



# The growing concept and uses of training needs assessment

Training needs  
assessment

## A review with proposed model

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### Abstract

**Purpose** – This paper aims to review the relevant literature on training needs assessment (TNA) with an objective to provide users/beneficiaries of TNA with the understanding of its growing concept, multiple uses (outcomes), and valuing these uses (antecedents).

**Design/methodology/approach** – To conduct the literature review on uses of TNA, the authors used the systematic search comprising four stages: selection of appropriate search terms such as training, needs assessment, needs analysis, training needs assessment, and training needs analysis; carrying out search in established databases such as EBSCOhost, Emerald, JSTOR, SpringerLink, and Wiley-Blackwell; initial sample filtering (relevance-based); and further sample filtering (access-based). Based on this review, a conceptual framework for examining the forward and backward linkages between TNA and nine human resource management and development areas is proposed for further examination.

**Findings** – This paper highlights training plans, goal setting, employee development, managing change, career development, knowledge, skills, and attitude, learning motivation, cost effectiveness, and performance appraisal as nine major human resource management and development areas revealing different uses of TNA. This gives an appropriate place to the expanding view of TNA.

**Practical implications** – This paper offers important implications for human resource professionals. Their learning about multiple uses of TNA can help them attain comprehensive solutions of varied organisational problems.

**Originality/value** – This paper attempts to make a significant contribution towards understanding the growing concept of TNA by expanding the long-established way of looking at it through increasing its potential effects and subsequently enhancing its purposes and uses for both training and non-training initiatives.

**Keywords** Training, Assessment, Training needs

**Paper type** Literature review

### 1. Introduction

For decades, training needs assessment (TNA) has been mainly deemed essential for conduct of an effective training and development programme (see, e.g. Al-Khayyat, 1998). However, today it has become concern of every proactive manager who uses it

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for developing and implementing varied practical solutions for individuals, work groups, and organisations (Gupta *et al.*, 2007). The conventional approach to TNA has often considered training as the only solution and ignored non-training issues (Stone, 2009) but the growing concept of TNA has revealed a two-fold change. On the one hand, organisations have been experiencing a paradigm shift from training as an outcome of TNA to training as an important business strategy (Stone, 2009) that prepares the organisation's human resource for and makes them compatible with unavoidable change and opportunity in technology, systems, structures and the nature of work itself (Anderson, 1994). On the other hand, TNA results are considered useful for deciding on non-training initiatives (Bozarth, 2008; Rossett, 2009; Burner, 2010). Therefore, the concept of TNA is now considered at strategic level as it has developed relationships with several human resource functions (Cheng and Dawson, 1998). Thus, TNA is a comprehensive study comprising two phases. The first, diagnostic phase identifies inconsistencies among performance standard, current performance and current competence, and then ranks these inconsistencies by prioritising them in order of severity. The final, curative phase finds out the causes of the prioritised inconsistencies, and then decides on using training, non-training, or both types of interventions for their solution.

Need of this paradigm shift has been felt in the developing segment of the world too. A survey of 12 sample pharmaceutical industrial units in Pakistan reported that in manufacturing segment of pharmaceutical organisations, general workers were 52 per cent, skilled workers (34.7 per cent), supervisory staff (12 per cent), and managers or senior managers (1.3 per cent). Nevertheless, most of the training programmes were tailored to benefit managers and senior managers, whereas very little portion was provided for skilled and general workers (Ali, 1999). He concluded that such scenario required TNA instead of following the mechanism of wish lists at pharmaceutical organisations of Pakistan. Likewise, while reporting the findings of TNA carried out for health personnel in the provincial health services, Punjab, Pakistan, Ruck *et al.* (1999) compared the requisite skills to those covered by the existing training, job descriptions and felt needs of four cadres namely, District Health Officers, Assistant District Health Officers, Assistant Inspectress Health Services, and Communicable Diseases Control Officer. Their study substantiated the usefulness of the TNA. According to them, needs-based trainings could only help the trainees contribute to improved health management capacity in Pakistan. They found that most of the felt needs of all four cadres were not completely fulfilled in trainings, revealing limited use of TNA. Therefore, they recommended the systematic use of TNA to improve the quality of trainings of health professionals.

For the last 30 years, previous studies on TNA have been calling for its theoretical development (Moore and Dutton, 1978), particularly in terms of linking training initiatives to organisationally-valued results (Taylor *et al.*, 1998). Similarly, some studies (e.g. Reed and Vakola, 2006; O'Donnell and Garavan, 1997) have clearly communicated the felt need of relating TNA to other human resource functions. This motivated us to set about filling this gap. Thus, we organised a review of the relevant literature for achieving two objectives. The first objective was to examine the development of TNA. This was done by posing, and then answering the question: what does TNA stand for? The final objective was to propose a conceptual model revealing a

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variety of uses of TNA for training and development as well as some other human resource functions. The significance of valuing these uses was also established.

## 2. Method and material

Consistent with the nature of this study, we started with posing two questions (Armitage and Keeble-Allen, 2008). The first question was on the growing concept of TNA. Therefore, the heading 3 aimed at answering “what does TNA stand for?” The final question, logically linked with the first one, was on the multiple uses of TNA. This further raised some sub-questions on relationships between TNA and training and development as well as certain human resource areas. These areas are: training plans, goal setting, employee development, managing change, career development, knowledge, skills, and attitude, learning motivation, cost effectiveness, and performance appraisal. For answering these, we proposed a research model on the uses of TNA that also included the aspect of valuing TNA, i.e. importance being given to TNA and management’s interest in it. Thus, heading 4 is set apart for the purpose.

