Training needs analysis. A literature review and reappraisal

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Abstract

Training needs analysis is the initial step in a cyclical process which contributes to the overall training and educational strategy of staff in an organisation or a professional group. The cycle commences with a systematic consultation to identify the learning needs of the population considered, followed by course planning, delivery and evaluation. Although much has been written about training needs analysis in relation to post-registration nursing education, there is disagreement concerning its impact on the training cycle and its potential to influence service delivery. This stimulated the literature review presented below. Initial searches of nursing databases identified 266 works. Twenty three (8.6%) contained empirical findings relating to post-registration nursing education in which assessment of training needs was presented as the major aim. Most of these accounts were concerned with the training needs of nurses in more than one organisation and were classified as macro-level training needs analysis. However, seven studies were concerned with a single, specific organisation (micro-level training needs analysis). Despite their smaller scale and more limited scope, micro-level training needs initiatives demonstrated greater methodological rigour, were more likely to consider the stakeholder perspective, to generate findings which could positively influence the rest of the training cycle and showed the greatest potential for influencing service delivery and quality of patient care. The review drew attention to the similarities between the training cycle and the audit cycle and resulted in the development of a model which could be used to evaluate the effectiveness of the process and outcomes of future training needs analysis initiatives.

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Keywords: Clinical nursing practice; Continuing professional education; Training needs analysis

Introduction

Training needs analysis (TNA) is a relatively new concept for nursing, but has been used for many years by human resource managers (Bee and Bee, 1994), in business (Pearson, 1987), industry (Boydell, 1976) and general education (Walklin, 1991). A considerable literature has developed around TNA and this has stimulated the publication of numerous standard text-books (see for example Rowntree, 1985; Peterson, 1992). Although most of these publications are not aimed specifically at a nursing audience, they are increasingly being used by nurse educators (Pedder, 1998). The purpose of this article is to review the literature relating to TNA as it applies to post-registration nursing education and to explore its potential influence on course planning and implementation.

2. Background

Nurse educators, like the more traditional advocates of TNA, recognize that it is the initial step of a cyclical
process contributing to an overall strategy of training and education (Furze and Pearcey, 1999). The cycle should begin with systematic consultation to identify the learning needs of the target population (Pedder, 1998). A training intervention is then developed to meet this need and once implemented, is evaluated to determine how effective it has been. Amendments to the next cycle should be addressed through evaluation, but changes in the demands placed on or by the employing organisation also need to be taken into account. New Government policy, advances in technology, role expansion and the increasing expectations of service users are additional drivers for change in post-registration nursing education (Pedder, 1998).

In recent years there has been much debate concerning the extent to which activities such as clinical audit, evaluation and action research fulfil the requirements of ‘real’ research (Balogh, 1996) and it is perhaps only a matter of time before the debate is extended to TNA. Numerous authors have been concerned with differentiating between research and audit and there is some debate on the extent to which they differ (Closs and Cheater, 1996). These authors consider that audit can highlight areas where further research needs to be conducted while the audit process itself can be a topic for research.

Many of the features of TNA reflect audit rather than ‘pure’ research. Audit and TNA are both cyclical processes in which information about practice is fed back to staff in order to improve performance. ‘Ownership’ of findings is an important characteristic of successful audit (Balogh, 1996) and this may also be true of TNA. The difference between research and audit has been neatly summarised by Smith (1992): research seeks to establish and extend knowledge about effective practice (‘the right things to do’) while audit ensures that the ‘right things are done’. Viewing TNA as ‘making sure the right training is done’ would provide a much-needed definition for TNA: at present its aims are confused (Furze and Pearcey, 1999). According to some authors, its purpose is to aid career planning (Shepherd, 1994) while others see it as a mechanism to ensure that requirements for professional updating are met (Bysshe, 1991) or to identify training needs from the perspective of what the organisation requires in order to deliver its service (Lawton and Wimpenny, 2003). Drawing on its similarities with the audit process, however, it is possible to view TNA as a means of improving service delivery through training. In the past there has been disparity between the aspirations of individual members of health care staff for development and the training needs required by the organisation to ensure service delivery. One of the many claims for TNA is that it has an important role in resolving these disparities (Hicks and Henessy, 1997a). Meeting service needs through training is certainly in line with current Government policy in the United Kingdom (Department of Health, DoH, 1998) and evidence that needs assessment is still not being conducted as a matter of course for all staff in the National Health Service (NHS) has provoked unfavourable comment from the National Audit Commission (2001). The climate of rapid change against a background of nursing recruitment difficulties in the health service magnifies the need for TNA to be used appropriately.

A soon as organisational goals are mentioned, the question of stakeholder involvement arises (Rowntree, 1985). Wright (1999) advocates an approach incorporating the demands of the organisation, the occupation or role, the needs of the individual performing it and the requirements of the service user. In the health care industry this process has the potential to be time-consuming and complex because of the vested interests of the many parties concerned. Possible stakeholders within and closely related to organisations responsible for delivering health care include:

- employees, who may or may not be in a position to choose whether they will attend education and training initiatives.
- service users, who are the ultimate beneficiaries of care.
- educational providers, who must design and deliver programmes to meet identified need.
- commissioners of educational events (who usually pay for them).

The extent to which these groups have been considered when planning and evaluating courses intended to meet the needs of the NHS is subject to considerable variation.

