SHORT REPORT

Instructional design and the emergency department

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This paper studies the effectiveness of different educational programmes. A number of cohorts of junior doctors received one of two different induction training packages. These programmes differed principally in the length of time over which they were administered. The junior doctors were then assessed using a structured questionnaire. There was a noticeable difference in the factual recall between the cohorts depending on what programme they had attended. Those attending the programme delivered over an extended period showed better performance on assessment. The interpretations and implications of these findings are discussed.

Instructional design is a discipline concerned with the development of educational methods to achieve specific learning objectives.¹ A great deal of adult training literature has been devoted to medical education.² Relevant educational theories tend to concentrate on memory processes because of the large volume of factual knowledge that needs to be retained.³ Self-directed learning is of great importance within medical education,³ particularly problem-solving cognitive processes.⁴

Many emergency departments have an induction period (programme) for new junior medical staff. The purpose of this is to familiarise the new intake of trainees with the processes of the department, and to ensure that the trainees have an adequate basic knowledge of emergency medicine. This is a function of clinical governance and is a requirement for NHS trusts.⁵ There is no published work investigating the effectiveness of this induction period, either in the cognitive or affective domains of educational taxonomy.⁶

The purpose of this study is to establish whether changes in the design of the initial instruction given to junior medical staff in the emergency department affected recall of information given during this period.

METHODS

The programme for instruction during the induction period delivered over a 1-year period was studied. During this period five different induction programmes were delivered. Every new member of staff attended one induction programme, which started on the first day of employment.

There were two different types of induction programme. These differed in design, principally in the time period over which they were delivered. The “phased” induction period consisted of teaching delivered daily over a 2-week period (2 h teaching every working day), the “continuous” induction programme had a similar number of lectures delivered over a 3-day period. Both programmes had around 20 h instruction on the same subjects, delivered by a similar faculty. Pragmatic reasons determined which programme was to be delivered at each induction period.

At the end of each induction programme, junior medical staff were tested using a standardised questionnaire. This questionnaire consisted of 30 questions, relating to either

factual information about departmental processes or medical knowledge, or details of instructional sessions delivered. The answers to all the questions had been covered in the induction programme. The phased programme was delivered twice, the continuous programme three times, in the period under study.

The results of the questionnaires were compared using a Student's *t* test, grouping the junior medical staff by the type of induction programme.

RESULTS

Twenty nine junior medical staff were included in the study. This represented 100% of all junior staff that were employed by the emergency department during the period under study. See table 1 for results.

There was a highly significant difference between the two groups. The staff who undertook the continuous course had lower test results than the group undertaking the phased course ($p = 0.014$).

There was also a significant difference between the results obtained by foundation year two compared with staff of similar experience ($p = 0.0029$).

DISCUSSION

The medical staff who undertook a continuous induction programme had significantly lower scores on testing than those who undertook a phased induction programme. This does not necessarily signify a poorer performance or increased clinical risk when performing their duties. There may be compensation through increased clinical supervision. However, it may be possible to draw the inference that these medical staff are less equipped for efficient working in the department and that the educational needs of these staff are being less well fulfilled.

The explanation of the improved test performance of medical staff after a phased programme could be ascribed to early exposure to clinical experience, as the staff were also working shifts in the emergency department during the phased induction period. This exposure in the clinical setting may have consolidated the educational instruction; there is some evidence to support that this improves educational outcomes.^{7–8} The levels of processing theory,⁹ is the educational theory that grounds this assertion. Possibly, the logical extension of this is to forego didactic induction entirely and educate staff “on the job”. This could be an area for further study, for example, by comparing an induction with no induction. However, there is debate as to the validity of such research.¹⁰

There are two main limitations of this study, the first and most marked of which is the small numbers involved. Also, there are some confounding variables inherent in studying a teaching programme, such as the delivery style of the lecturers.

This finding could have organisational and cost implications. For the shorter programme there was a greater expenditure on locum staff, whereas for the longer

Table 1 Results of the questionnaires compared using a Student's t-test, grouping the junior medical staff by the type of induction programme

	Continuous programme	Phased programme
Number	14	15
Mean (median)	34.1 (33.2)	50.5 (52)
95% CI (SD)	29.32 to 38.89 (8.69)	45.91 to 5.15 (8.75)
Highest/lowest	52/21	62/32

programme there was increased commitment of senior staff to teach and provide departmental clinical support for the early-morning sessions.

In conclusion, while the delivery of an induction programme may fulfil statutory clinical governance standards, it may not achieve worthwhile learning for the medical staff. There may be a requirement for staff to be familiarised with departmental policy and procedures early, but it could be inferred from this study that basic knowledge might be best communicated outside of didactic teaching.

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