### 2.1 Search criteria

Due to the divergent nature of the management discipline, the unsystematic reviews of previous studies lack thoroughness and a genuine investigation (Tranfield *et al.*, 2003). Therefore, to make this study methodical, we performed domain analysis of the topic under study that helped us devise the scheme for critical review of the relevant literature. This scheme was consistent with Ponis *et al.* (2009) and also partially similar to the one that Majeed (2009) used. The scheme comprised four stages: selection of appropriate search terms, carrying out search in established databases, initial sample filtering based on relevance, and further sample filtering based on availability of the relevant material. The search in each selected database was done in two steps. The first step was performed by applying the main search term of “training”. However, for downloading the most relevant material, in the final step the major search terms such as “needs assessment”, “needs analysis”, “training needs assessment” and “training needs analysis”, were applied to search within the results. Articles on TNA were extracted from five renowned electronic databases such as EBSCOhost, Emerald, JSTOR, SpringerLink, and Wiley-Blackwell. The selection of databases as well as articles was subject to access provided at our university campus. A total of 23 databases/sources were accessible at our university campus. Fourteen were completely irrelevant to our discipline, two were partly relevant but only irrelevant material was accessible, and two were having only few relevant articles, which were also available with EBSCOhost and Emerald. However, for search of specific articles, the search engine for open access scholarly material, i.e. Google Scholar was also used. The search terms filtered the full text in addition to title, keywords, and abstract that resulted in access to 453 articles on TNA. For filtering the sample based on availability and relevance, titles and abstracts were sifted to refine the search of articles on TNA for final review and analysis. This resulted in selection of 79 articles (see Table I and Figure 1). In order to make the conceptualisation more comprehensive, we also included some books and book chapters on training/human resource development.

2.2 Sample articles

For selection of articles, we explored the selected databases sequentially. Arbitrarily, we started with EBSCOhost followed by Emerald, Willey-Blackwell, JSTOR, and SpringerLink. This was done to avoid duplication of articles. However, for selection of relevant articles, context was given utmost importance. We concentrated more on relevance to the business/management field and concepts of TNA relating to the theme of study. Nevertheless, except for a few (e.g. Moore and Dutton, 1978; Brown, 2002; Cekada, 2010) most of the studies provided only partial substantiation to the topic under study. Our literature search revealed that in the last ten years study like ours has not been carried out (also maintained by Cekada, 2010). The following information on sample is noteworthy:

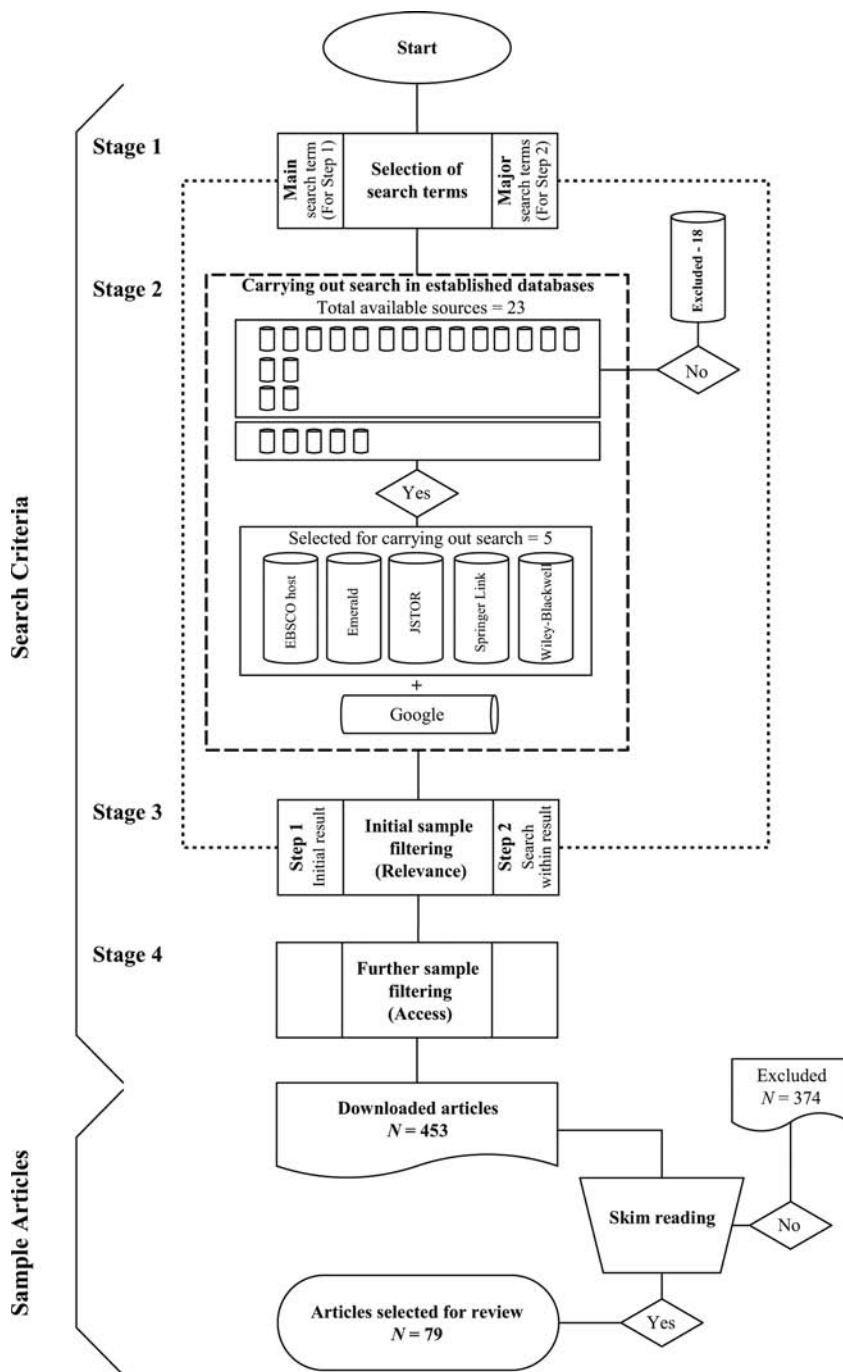
- *Journals' detail.* Except one conference paper, sample articles were published in 40 journals. The majority of sample articles on TNA were published in two quality journals, i.e. *Journal of European Industrial Training* and *Public Personnel Management*. The category of "others" represents 30 journals each contributing single article to the sample (see Figure 2).
- *Year- and study type-wise detail.* Analysis on the timeline revealed that most of the sample articles were published in 1990s (38) followed by 2000s (31), 1970s (6), and 1980s (4). As regards the study type, 20 were empirical, viewpoint (17), general review (15), qualitative (8), case study (7), conceptual (6), literature review (5), and one was conference paper (see Figure 3).
- *Country-wise detail.* Figure 4 reveals the first author's country affiliation. However, seven articles were authored by the researchers belonging to more than one country. In these cases country where study is carried out is mentioned in the figure. Near half of the articles were published by the US researchers followed by UK.
- *Study setting-wise detail.* Figure 5 shows study environment in which sample studies were carried out.