Nurse educators have always placed students at the forefront during course evaluation in attempts to establish levels of satisfaction, test for acquisition of knowledge and competencies and to determine attitude change. All these aspects have been comprehensively reviewed elsewhere (see for example Furze and Pearcey, 1999). The importance of including the views of service users is now also considered mandatory (DoH, 1999). Nevertheless, finding ways to demonstrate the impact of training on practice and ultimately on service delivery continue to be elusive (Ellis, 1996; Wood, 1998). Proving that training has been effective has always been notoriously difficult (Bignell and Crotty, 1988), a dilemma that has recently been revisited by Jordan (2000). According to this author, small scale evaluative projects with the ‘teacher as researcher’ present the most promising avenue of enquiry. Jordan (2000) recommends that educationalists should enter the clinical setting to explore the impact of continuing professional development on nursing practice and the delivery of evidence-based care. The ability of educationalists to engage in this type of initiative remains to be explored.
Sheperd (1994) suggested that educationalists should identify their own training needs to enable them to facilitate the training needs of other staff. Recognising where clinical updating is necessary and extending the role of teacher to that of ‘teacher as researcher’ are both issues that deserve attention from educationalists. Those who retain service involvement but are not immersed in service may identify training needs which might otherwise have been overlooked (Gibson, 1998).

Finally, training for health care staff in the UK is currently commissioned by the Workforce Development Confederations. These are regionally based bodies external to the universities and Trusts. At present they are still too newly created to receive mention in the educational literature. Nevertheless, their role in planning educational initiatives has already become pivotal. In future they will be recognised as important stakeholders, operating as the key drivers for more robust methodologies. All these stakeholders should be fully involved during TNA.

2.1. The review

Early proponents of the TNA approach in nursing assert that it is of demonstrable value in planning programmes of continuing professional development (Sheperd, 1995a) but this view is not upheld by the findings of later writers. For example, Furze and Pearcey (1999) in their comprehensive review of nurses’ continuing professional education, have concluded that provision is still fragmented, inequitable, poorly funded and that the cyclic process of the training strategy is often incomplete. This contrast of opinions stimulated a review of the literature, which set out to answer the following questions:

1. What are the aims and scope of TNA studies relating to post-registration education for qualified nurses?
2. To what extent does TNA take into account organisational, professional and individual need?
3. To what extent has stakeholder involvement been secured?
4. What methods have been used to collect the data?
5. How rigorous are the studies in methodological terms?
6. How are the outcomes of TNA used to influence the rest of the training cycle?

3. Method

Nursing articles published between 1982 and 2002 were accessed via a number of databases: CINAHL, the British Nursing Index, the Royal College of Nursing Database, Medline, World Information Nursing, Sociological Abstracts and the Allied and Complementary Medicine Database. The sole key item: ‘training needs analysis’ was employed to identify potentially useful articles. Where the database did not go back to 1982 searching was undertaken from its inception. Some works appeared in more than one database, indicating saturation of the searching process. All the publications were retrieved and their reference lists were hand searched to identify seminal works relating to TNA which might not have been cited in the specialist professional databases but which might provide further insight concerning the hallmarks of successful TNA. To be potential candidates for review, articles had to be empirical studies in which TNA had been undertaken in relation to post-registration education for qualified nurses. A number of reports were concerned with the development and implementation of an entire curriculum or all stages of a major training initiative. In order to keep the review manageable, these accounts were included only if the study was deemed to be concerned primarily with identifying training needs.

4. Results

Initial searching identified 266 works of which 25 (9.4%) were empirical. Of these, two publications failed to meet the criteria for inclusion. One report could not be included because it outlined plans for TNA and explained how it would be undertaken but had been published prematurely, before data were collected (Lloyd and Ross, 1997). A second study had to be excluded because recommendations for practice were stated without evidence that they had been based on empirical findings (Nicholson et al., 2001). In a few cases publications included nurses as part of a larger sample (see for example; Farrell, 1998; Skrifvars et al., 2002, Thompson et al., 1987) or included both qualified and unqualified nurses (see for example; Fyffe and Fleck, 1998). These studies were included. However, most TNA considered only qualified nurses. Hand searching these reports drew attention to numerous further publications of a general nature but no more empirical studies relating to TNA which applied to post-registration nursing education.

The search process revealed that a far higher proportion of publications have been concerned with the need to conduct TNA and how it should be accomplished than with describing empirical accounts. Of the 266 articles identified, only 23 (8.6%) contained empirical findings and met the requirements for review with the process of TNA as the major research aim. The literature is international. Nevertheless, most TNA studies have been undertaken in the UK. A few empirical studies could be traced to Australia (Farrell, 1998) and Scandinavia (Skrifvars et al., 2002), none to the USA apart from a single cross-cultural study.
initiated in the UK (Hennessy and Hicks, 1998). Another general finding was that most TNA have been concerned with assessing the skills and knowledge deficits of defined groups of staff within an organisation or profession. The exception was a study by Skrifvars et al. (2002) dealing with the ability of an entire health service (hospitals in Finland) to provide a specific service and the training required to deliver it (cardio-pulmonary resuscitation).

Preliminary reading indicated that differences between the aims and scope of empirical TNA and their potential to influence the rest of the training cycle appeared to depend on whether or not they were concerned with the needs of staff in a single, specific organisation. Analysis therefore proceeded by comparing studies which were and were not concerned with the needs of a single organisation.

