessment tools (Department of Health, 2005a,b). Plans for specialist training (Modernising Medical Careers, 2006) imply that the time from graduation to 'specialist' status will, in some specialties, be shorter than it has ever been within a UK training system. However, specific guidance on the learning situations that should be employed to deliver this curriculum is absent from these documents. The responsibility for these practical issues is often delegated to the postgraduate clinical tutor and consultant educational supervisors who organize and deliver postgraduate training at individual hospital level.

Traditionally postgraduate medical education and training have been delivered by a combination of opportunistic work-based clinical experiences and planned teaching sessions commonly involving lectures and tutorials. This study aimed:

- To identify the preferences of trainees for these commonly used learning situations
- To define the educational components of those situations that might help tutors better understand the basic elements perceived by trainees to constitute learning experiences.

Professor C Michael Roberts *is Consultant Physician and Professor of Medical Education Whipps Cross University Hospital, London, Bart's and The London School of Medicine and Dentistry, London,* **Professor Woody Caan** *is Professor of Public Health at Anglia Ruskin University, Chelmsford, Essex,* **Dr Jane Young** *is Consultant Anaesthetist and Clinical Tutor, Whittington Hospital, London, and* **Dr Robert Weatherstone** *is Consultant Physician and Clinical Tutor at Queens Hospital, Romford, Essex*

Correspondence to: Professor CM Roberts, North East Thames Foundation School, Whipps Cross University Hospital, London E11 1NR

Methods

Trainee doctors in three UK hospitals were surveyed using a questionnaire about their preferred learning situations together with minimal personal data. The survey questionnaire was derived via a modified Delphi technique (Williams and Webb, 1994; Stewart et al, 1999). Five educational leads within five different medical specialties (medicine, surgery, anaesthetics, paediatrics, obstetrics and gynaecology) were asked to list the commonly used learning situations adopted within their specialty for trainee education. Those situations that were common to all five specialties were then collated into a single questionnaire and returned to the leads for further comments on applicability to their trainees. The questionnaire was then piloted with six trainee doctors, not included in the main trial, for readability and comprehension. A revised questionnaire was then produced that included 15 individual learning situations.

Three hospitals situated in North and East London were included. Trainees were invited to participate by letter mailed in the internal postal system. A second written invitation was issued at postgraduate teaching sessions held within the respective postgraduate education centres of the three units. Participants were asked to score the 15 learning situations for their preference as a learning experience using a 5-point Likert scale where 1 was graded 'less preferred situation' and 5 'highly preferred situation'. Subjects were asked to record their gender, current grade, intended training medical specialty, and number of years already trained within that specialty.

Survey results were transcribed to an SPSS v11 database (SPSS UK Inc, Woking, Surrey) for analysis.

Descriptive statistics were generated for the study subjects. Median preference scores for each learning situation were calculated and the whole pattern ranked using Kendall's test of concordance (W). Differences in preferred learning situations between the sexes, and between trainees in different specialties were explored using Chi-squared and the Mann–Whitney U-tests. T-tests for independent samples were used to confirm statistically significant differences observed between groups.

Factor analysis was used to identify common components of learning within the 15 separate learning situations.

Ethical permission to conduct the study was given by the relevant research ethics committees.

Results

One hundred and sixty nine trainees of the 416 in post (41%) completed the survey: 91 males and 78 females. The distribution of training grade was preregistration house officer (PRHO) 26%, senior house officer (SHO) (54.4%) and specialist registrar (SpR) (19.5%).

The preferred learning situation scores for the 15 examples surveyed are given in *Table 1*. Active and interactive learning situations were those rated highest by trainees. Cronbach's alpha for these responses was 0.682. When preferences were examined by gender, female trainees expressed a significantly greater preference for being taught by their consultant on a ward round (U-test, $P<0.001$) than did their male counterparts. There were no other statistically significant gender-related differences.

When examined by medical specialty there were some significant differences for a minority of learning situations. GP

Table 1. Median scores for preferred learning situations (169 trainees) and Kendall's W test ranking (higher scores are the more preferred situations)

Learning situation	Median	Kendall's W
Doing a practical procedure myself	5	11.97
Being shown how to do a practical procedure	5	9.80
Taking part in a small group tutorial	4	9.43
Studying in the library from a book	4	9.03
Giving a lecture myself	3	8.57
Seeing outpatients myself and presenting them to my consultant	4	8.53
Participating in a journal club	3	8.00
Having a one-to-one appraisal with my consultant	4	7.53
Learning from being on call	4	7.23
Being taught by my consultant on a ward round	4	7.20
Reading clinical guidelines	3	7.13
Studying from a computer or the internet	3	6.90
Sitting in outpatients observing my consultant	3	6.73
Sitting in a lecture theatre listening to a lecture	3	6.53
Taking part in a role-play scenario	3	5.40

trainees were more likely to favour sitting in a lecture theatre listening to a lecture than their counterparts in medicine and surgery (Chi-squared test, $P<0.001$), and in paediatrics (U-test, $P=0.005$). Similarly paediatric and anaesthetic trainees were more likely to prefer giving a lecture than were their GP trainee colleagues (U-test, $P=0.005$ and $P=0.008$). While a number of other differences were found these were of borderline statistical significance and in view of the relatively small numbers of subjects in some of the groups have not been further detailed. When examined by training grade there is only one significant difference statistically of note – that SpRs are more likely to prefer studying in the library than are SHOs (Kruskal–Wallis $P=0.002$). There is no statistical difference between SpR and PRHO preference for this activity.