2.3 Reading and organising material

Reading was performed in three phases. In the first phase, during online search, before downloading each article, we just scanned through the title, keywords and abstract carefully. In the second phase, for selection of the relevant material, the skim reading (rapid scanning of the entire source) was done in case of all downloaded articles

**Table I.**  
Selected databases and articles

No.	Databases	Articles downloaded		Articles selected for review	
		N	%	N	%
1	EBSCOhost	166	36.64	36	45.57
2	Emerald	73	16.11	30	37.97
3	Wiley-Blackwell	146	32.23	4	5.06
4	JSTOR	29	6.40	1	1.27
5	SpringerLink	31	6.84	0	0.00
6	Google	8	1.78	8	10.13
	Total	453	100	79	100



**Figure 1.** Flowchart of search criteria and sample articles

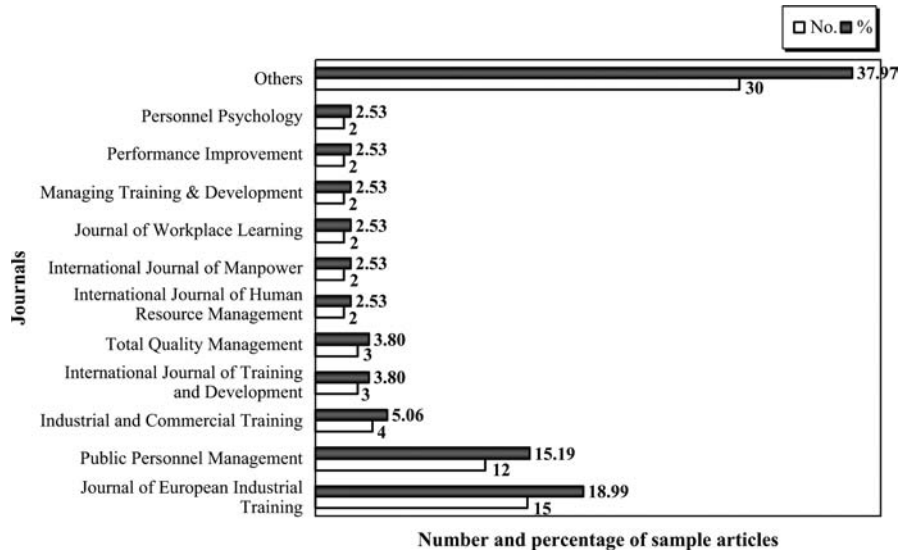


Figure 2.  
Journals' detail

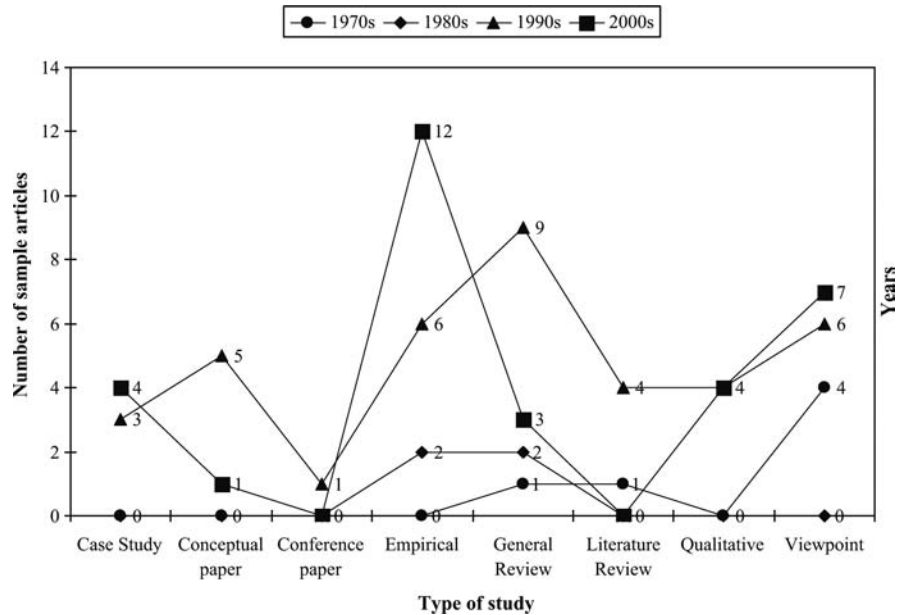


Figure 3.  
Year- and study type-wise  
detail of sample articles