4.1. Comparison of micro- and macro-level TNA studies

Empirical accounts of nursing TNA were classified as micro-level studies if they were concerned with the training needs of staff in a single, specific organisation. Only a small proportion \((n = 7)\) fell into this category (see Table 1). Most of the 23 empirical accounts \((n = 16)\) were concerned with the training needs of staff in more than one organisation or in a professional group (for example children’s nurses attending a conference). Macro-level studies are shown on Table 2.

The remaining findings of the review are discussed in terms of the aims.

1. What are the aims and scope of TNA studies relating to post-registration education for qualified nurses?

**Aims:** In general the aims of macro-level nursing TNA appeared to be less well-defined than for micro-level studies, because they were not designed to meet the needs of a particular organisation. This section has therefore been omitted from Table 2. Notable exceptions, in which the aims appear to have been specific and well defined include the accounts by Oberski et al. (1999) and Chevannes (2002). More than a third of the macro-level accounts of TNA were contributed by the same team \((n = 7, 41\%)\), which appeared to have been more concerned with developing a methodology for TNA and validation of the TNA instrument used to collect data than with reporting actual training need (see Table 2). These authors used the repertory grid technique to identify 30 core competencies considered to encompass generic nursing activity (Hicks et al., 1996). The core competencies were then used to construct a psychometric instrument which was subsequently validated. On factor analysis the core competencies fell into six domains (business and administration; advanced professional issues; clinical; research and audit; management and supervisory; and communication and teamwork) with scope for including additional items of specific interest (Hicks and Hennessy, 1996). This instrument has now been used extensively by the authors, in some cases apparently to determine the role definition of a particular professional group and its distinguishing characteristics rather than to identify training needs (see Table 2). It has also been used to a limited extent by a number of other investigators (Twycross, 1999; Clifford et al., 2001). Some of these papers could be considered to be more concerned with conducting research about TNA rather than undertaking TNA per se.

The literature relating to micro-level studies was not dominated by a single author or team and the aims of these studies were much more clearly defined and more closely matched to organisational need.

**Scope:** Overall, macro-level studies tended to follow a policy-driven agenda. For example Thomson and Kohli (1997) were concerned with policy initiatives in Scotland intended to promote the health of the population, while the rationale for a study to explore the training needs of practice nurses undertaken by Hicks and Hennessy (1997b) was driven by increasing government emphasis on primary care. Generally the authors of macro-level TNA were concerned either with identifying the training needs of nurses working with the same client group (such as practice nurses or family planning nurses), or explored nursing skills in relation to a specific clinical issue. Examples are: pain management (Twycross, 1999), health promotion (Thomson and Kohli, 1997), health needs of ethnic minority groups (Chevannes, 2002) or palliative care (Farrell, 1998). In contrast, micro-level studies addressed policy issues as part of a whole range of variables impacting on local service provision. They were also less likely to explore nursing skills in association with a specific clinical issue or client group than macro-level studies, although there were notable exceptions. For example, Fyffe and Fleck (1998) identified factors influencing nurses’ attitudes to using information technology and the knowledge and skills necessary to enable nurses to maximise the potential of a newly introduced computer system across a single Trust.

2. To what extent does TNA take into account organisational, professional and individual need?

Reference to Table 2 indicates that the authors of macro-level TNA were mostly concerned with professional issues, apart from one study which focused on individual need for career development (Sheperd, 1995b). Inevitably the needs of the employer in relation to specific training needs were omitted from macro-level studies because no specific organisation was involved. Their lack of organisational involvement contrasted with the strong organisational involvement seen in micro-level studies, which demonstrate a more specific focus. Particularly clear examples of identified organisational needs were demonstrated in the micro-level accounts offered by Fyffe and Fleck (1998), Clough (2000) and Smith and Topping (2001).
### Table 1
**Micro-level training needs analysis**