Factor analysis identified five principal components that accounted for 60% of the variance between trainees in selecting preferences for learning situations. These five components are outlined in *Table 2*.

Discussion

This study suggests that trainees have definite preferences for certain learning situations. They prefer active learning (Kolb, 1984); doing and being shown how to do procedures followed by consultant-led interactive teaching such as ward rounds, presenting outpatients and small group interactive tutorials (*Table 1*). Their least preferred learning situations are the more passive ones such as learning by observing, sitting in a lecture and studying from a computer. The one anomaly in this pattern is the least preferred of all situations, role-play, which is of an active learning type. This may be because of specific issues relating to role-play such as the format itself perhaps compounded by a lack of prior learning experience of this sort. Further research may be useful in exploring this specific area further.

While there are limited differences between trainees in different specialities and between women and men for certain learning situations there is a great consistency overall for active participation in learning for trainees. Bakx-Anouke et al (2003) suggested that preferred learning situations are greatly influenced by self-perceived competence. Certainly procedural skills are acquired rapidly in the early postgraduate years and there may be a perceived deficiency compared with learning situations seen as theoretical knowledge acquisition such as lectures or guideline reading. Exploring this issue in final year medical students, Bloomfield et al (2003) found that learners selected opportunities that matched their perceived learning need of the time. The present study is consistent with that view suggesting that trainees align their learning preferences with those that best match their immediate learning needs as 'hands-on' doctors.

Table 2. Five principal components of learning derived from factorial analysis of the 15 learning situations surveyed

Learning from my consultant (educational supervisor)	Having a one-to-one appraisal
	Presenting outpatients to my consultant
	Observing my consultant
	Being taught on a ward round by my consultant
	Sitting in a lecture theatre listening to a lecture
Active participation in learning	Giving a lecture myself
	Participating in a journal club
	Taking part in a small group tutorial
	Taking part in role play
Learning practical procedures	Doing a practical procedure
	Being shown how to do a practical procedure
Private study	Studying from a book
	Studying from a computer
	Studying from guidelines
On call experience	Learning from being on call

These results do have implications for the practical implementation of planned learning situations and suggest that trainees wish to be actively engaged in learning. This finding underpins the recommendations of the MMC documentation (Department of Health, 2005a,b) that stress the importance of turning clinical exposure into learning situations where educational supervisors may provide interactive teaching with their trainees. In contrast some other techniques should be used with caution. The traditional lecture format is not well favoured when compared with active teaching and the introduction of role-play may also sit uncomfortably with many trainees lessening its value as an educational tool for young doctors. This survey underscores the need to provide formal and standardized training but in a clinical context and away from the classroom and lecture hall in which many of these sessions have been traditionally delivered.

The second area of interest from this study has been the factor analysis that has identified five principal components of postgraduate clinical learning for trainees that may be summarized as 'learning from my consultant (educational supervisor)', 'actively participating in learning situations', 'learning practical procedures' and 'self study'. The fifth factor of 'learning from being on call' had a negative correlation with the other four principal components suggesting that it is a reflection of a totally different aspect of learning (*Table 2*). If we can better understand what it is within a potential learning situation that makes it a learning experience then we may be better able to design future experiences by actively combining these factors into an educational event or programme. A more analytical approach may assist those at local hospital level charged with programme design to better understand the learning opportunities that already exist and how they might be optimized to meet the perceived needs of their trainees. Similar conclusions were drawn after a survey of trainees' learning needs conducted in Australia (Dent et al, 2006) and many national and state health systems are grappling with this same question of how to best teach their trainees with limited teaching time competing with clinical pressures.

However, this study has limitations which must be considered before generalizing these findings. The subject numbers are not large and only 41% of trainees in post completed the survey. This response rate is not disproportionate to that found in questionnaire surveys generally (Cohen et al, 2002) and particularly of postgraduate doctors (Canadian Institute for Health Information, 2007). Although drawn from three different hospitals male subjects may be over-represented and some specialties under-represented, e.g. psychiatry. There were few specialty-specific differences in learning situation preferences observed but this may have been a parameter not sufficiently explored. The distribution of grades is reasonable but this study had more PRHOs and fewer SpRs in the sample than were in post at the time.

There is only one statistically significant difference in learning situations preferred between the grades and this is for studying in the library from a book, which is more favoured by SpRs than SHOs. This suggests that the paucity of SpR respondents is unlikely to have influenced the overall conclusions of the study.

While accepting these limitations, there seems to be face, content and ecological validity to this survey and a consistency across the results that suggests significant issues were uncovered. Can future research identify the critical elements that enhance postgraduate clinical learning? Information of this kind will be crucial if those involved in designing national and local programmes are to understand the optimum learning situations in which to deliver the curricula of MMC, through to completion of the specialist hospital training or the vocational training qualification of primary care. **BJHM**

Conflict of interest: none.

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KEY POINTS

- Trainees have strong preferences for certain types of learning situation.
- Active learning is preferred above passive situations.
- Learning from consultants (educational supervisors) remains a key principle in trainee education.
- Better understanding of how trainees like to learn and what constitutes a learning experience for a trainee should help tutors in planning more effective educational sessions.