( $N = 453$ ). This was done to eliminate articles covering irrelevant details. In the final phase, the study reading (close and repeated reading) was done in case of sample articles ( $N = 79$ ). In addition, in case of books and articles used for setting background of the study, structuring review of literature, and adapting method of the study, the index reading (using the index to locate specific items and reading only the sections

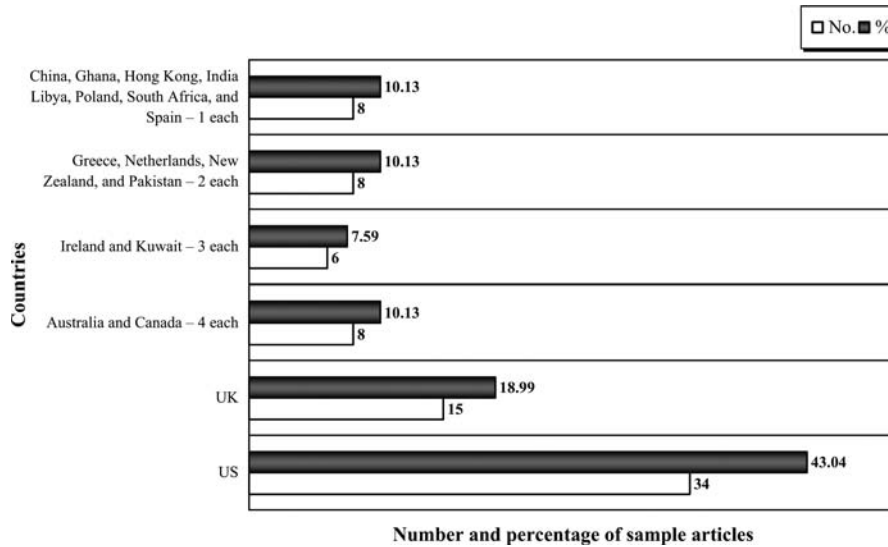


Figure 4. Country-wise detail of the sample articles

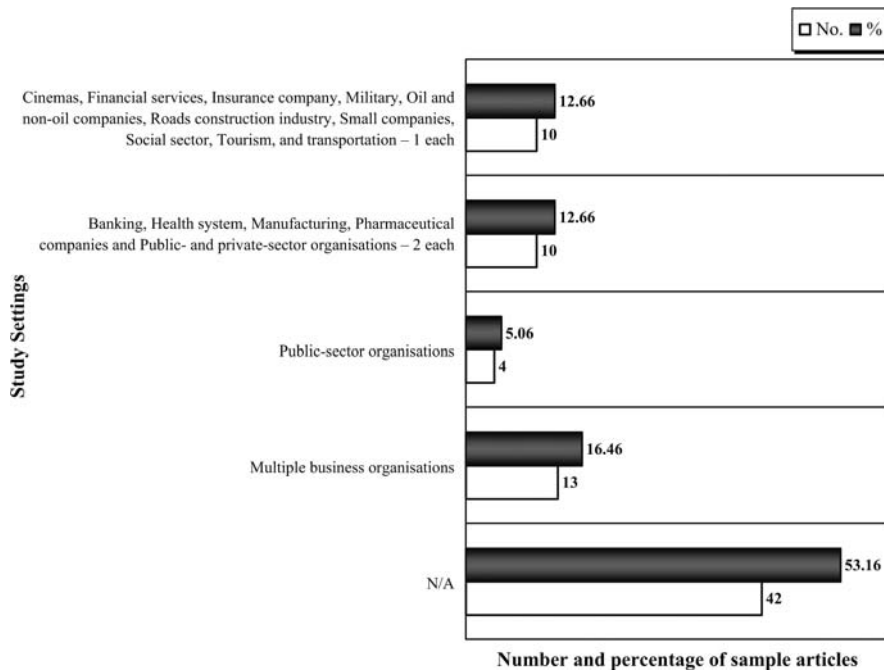


Figure 5. Study setting-wise detail of the sample articles

referring to those items) was performed (Thomas, 2004). Table II presents organisation of the material revealing the articles relevant to the particular segment of the topic under study, i.e. the growing concept of TNA, uses of TNA (outcomes), and valuing these uses (antecedents).