<table>
<thead>
<tr>
<th>Authors</th>
<th>Target groups</th>
<th>Aims of TNA</th>
<th>Stakeholders considered</th>
<th>Organisational requirements</th>
<th>Skills/attributes</th>
<th>Securing staff co-operation</th>
<th>Methods</th>
<th>Main findings</th>
<th>Training plans</th>
<th>Comments</th>
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</thead>
<tbody>
<tr>
<td>Thompson et al., 1987</td>
<td>Clinical support staff in one hospital in Australia.</td>
<td>(1) To improve communication and staff morale.</td>
<td>Senior managers</td>
<td>Improved communication and staff training morale to reduce turnover.</td>
<td>None</td>
<td>The value of staff training was explained to supervisors.</td>
<td>Questionnaires/survey</td>
<td>450 questionnaires sent, response rate 40%. Training priorities fell into 3 groups: career development, self development and hospital environment.</td>
<td>Three courses were run:</td>
<td>Supervised by a team of outside consultants</td>
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<tr>
<td>Fyffe and Fleck, 1998</td>
<td>All nurses and support staff throughout one Trust</td>
<td>(1) To identify factors influencing nurses' attitudes to using computers.</td>
<td>Nurses</td>
<td>Computer/IT literacy</td>
<td>Flexible approach with feedback to staff.</td>
<td>Focus groups, questionnaires, observation, interviews.</td>
<td></td>
<td></td>
<td>Not stated</td>
<td>This paper is widely quoted as a successful approach to introducing change in practice.</td>
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<td>(2) To assess the knowledge and skills necessary to enable staff to use a new IT system.</td>
<td>Support workers</td>
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<td>(3) To identify the knowledge and skills necessary to maximise the potential of the new IT system.</td>
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<td>Gibson, 1998</td>
<td>Medical and surgical nurses in a district general hospital</td>
<td>To develop and prioritise training development needs</td>
<td>Nurses</td>
<td>Not stated</td>
<td>Not stated</td>
<td>Believed to be inherent in method.</td>
<td>Delphi technique with 28 nurses randomly selected from 4 wards in one district general hospital. 64% response rate.</td>
<td>Professional development could take many forms and fostering an organisational climate in which it was part of everyday activity emerged as important as formal course provision.</td>
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<td>Clough, 2000</td>
<td>Twelve nurses who would make up the clinical team in a newly commissioned high dependency unit (HDU)</td>
<td>To assess the training needs of twelve nurses recruited to work on the newly commissioned HDU</td>
<td>Managers</td>
<td>Ability to perform effectively in HDU</td>
<td>Learner perception were incorporated into TNA</td>
<td>Not stated but an induction course was developed and evaluated</td>
<td>The induction course was evaluated in terms of effectiveness, efficiency, appropriateness, acceptability and accessibility.</td>
<td>Longer term training needs will be identified through individual staff development plans via the Trust appraisal system. Staff were also given opportunity to do written assignment and gain a recognised clinical post-basic qualification.</td>
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<td></td>
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<td>Lecturing staff</td>
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<td></td>
<td></td>
<td>Difficult to decide if the emphasis of this paper was truly concerned with identifying training needs rather than course evaluation.</td>
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</table>
To explore the relationship between taking a clinical course and the perceived benefits to practitioners.

Case study involving interviews with stakeholders, retrospective scrutiny of course evaluations. 14 of the 17 nurses agreed to participate.

The course was perceived to increase the specific knowledge and skills required for nurses working in the specialty of pediatric neurosciences by improving skills and multidisciplinary working. The course met perceived needs.

No mention of further course provision.

Difficult to decide if the emphasis of this paper was truly concerned with identifying training needs rather than course evaluation.

### Table 1 (continued)

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<th>Main findings</th>
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<tbody>
<tr>
<td>Smith and Topping, 2001</td>
<td>Seventeen nurses engaged in pediatric neurology care</td>
<td>To explore the relationship between taking a clinical course and the perceived benefits to practitioners.</td>
<td>Business managers Clinical staff Nurses</td>
<td>Not discussed</td>
<td>Not stated</td>
<td>Discussion about use of evaluation data with nurses</td>
<td>Case study involving interviews with stakeholders, retrospective scrutiny of course evaluations. 14 of the 17 nurses agreed to participate.</td>
<td>The course was perceived to increase the specific knowledge and skills required for nurses working in the specialty of pediatric neurosciences by improving skills and multidisciplinary working. The course met perceived needs.</td>
<td>No mention of further course provision.</td>
<td>Difficult to decide if the emphasis of this paper was truly concerned with identifying training needs rather than course evaluation.</td>
</tr>
<tr>
<td>Jones et al., 2002</td>
<td>Qualified health professionals including nurses</td>
<td>(1) To foster high quality care</td>
<td>Lecturers Ability to deliver high quality care in line with the principles of clinical governance.</td>
<td>Already existed through feedback on CPD opportunities. Also brainstorming session.</td>
<td>To discover the care, priority and specialist skills necessary to deliver care in line with the principles of clinical governance.</td>
<td>Qualified health professional managers.</td>
<td>Extensive review of local and national work on clinical competencies.</td>
<td>Core skills fell into 4 groups: interpersonal, technical, professional accountability with development, and delivery of clinical care.</td>
<td>Used the framework they had devised with a representative sample of health professionals and identified key care and specialist skills.</td>
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<td>Hicks and Hennessy, 1998</td>
<td>All nurses working at advanced clinical levels within an acute Trust</td>
<td>(1) To identify attributes of the nurse practitioner role.</td>
<td>Clinical nurses employed at advanced practitioner level Managers</td>
<td>Attributes of nurse practitioners</td>
<td>Questionnaire survey – total population sample of 50. 93% response rate.</td>
<td>There was an agreement that the nurse practitioner role should include advanced clinical and psychosocial responsibilities. The most important activities were considered to be communication, teamwork and the ability to undertake a range of advanced/technical skills. There was broad agreement between all stakeholders.</td>
<td>None</td>
<td>None</td>
<td>None</td>
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<td>Sheperd, 1995b</td>
<td>Qualified Nurses across three health authorities</td>
<td>To identify nurses' perceived needs regarding career planning, preferred venues and modes of updating</td>
<td>Qualified nurses</td>
<td>None identified</td>
<td>Questionnaires</td>
<td>64.4% response rate from nurses</td>
<td>None</td>
<td>None</td>
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<td></td>
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<td>Manages</td>
<td></td>
<td>Random sample of nurses, total population of managers</td>
<td>100% response rate from managers</td>
<td></td>
<td>Barriers to course attendance identified. Preferred times and venues varied for groups of staff</td>
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<tr>
<td>Hicks and Hennessy, 1997b</td>
<td>Practice nurses and nurse practitioners employed in general practice in a regional health authority</td>
<td>To identify the level and training needed by nurses to upgrade their qualification to nurse practitioner status</td>
<td>Practice nurses</td>
<td>Non.</td>
<td>Questionnaire survey using authors' own validated psychometric tool</td>
<td>Communication and teamwork emerged as the most important training needs</td>
<td>None</td>
<td>The psychometric tool was developed by the authors in 1996. Nurse practitioners were more likely to undertake research, order clinical tests and be involved in supervision of staff and business activities than practice nurses.</td>
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<td>Thomson and Kohli, 1997</td>
<td>Clinical nurses employed on general hospital wards in Lanarkshire, Scotland</td>
<td>(1) To identify the extent to which health promotion issues are addressed on general wards (2) To assess nurses' perceptions of their training</td>
<td>Ward level hospital nurses</td>
<td>Population = 1940 nurses. Response rate = 21% Questionnaire survey with a stratified random sample of nurses</td>
<td>Exploratory study to establish these Perceived ability to deliver health promotion</td>
<td>71% response rate</td>
<td>General recommendations to encourage the health promotion roles of nurses</td>
<td>Most nurses believed that health promotion should</td>
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Table 2 (continued)

<table>
<thead>
<tr>
<th>Authors</th>
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<th>Aims of TNA</th>
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<tr>
<td>Farrell, 1998</td>
<td>Palliative care providers throughout Australia: health professionals and families</td>
<td>To identify education and training needs of palliative care providers</td>
<td>Health professionals-all groups</td>
<td>None</td>
<td>Questionnaire. 1848 questionnaires sent, 34% response rate</td>
<td>be part of their role but most perceived that they were unable to deliver health promotion effectively</td>
<td>None</td>
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<td>Hennessy and Hicks, 1998</td>
<td>Nurse practitioners</td>
<td>To establish whether nurse practitioners’ training needs were the same in the UK, USA and Australia.</td>
<td>Voluntary bodies Families Nurse practitioners</td>
<td>Ability to undertake 30 key tasks indicative of ability to perform at a nurse practitioner level on the validated questionnaire developed in 1996 by the authors</td>
<td>Questionnaire survey</td>
<td>Universal training needs did not emerge. Instead training needs appear to depend on the specific role performed and the environment within the practitioner’s organisation</td>
<td>None</td>
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<tr>
<td>Hicks and Hennessy, 1999a</td>
<td>Nurses grade D-I from seven Trusts</td>
<td>To identify nurse’s ability to use research fundings</td>
<td>Nurses grades D-I from seven Trusts</td>
<td>Ability to use research findings</td>
<td>Questionnaire survey. 323 questionnaires sent, 46% response rate</td>
<td>Deficits in ability to evaluate published research studies, identify appropriate research questions and access relevant literature identified</td>
<td>None</td>
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<tr>
<td>Hicks and Hennessy, 1999b</td>
<td>Nurse practitioners in acute and community sectors</td>
<td>To identify the attributes of nurse practitioners</td>
<td>Nurse practitioners</td>
<td>Skills needed to perform at nurse practitioner level</td>
<td>Questionnaire survey with 50 acute sector nurses</td>
<td>There were significant differences between</td>
<td>None</td>
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<td>Oberski et al., 1999</td>
<td>Nurses caring for older people in the community</td>
<td>To identify the requirements of a curriculum concerned with care of elderly people in the community</td>
<td>Nurses</td>
<td>Attributes required of nurses caring for older people in the community and 450 community nurses, response rates 98% and 22% respectively</td>
<td>Focus groups, interviews, group discussions</td>
<td>Three main themes emerged from the data. These related to: (1) the specialist nature of elderly care; a shift from the medical model of care towards a social model; the need for greater integration of skills and knowledge from mental health and general nurses in the community care of older people</td>
<td>The construction of the nurse practitioner role in the two different settings</td>
<td>Genesis of a research-based module designed to enable nurses to care for older people in the community</td>
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<tr>
<td>Twycross, 1999</td>
<td>Paediatric nurses attending a conference</td>
<td>To assess paediatric nurses’ prioritisation and ability to manage children’s pain</td>
<td>Older people Delegates at a paediatric nursing conference</td>
<td>Ability to prioritise and manage children’s pain</td>
<td>Questionnaires administered to conference delegates. 50 nurses, 44% response rate</td>
<td>Pain management was perceived as less important than other aspects of the nurses’ clinical role such as communication and teamwork and many educational deficits were identified.</td>
<td>None</td>
<td>Used 1996 validated Hicks and Hennessy scale, with items added to explore pain management</td>
</tr>
<tr>
<td>Chevannes, 2001</td>
<td>A multiprofessional group including nurses in five health care organisations, all attending a course to improve ability to serve the health needs of people from ethnic minority groups</td>
<td>Ability to identify and serve the health needs of people from ethnic minority groups and determine the effectiveness of a training course designed to enhance the need for knowledge and skills identified</td>
<td>22 course attendees</td>
<td>Ability to identify and serve the health needs of people from ethnic minority groups</td>
<td>Semi structured interviews before and after the training intervention, focus groups and questionnaires. 22 participants</td>
<td>Developing the training course formed an integral part of the study</td>
<td>Only short terms changed were evaluated</td>
<td></td>
</tr>
<tr>
<td>Gould et al., 2001</td>
<td>Clinical ward managers in four Trusts served by the same Workforce</td>
<td>To establish the ability of clinical ward managers to undertake key aspects of their role</td>
<td>Clinical ward managers</td>
<td>A list of training priorities identified by respondents in an interview</td>
<td>Qualitative interviews (pilot study)</td>
<td>182 questionnaires sent. 65% response rate. Identified numerous deficits in training.</td>
<td>Recommendations to Workforce Development Confederation</td>
<td>The pilot study was published separately (Gould et al., 2001)</td>
</tr>
</tbody>
</table>
The validated 1996 generic questionnaire appears to provide a valid assessment of the training needs between family planning nurses who prescribe and those who do not and differentiates between the specific needs of the two groups.