No.	Major areas	Studies
1	Growing concept of TNA	Al-Khayyat (1998), Altschuld and Lepicki (2010) <sup>a</sup> , Anderson (1994), Barbazette (2006) <sup>a</sup> , Bozarth (2008) <sup>a</sup> , Burner (2010) <sup>a</sup> , Dingle (1995), Effah (1998), Elbadri (2001), Gupta <i>et al.</i> (2007) <sup>a</sup> , Kaufman (1994), Leat and Lovell (1997), Leatherman (2007) <sup>a</sup> , Prokopenko (1998) <sup>a</sup> , Rossett (1987) <sup>a</sup> , Rossett (2009) <sup>a</sup> , Rothwell (2009) <sup>a</sup> , Schneier <i>et al.</i> (1988), Sorenson (2002), Stone (2009) <sup>a</sup> , Tracey (2004) <sup>a</sup> , Triner <i>et al.</i> (1996), Watkins and Kaufman (1996), Watkins <i>et al.</i> (1998)
2	Training plans	Brown (2002), Cekada (2010), Greig (1997), Kellie (1998), Miros and Dale (1996), Morano (1973), Peters (1994)
3	Goal setting	Abdalla and Al-Homoud (1995), Agnaia (1996), Ashton and Easterby-Smith (1979) <sup>a</sup> , Bowman and Wilson (2008), Brown (2002), Cekada (2010), Chunn and Thacker (1993), Denby (2010), Desimone <i>et al.</i> (2002) <sup>a</sup> , Dolliver (1993), Gould <i>et al.</i> (2004), Heraty and Morley (2000), Leat and Lovell (1997), Mathews <i>et al.</i> (2001), McClelland (1994a), McClelland (1994b), Moore and Dutton (1978), Morano (1973), O'Driscoll and Taylor (1992), Patton and Pratt (2002), Tao <i>et al.</i> (2006)
4	Employee development	Ashton and Easterby-Smith (1979) <sup>a</sup> , Brown (2002), DiLauro (1979), Gould <i>et al.</i> (2004), Leat and Lovell (1997), <i>Training Magazine</i> (2005), Uhlmann (1973), Virmani (2000) <sup>a</sup>
5	Managing change	Brown (2002), Cekada (2010), Chiu <i>et al.</i> (1999), Collis (2001), Collis (2002), Desimone <i>et al.</i> (2002) <sup>a</sup> , <i>Managing Training &amp; Development</i> (2002), Katsanis (2006), Leat and Lovell (1997), Moore and Dutton (1978), Reed and Vakola (2006)
6	Career development	Agnaia (1996), Brown (2002), Clarke (2003), Ford and Noe (1987), Rees <i>et al.</i> (2005), Schneier <i>et al.</i> (1988)
7	Knowledge, skills, and attitude	Agnaia (1996), Bowman and Wilson (2008), Brown (2002), Cekada (2010), Cheng and Dawson (1998), Cooke (1979), Dyer (1994), Ford and Noe (1987), Grau-Gumbau <i>et al.</i> (2002), Kellie (1998), Kirkpatrick (1977), Moore and Dutton (1978), Schneier <i>et al.</i> (1988), Tao <i>et al.</i> (2006)
8	Learning motivation	Chunn and Thacker (1993), Desimone <i>et al.</i> (2002) <sup>a</sup> , Orpen (1999), Sandwith (1993), Sorenson (2002)
9	Cost effectiveness	Abdalla and Al-Homoud (1995), Brown (2002), Cekada (2010), Denby (2010), DiLauro (1979), Elbadri (2001), <i>Managing Training &amp; Development</i> (2005), Floodgate and Nixon (1994), Law Office Management & Administration Report (2004), McClelland (1993), Morano (1973), Schneier <i>et al.</i> (1988), Sims <i>et al.</i> (1989), Snyder (2004), Swierczek and Carmichael (1985), Tao <i>et al.</i> (2006)
10	Performance appraisal	Al-Khayyat and Elgamal (1997), Bowman and Wilson (2008), Cekada (2010), Cooke (1979), de Jong <i>et al.</i> (1999), Dingle (1995), Ford and Noe (1987), Herbert and Doverspike (1990), Holton <i>et al.</i> (2000), Horwitz (1999), Kirkpatrick (1977), Moore and Dutton (1978), Noble (1997), O'Driscoll and Taylor (1992), Patton and Pratt (2002), Peters (1994), Rees and Porter (2004), Tao <i>et al.</i> (2006), van Eerde <i>et al.</i> (2008), Virmani (2000) <sup>a</sup> , Yadapadithaya and Stewart (2003)
11	Importance to be given to TNA	Abdalla and Al-Homoud (1995), Elbadri (2001), Hall (2005), Kaufman (1994), Papalexandris and Chalikias (2002), Ruck <i>et al.</i> (1999), Sorenson (2002)
12	Management's interest	Abdalla and Al-Homoud (1995), Bowers <i>et al.</i> (1998), Brown (2002), Cheng and Dawson (1998), Clarke (2003), Dolliver (1993), Dulworth and Shea (1995), Elbadri (2001)

**Table II.**  
Studies covering major areas of the topic under study

**Note:** <sup>a</sup> Text refers to books/book chapters



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### 3. What does TNA stand for?

For understanding the concept of TNA, we report definitions of several terms from the TNA family such as need, needs assessment, needs analysis, training needs assessment, and training needs analysis, followed by the discussion on them.

“*Need* is the gap between current and desired (or required) results, or (stated another way) the gap in results between ‘what is’ and ‘what should be’” (Kaufman, 1994, p. 14). He categorised the gaps in results into three groups. The first category is of gaps in “outcomes” which corresponds with “mega-level results” (relating to societal payoffs). The second category is of gaps in “outputs” which corresponds with “macro-level results” (relating to what the organisation delivers outside of it). And the final category is of gaps in “products” which corresponds with “micro-level results” (relating to individuals or small groups). However, in 1996, Watkins and Kaufman explained the concept of need further. In addition to gaps in “results” (also known as “ends”), they highlighted the gaps in “means”. They categorised them into two groups. The first category is of gaps in “processes” that refers to methods, whereas the final category is of gaps in “inputs” that refers to resources. According to them gaps in means are called quasi needs, which are the best considered in terms of closing the gaps in results (Watkins and Kaufman, 1996). Kaufman’s (1994) definition of need is consistent with the extant literature (see, e.g. Gupta *et al.*, 2007, p. 14; Altschuld and Lepicki, 2010, p. 772). However, Gupta *et al.* (2007) mention learning and performance gaps particularly (see Table III).