Findings may have been biased as not all family planning nurses may belong to the specialist professional organisation.

Deficits in training were identified and varied according to professional group, but the majority had no experience working with people with mental health. Barriers to accessing formal training courses were apparent.

**Table 2 (continued)**

<table>
<thead>
<tr>
<th>Authors</th>
<th>Target groups</th>
<th>Aims of TNA</th>
<th>Stakeholders considered</th>
<th>Skills/Attributes</th>
<th>Methods</th>
<th>Main findings</th>
<th>Training plans</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tyler and Hicks, 2001</td>
<td>Family planning nurses belonging to the same specialist professional organisation</td>
<td>(1) To determine the critical clinical tasks undertaken by family planning nurses.</td>
<td>Family planning nurses belonging to the same specialist professional organisation (National Association of Nurses for Contraception and Sexual Health)</td>
<td>None given</td>
<td>Questionnaire survey for main study, incorporating a validated measure of job satisfaction</td>
<td>None</td>
<td>None</td>
<td>Findings may have been biased as not all family planning nurses may belong to the specialist professional organisation</td>
</tr>
<tr>
<td>Nash, 2002</td>
<td>Primary care nurses (health visitors, district nurses, community psychiatric nurses)</td>
<td>(2) To determine their prescriber role</td>
<td>Primary care nurses</td>
<td>Skills and knowledge to deliver the NHS Framework for Mental Health</td>
<td>Questionnaire study with 90 nurses, 77% response rate</td>
<td>Deficits in training were identified and varied according to professional group, but the majority had no experience working with people with mental health. Barriers to accessing formal training courses were apparent</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Study</td>
<td>Role</td>
<td>Area of Focus</td>
<td>Methodology</td>
<td>Findings</td>
<td>Notes</td>
<td></td>
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<tr>
<td>Skrivers, 2002</td>
<td>Doctors</td>
<td>Acute hospitals in Finland</td>
<td>To determine the organisation and management of cardio-pulmonary resuscitation (CPR) training in acute hospitals in Finland</td>
<td>The provision of an effective CPR service in acute hospitals</td>
<td>More nurses than doctors had received advanced CPR training, although doctors were more likely to undertake it. 25% of acute hospitals had no designated staff member in charge of CPR training.</td>
<td></td>
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<tr>
<td>Clifford et al., 2001</td>
<td>Nurses</td>
<td>Ability to utilise research findings</td>
<td>To identify the nature of research activity in the present role</td>
<td>Survey using 1986 Hicks and Hennessy questionnaire with a convenience sample</td>
<td>96 response, total population sampled never stated. More than 50% in all 3 groups identified need for training in critical appraisal, IT and interpreting statistics. Barriers to using research in practice were the same in all groups</td>
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<td></td>
<td>Doctors</td>
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<td></td>
<td>Physiotherapists</td>
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</tbody>
</table>

The study was concerned with identifying whole service needs rather than the training needs of individual clinicians.
3. To what extent has stakeholder involvement been secured?

Macro-level TNA relying solely on the questionnaire survey approach were unable to include the views of stakeholders and failed to demonstrate close links between the research team and education providers, but attempts to secure stakeholder involvement were apparent in macro-level TNA employing other methodologies, with some displaying close researcher-educator association (Oberski et al., 1999). In contrast, strong links between educationalists and service providers were apparent in many micro-level studies and full stakeholder opinion was usually demonstrable in published accounts (Clough, 2000; Smith and Topping, 2001).

4. What methods have been used to collect the data?

As their title implies, macro-level studies were conducted on a large scale, generally employing survey methodology and questionnaires (see Hennessy and Hicks, 1998; Hicks and Hennessy, 1999a, b; Nash, 2002), with two exceptions (Oberski et al., 1999; Chevannes, 2002). In contrast, micro-level studies tended to be multimethod, using case studies with focus groups and interviews (Smith and Topping, 2001) or the Delphi technique (Gibson, 1998). Again, however, it was not possible to make hard and fast distinctions. For instance, Thompson et al. (1987) used a questionnaire survey approach to explore problems of poor communication and related human resource issues in a TNA applied to a single hospital.

5. How rigorous are the studies in methodological terms?

Where TNA employed questionnaire survey methods, response rates were variable. In the only micro-level study employing this approach, a 40% response rate was achieved (Thompson et al., 1987). Among macro-level accounts, there was enormous variation (see Table 2). Sheperd (1995b) reported full participation by managers and a 64.4% response rate from nurses while Thomson and Kohli (1997) achieved a 71% response rate from the nurses in their study. Unfortunately these acceptable levels of participation have not been matched in some other macro-level studies: rates as low as 34% (Farrell, 1998) and less than 25% have appeared in published papers (see Hicks and Hennessy, 1997b; Hicks and Hennessy, 1999b). Clearly it is not possible to draw any generalizations from studies with such poor returns. Problems in these reports were further compounded by additional sources of bias. Some authors aimed for a total population sample (see for example Hicks and Hennessy, 1997b) or a randomized stratified sample (Thomson and Kohli, 1999) but others adopted a sampling strategy which appeared to introduce bias. This is clearly illustrated in the report by Tyler and Hicks (2001). The aim of this study was to determine ‘critical clinical tasks’ undertaken by family planning nurses, but as only those belonging to the same specialist professional organisation were included and this may not have been representative of all family planning nurses, the extent to which the authors achieved their aims is questionable.

Greater attention has been given to methodological rigour in micro-level studies, although comparisons are more difficult to draw across the category as a whole because of the wide range of methods employed. Here authors tended to use qualitative approaches and to employ more than one avenue of data collection in an attempt to secure methodological rigour. In at least one case the decision to write a formal account of TNA for publication appeared to have been undertaken retrospectively. The case study presented by Smith and Topping (2001) was constructed after the authors had implemented and evaluated a course to satisfy the needs of specialist children’s nurses identified through TNA. Ethical approval and permission to use the student evaluations were requested post hoc. Nevertheless, this TNA was one of the most complete and informative to emerge from the search process as it explored important issues such as the role of the teacher as researcher and considered the methodological strengths and limitations of evaluation to determine how an educational intervention could actually secure improvements in the quality of care (see Jordan, 2000).

6. How are the outcomes of TNA used to influence the rest of the training cycle?

Inevitably, in view of the shortcomings which have emerged above, the findings of macro-level studies were much less specific than those of micro-level accounts and as a result, demonstrated lower potential to promote changes in training provision or service. In most cases it was not possible for macro-level TNA to provide coherent or practical suggestions for future training provision because their outcomes did not belong to any organisation with the authority to act on them. Their potential for generating change thus remained limited and indeed, there was little evidence of such change in these studies, with a few exceptions. For example, Oberski et al. (1999) reported an exploratory TNA to identify the requirements of a curriculum intended to meet the needs of elderly people receiving care in community settings. Subsequent stages of the training cycle were described in a later paper (Matthews-Smith et al., 2001). However, no macro-level study succeeded in demonstrating completion of the training cycle, with a single exception (Chevannes, 2002). In contrast there was greater evidence of change in relation to TNA in micro-level studies, some showing completion of the training cycle (Thompson et al., 1987; Clough, 2000; Smith and Topping, 2001) although once again, some accounts are disappointing in the amount of detail paid to this important aspect (Gibson, 1998).

Other issues: As the review progressed a number of additional shortcomings became apparent in the
literature. These deserve consideration because of their implications for uptake of the outcomes of TNA.

Even the most detailed accounts, demonstrating good links between the outcomes of needs assessment and the changes to be introduced in response failed to document the time-frame over which change would be introduced. Secondly there were no references in any TNA to meeting the needs of staff who would be responsible for planning educational initiatives (see Sheperd, 1994).

On a more positive note, a few publications included models to demonstrate how TNA followed by implementation of the training cycle could be used to secure organisational change while meeting individual plans for staff development (Arnett, 1992; Jones et al., 2002). Unfortunately these reports did not meet the criteria for review. Although they described the training cycle, they focused on outcomes without presenting empirical data.

5. Discussion

An enormous amount has been written about the benefits of TNA and how it should be conducted (see Sheperd, 1994; Pedder, 1998; Wright, 1999). However, only a small proportion of the publications identified through the search processes generated empirical nursing studies and of these several proved disappointing because they were either too incomplete (Lloyd and Ross, 1997) or too superficial (Nicholson et al., 2001) to meet the criteria set for the review. Others were concerned with TNA as a topic for research rather than with assessment of staff training needs, a situation comparable to that seen in the literature concerned with audit (Closs and Cheater, 1996). This is legitimate providing that such research demonstrates methodological rigour. At present this is not always the case.

The remaining empirical accounts successfully meeting the review criteria were so diverse in terms of their aims, scope, methods and content that comparisons could not be drawn easily. The empirical studies were classified according to whether or not they had been designed to meet the needs of a single, specific organisation. This approach was judged successful as the extent to which a particular TNA could be considered effective depended on whether it fell into the micro-level category (concerned with a single organisation) or constituted a macro-level TNA (concerned with more than one organisation or a professional group). No hard and fast distinctions could be drawn between the two types of TNA, but as a general rule micro-level studies emerged as having the greatest potential to contribute to improved service provision and quality of patient care because:

- They were concerned with identifying actual training needs rather than with validating an instrument or defining the boundaries of a professional group.
- Their aims were more clearly defined and matched a specific organisation, in which particular needs had been identified.
- Attempts were made to obtain stakeholder opinion and the authors were able to demonstrate close links between staff in the organisation and the team responsible for conducting TNA.
- They employed a greater range of methods and demonstrated greater methodological rigour, often employing more than one method of data collection to validate findings.
- Their outcomes were expressed explicitly, with greater effort to match them to the original aims of the TNA and the needs of the organisation.
- Their outcomes were more likely to ‘belong’ to the organisation and its stakeholders and were therefore more likely to be implemented. In fact, some accounts of micro-level TNA illustrated completion of the training cycle.
- They fulfilled the criteria for the type of small-scale, evaluative projects which are thought to demonstrate greatest potential to link needs assessment and its subsequent training intervention with improvements in patient care see Jordan (2000).