“*Needs assessment* is a process for identifying needs and placing them in priority order on the basis of what it costs to meet the need versus what it costs to ignore it” (Kaufman, 1994, p. 14). Al-Khayyat (1998, p. 20) cites Goldstein (1986), who defines needs assessment as “an effort that analyses and diagnoses the organisation, task and person, to determine if a cure is necessary and what cure is the most likely to produce the desired results.” The definition of Kaufman (1994) revolves around the concept of difference between “what is” and “what should be” which focuses on assessment/identification of needs. While the definition of Goldstein clearly communicates that the process of needs assessment provides backward linkage to the mechanism of needs analysis that requires a groundwork done before its application. Gupta *et al.* (2007, p. 14), Altschuld and Lepicki (2010, p. 774) and Tracey’s (2004, p. 457) definitions of needs assessment discuss the concept similar to Kaufman’s (1994) one. However, Gupta *et al.* (2007) reiterate learning and performance gaps and Tracey (2004) states many favourable outcomes of needs assessment (see Table III).

The term “needs analysis” is defined as “the process of determining the reasons and causes for a need so that appropriate interventions may be identified and later selected” (Kaufman, 1994, p. 14). This definition endorses the relationship between needs assessment and needs analysis as ignoring the former leads to a question “what to analyse?” The literature provides another evidence of establishing relationship between assessment and analysis of needs by using them simultaneously (but sequentially being two phases of one process). In addition, Tracey’s (2004, p. 457) definition of needs analysis also suggests method of analysis such as assessment centres, individual interviews, and psychological tests (see Table III).

Triner *et al.* (1996, p. 52), while describing the discussion between a TNA consultant and her customer, give definition of “training needs assessment” as “An oxymoron, a selection for the means – training – to meet the need, before determining what the

No.	Terms and definitions	Author(s)
1	Need	
	a. "Need is the gap between current and desired (or required) results, or (stated another way) the gap in results between 'what is' and 'what should be.'"	Kaufman (1994, p. 14)
	b. "A learning or performance gap between the current condition and the desired condition is called a need."	Gupta <i>et al.</i> (2007, p. 14)
	c. "In its simplest form, a need is a measured discrepancy between the current state (what is) and the desired one (what should be)."	Altschuld and Lepicki (2010, p. 772)
2	Needs assessment	
	a. "Needs assessment is a process for identifying needs and placing them in priority order on the basis of what it costs to meet the need versus what it costs to ignore it."	Kaufman (1994, p. 14)
	b. "An effort that analyses and diagnoses the organisation, task and person, to determine if a cure is necessary and what cure is the most likely to produce the desired results."	Goldstein (1986) cited by Al-Khayyat (1998, p. 20)
	c. "A means of determining the training and development systems and programs needed by the organization, employee groups, or individual employees to make the organization competitive in its industry, improve productivity, build employee morale and job satisfaction, and improve promotion potential and foster career development. Needs assessment identifies gaps in capabilities, abilities, and on-the-job results (performance) and places the identified needs in priority order for resolution."	Tracey (2004, p. 457)
	d. "Needs assessment is a process for figuring out how to close a learning or performance gap. It involves determining what the important needs are and how to address them."	Gupta <i>et al.</i> (2007, p. 14)
	e. "A needs assessment is a formal process to obtain information on the two states (current versus desired), compare them, identify gaps, and arrive at needs-based priorities for organizational actions."	Altschuld and Lepicki (2010, p. 774)
3	Needs analysis	
	a. "The process of determining the reasons and causes for a need so that appropriate interventions may be identified and later selected."	Kaufman (1994, p. 14)
	b. "Breaking down a need to identify its causes and its relationships with other needs. It is one of the means of identifying current or projected skills or deficits among employees. It may involve the use of assessment centres, individual interviews, psychological tests, and so on."	Tracey (2004, p. 457)
4	Training needs assessment	
	a. "A systematic study of a problem or innovation incorporating data and opinions from varied sources, in order to make effective decisions or recommendations about what should happen next."	Rossett (1987, p. 3)

**Table III.**  
Key terms and their  
definitions

(continued)

No.	Terms and definitions	Author(s)
	b. "An oxymoron, a selection for the means – training – to meet the need, before determining what the need is. A more appropriate term to use for training needs assessment is training requirements analysis."	Triner <i>et al.</i> (1996, p. 52)
	c. "A training needs assessment identifies specific problems within an organization by using appropriate methods of gathering information (such as surveys, interviews, observations, etc.), determines which of the problems requires a training solution, and then uses the information to design training interventions that solve the original problem."	Leatherman (2007, p. 3)
	d. "Training needs assessment is study to design and develop instructional and informational programs and materials, after the performance analysis has determined that training or informational materials are indeed appropriate."	Rossett (2009, p. 31)
5	Training needs analysis	
	a. "The first step in the training process. Designed to identify performance gaps that can be remedied by training. It consists of surveillance, investigation, and data analysis."	Tracey (2004, p. 678)
6	Training requirements analysis	
	a. "Needs assessment and needs analysis that helps to determine if training is the solution or part of the solution to meet the need. Once the 'why training' is established, a training requirements analysis is conducted to determine the what, when, where, how, and by whom training might be best employed."	Triner <i>et al.</i> (1996, p. 52)
7	Performance analysis	
	a. "Broad-based assessment and study of either organizational or individual performance. Performance analysis is a means of verifying significant performance deficiencies and then determining the most appropriate means of remedying those shortcomings."	Tracey (2004, p. 508)
	b. "Performance analysis provides preliminary study of the situation in order to determine if and when training is required, and whether a more detailed training needs assessment is warranted."	Rossett (2009, p. 31)