From this review it appears that as in the case of audit, the best accounts of TNA applied to post-registration nursing education are local, frequently apply to a small population and are ‘owned’ by stakeholders, with feedback to staff effectively resulting in changes in practice (Smith, 1992; Balogh, 1996). Detailed accounts are the most useful to those planning future TNA initiatives. Accounts like those of Arnett (1992) and Jones et al. (2002), although encouraging, lack sufficient detail of the factors which promoted success. Overall, micro-level TNA are much more closely geared to identifying and meeting organisational needs and goals than macro-level TNA, while in many cases still managing to identify the professional requirements of individual practitioners and encompass the user perspective. A drawback of both categories of TNA, however, is failure to address how educators’ needs should be identified, although attention was drawn to this aspect early in the history of nursing TNA (Sheperd, 1994). Failure to include commissioners of health care training is understandable because of their relatively recent introduction. Nevertheless, they are emerging as important stakeholders in this arena and it is anticipated that in future they will require robustly executed TNA as evidence that new training initiatives are needed. In fact some Workforce Development Confederations are already commissioning TNA as the first step in new course development. A model to evaluate the planning, process and outcomes of TNA is presented in Table 3. This combines criteria which have traditionally been used to evaluate both research and audit.
Given their potential to improve local service delivery, it is disappointing that so few authors have published accounts of TNA, but perhaps not difficult to speculate why this may be. Experience in higher education planning post-registration nursing courses with clinical colleagues, indicates that micro-level TNA is continually taking place. Failure to publish may reflect a belief that TNA, like audit, is not ‘real’ research and is therefore unlikely to meet the standards expected of scholarly enterprise. This view is erroneous. The best micro-level accounts reviewed above demonstrate methodological rigour and add to the wider debate which seeks to link educational outcomes with enhanced practice (Jordan, 2000). While it is not reasonable to expect every individual engaging in TNA to undertake a comprehensive literature review or to address methods with the rigour expected of formal research, much can be learnt by reflecting on the processes and outcomes of TNA and, as shown in the micro-level account offered by Smith and Topping (2001) additional post hoc data collection and analysis can contribute to theoretical understanding.

6. Limitations of the review

TNA is part of a cycle (Pedder, 1998). It was therefore not surprising that publications varied in the extent to which the emphasis was placed on this part of the process. Deciding whether a study was concerned primarily with TNA may have been subjective in some cases. Although the authors implied that TNA was the main focus of the study and this was reflected in the article title and key words, the paper was also concerned with later stages of the training cycle (see for example Smith and Topping, 2001; Nash, 2002). Failure to differentiate with sufficient clarity between studies which did and did not deal primarily with TNA may have resulted in the exclusion of some potentially useful papers. The tendency of some authors to structure a whole series of publications around a single educational initiative or series of related initiatives also caused confusion but was understandable as the amount of information contained in the series clearly exceeded what could reasonably be included in a single publication. In at least two cases it was obvious that the same initiative had generated multiple publications (Oberski et al., 1999 with Matthews-Smith et al., 2001 and Gould et al., 2001a, b). In other cases this relationship may not have been so apparent and as a result some teams may have been wrongly criticized for not fully exploiting the outcomes of TNA.

Determining the ‘ownership’ of TNA and its findings was also unclear in many published accounts. This omission was significant. Change in response to TNA is most likely to result when the target group or the organisation acting on its behalf is actively involved in identifying the need for change. Moreover, it is the owners of project findings who are in a position to do something constructive with them. Unless they belong to authors who are members of the organisation involved or of professionally influential groups, they are unlikely to stimulate change in the training actually delivered. In most micro-level studies ‘ownership’ was implicit in the...
study text. In the case of many of the macro-level studies, ‘ownership’ had to be deduced from acknowledgements to the funding body (which might represent a professional group) or from the workplace of the authors (suggesting shared ‘ownership’ between research team and employing organisation), but omission of these details from the publication could have resulted in loss of information.

Finally, unpublished accounts of nursing TNA (‘grey’ literature) could not be included in the review because they were not identified in the searches. However, this may have resulted in the exclusion of many potentially valuable accounts, especially as unpublished TNA are probably mostly small scale and these projects emerged as the most useful. Despite these limitations, the aims of the review were fulfilled and it was possible to draw some general conclusions from the studies examined.

7. Conclusion

Much has been written about TNA in theoretical terms but only a small proportion of the papers retrieved during the literature searches proved to be empirical accounts with messages for post-registration nursing education. Most of these related to staff in more than one organisation (macro-level accounts) and thus did not address organisational goals at all. Smaller scale TNA concerned with staff in a single organisation (micro-level TNA) emerged as most useful in practical terms as well having most to contribute towards theory. These accounts were more likely to be methodologically robust, to include the stakeholder perspective and to generate outcomes which could be implemented in the next stage of the training cycle. In addition, they appeared to have the greatest potential for influencing service delivery and improving quality of care. As targets become increasingly common in the NHS in the UK, there will be concommitant need to ensure that staff training is relevant, provides value for money and is sufficiently responsive to meet the rapidly changing needs of the workforce. TNA will be an important tool in helping to identify this need if it can effectively meet these criteria and publication of future robust TNA initiatives should be encouraged.

References

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