Table III.

need is. A more appropriate term to use for training needs assessment is training requirements analysis." Training requirements analysis is defined as "*needs assessment* and *needs analysis* that helps to determine if training is the solution or part of the solution to meet the need. Once the 'why training' is established, a training requirements analysis is conducted to determine the what, when, where, how, and by whom training might be best employed" (Triner *et al.*, 1996, p. 52). Rossett (1987, p. 3) defines training needs assessment as "a systematic study of a problem or innovation incorporating data and opinions from varied sources, in order to make effective decisions or recommendations about what should happen next." However, in her recent text (see Rossett, 2009, p. 31), she refines the definition of TNA further by including the

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concept of performance analysis which entails use of both assessment and analysis (for definition of performance analysis see Table III).

Above discussion on definition of training needs assessment emphasises that it should be termed as “training requirements analysis” because this term can be useful and important approach to design training that will respond to trainees’ needs (Watkins and Kaufman, 1996). Hence, the acronym TNA is interchangeably or simultaneously used for training needs assessment and training needs analysis to emphasise the aspect of identification/assessment as well as analysis (Dingle, 1995). Therefore, the literature provides evidence and emphasises the relationship between these two terms as Watkins and Kaufman (1996) are of the view that needs assessment identifies the gaps in results and then provides the basis for deriving useful and justifiable objectives, whereas needs analysis identifies the causes of needs and then identifies the requisite solutions. To analyse anything, including needs, one must identify/assess needs in the first phase, otherwise how one would know about what to analyse.

The difference and relationship between training needs assessment and training needs analysis have so far been discussed with reference to results. The purpose of such a comprehensive description of the acronym TNA is to diffuse confusions regarding simultaneous and interchangeable uses of these terms. However, confusion regarding their relationship with reference to processes is still to be removed. The processes include needs analysis, front-end analysis, training needs assessment, training needs analysis, needs surveys, and demand analysis. These terms confuse the topic of training needs assessment and give an understanding as if contributions of assessment and analysis are much different from each other. However, even in respect of processes, needs assessment may be designed to identify and prioritise needs, whereas a needs analysis should break an identified need into its component parts and determine solution requirements (Watkins *et al.*, 1998). The literature also maintains that diagnosis of training needs is a process of information gathering and analysis, which requires data sets in order to understand how an individual’s knowledge, skills, and attitude are translated into varying behaviours and achievements (Leat and Lovell, 1997). Hence, training needs assessment and training needs analysis should be performed at one time or as one process this is why theorists and practitioners agree to start training process with combination of assessment and analysis of training needs (Elbadri, 2001).

TNA is a diagnostic process which attempts to identify a variety of organisational needs that can potentially be satisfied through training or even otherwise. The literature has revealed viewpoints in respect of differentiating, relating and combining the concepts of “assessment” and “analysis”. Moreover, it further reveals that the simultaneous use of assessment and analysis of training needs helps identify the unique developmental requirements of employees working at different levels in the organisation with the objective of ensuring that their training needs are appropriately met (Effah, 1998). Dingle (1995) emphasises that instead of focusing on concept of “assessment/identification” and/or “analysis” practitioners should avoid threatening expressions like “training needs analysis” or “training needs assessment” and more accurate designation “competence requirements/enhancement analysis” should preferably be used. Because the term “competence” or “competency” is used to

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express the manifestations of personal qualities that lead to outstanding performance and refer to employee's capability of doing and performing an activity effectively.

In the light of existing definitions of the key terms and discussion on them, we maintain that the *Training Needs Assessment* is a comprehensive study comprising two phases. The first, diagnostic phase identifies inconsistencies among performance standard, current performance and current competence, and then ranks these inconsistencies by prioritising them in order of severity. The final, curative phase finds out the causes of the prioritised inconsistencies, and then decides on using training, non-training, or both types of interventions for their solution.

Three components of our definition are:

- (1) *The term: Training Needs Assessment.* The definition uses the term “training needs assessment” as it is considered to be an umbrella term, especially when performance and competence related inconsistencies are analysed (Rossett, 1987). Moreover, the word “assessment” often involves the use of more than one type of analysis such as performance analysis, job/task analysis, and target population analysis (Barbazette, 2006).
- (2) *The diagnostic phase.* In this phase the following two activities are performed:
  - Identification of inconsistencies among performance standard set by the organisation (desired), levels of current performance and current competence of its human resource (actual). This satisfies the basic TNA model propounded by Prokopenko and Kubr (Prokopenko, 1998, p. 82) and the extant literature (see, e.g. Rossett, 2009; Rothwell, 2009; Gupta *et al.*, 2007; Tracey, 2004), especially by giving importance to the elements of “performance” and “competence”.
  - Ranking the inconsistencies by prioritising them in order of severity (Altschuld and Lepicki, 2010; Tracey, 2004; Kaufman, 1994) so that high grade inconsistencies are solved first.
- (3) *The curative phase.* In the final phase the following two activities are performed:
  - Finding out causes of the prioritised inconsistencies. This activity helps address the particular problems, which are generally ignored by the trainers. As in the foreword of a book (Rossett, 2009), Ruth Clark, the president of CLARK Training & Consulting, also a recognised specialist in instructional design and technical training, quotes the analysis of her graduate that “Needs assessment has never been formally applied or executed with our organisation. The approach to training has been focused on fixing a specific issue, but exploring in depth the root cause for training has never been pursued or encouraged. Training has been approached as a stop-gap measure to provide a quick fix for perceived problems [...]” (p. ix).
  - Segregating training and non-training needs for deciding on the use of appropriate interventions for solution of the inconsistencies. For more than two decades, the literature has been emphasising on segregation of training and non-training needs (see, e.g. Prokopenko, 1998; Bozarth, 2008; Stone, 2009; Burner, 2010). This is because, non-training needs are uncovered during the process of TNA and these require different responses at organisation, group and individual levels. These need not merely confront

present deficiencies but also the future ones. The ultimate success of a training programme depends on eliminating non-training needs (Anderson, 1994). Moreover, training is not a solution to every problem, TNA identifies solvable problems then training solves them (Sorenson, 2002; Schneier *et al.*, 1988).

Here, the growing concept of TNA reaches the final activity of segregating training and non-training needs which reveals its broad spectrum. Hence, it is appreciated that for satisfying the training needs, TNA is used for training and development, whereas for satisfying non-training needs, it is used for some other human resource development and management activities. This is the idea behind our conceptual model.

#### 4. The conceptual model – antecedents and outcomes of TNA

The scope of TNA has expanded as it is now being used for a range of human resource functions (Papalexandris and Panayotopoulou, 2004). It is not only used as a first step of the training programme but it also helps segregate training and non-training needs. Identification of training needs helps constitute the basis for conduct of a successful training, whereas recognising non-training needs helps make management decisions, even other than training. Therefore, based on review of the relevant literature we propose a model (see Figure 6). This model comprises three components, i.e. Antecedents, TNA, and Outcomes. The previous section discussed the concept of TNA in detail. However, this section discusses outcomes and antecedents. The model offers 11 propositions, the first eight propositions reveal that TNA has significant backward, forward, or both sorts of linkages with training plans, goal setting, employee development, managing change, career development, knowledge, skills, and attitude, learning motivation, and cost effectiveness (section 4.1), whereas the next three

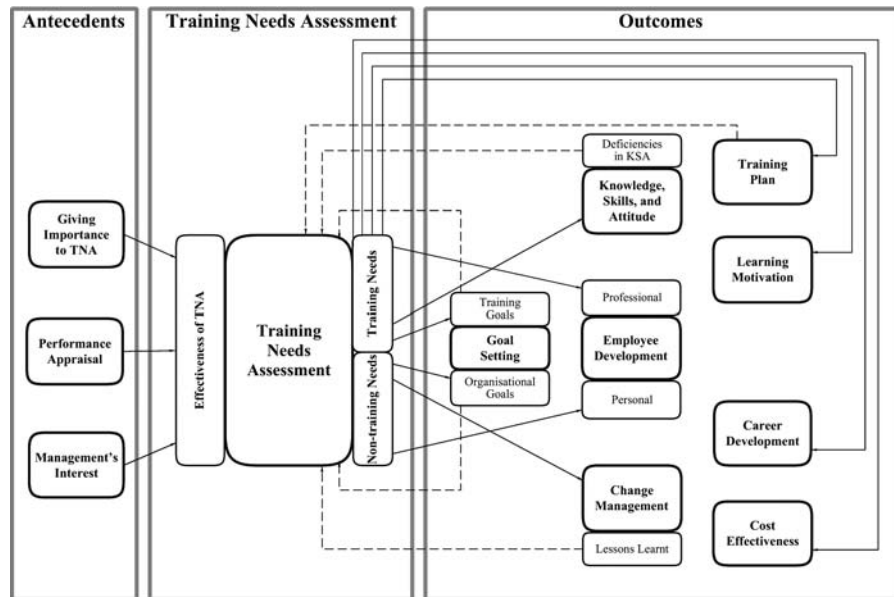


Figure 6.  
The conceptual model –  
antecedents and outcomes  
of TNA

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propositions reveal significance of valuing the uses of TNA as antecedents to its effectiveness (section 4.2).

#### 4.1 Uses of TNA – outcomes

The main outcome of TNA is expressed in the form of training plan accompanied with objectives, and for assigned time targets. The training plan is agreed one in the sense of being understood and accepted by all the key individuals who are responsible for putting it into effect (Morano, 1973). The literature recommends that an organisation should review its training plan at least once a year for which it should have detailed set of procedures for conducting a continuous TNA. The process of assessing training needs starts with identifying problem area in learning for the organisation and then assigning short-term priorities to them (Miroso and Dale, 1996; Greig, 1997; Kellie, 1998; Cekada, 2010). However, the literature also maintains that training plans help assess future training needs (Peters, 1994; Brown, 2002). This leads to the following proposition:

- P1.* TNA identifies training needs that should be used for preparation of training plans. However, these training plans should also provide information on areas to be considered for the future TNA.

Goal setting and TNA are interdependent. The relationship between them enriches training environment as well as organisational climate (Leat and Lovell, 1997), because TNA is viewed as a systematic process of determining and then prioritising training and development as well as organisational goals (Morano, 1973; O'Driscoll and Taylor, 1992; Heraty and Morley, 2000; Brown, 2002; Patton and Pratt, 2002; Denby (2010). Effective human resource development interventions contribute to achieve organisational goals if it is based on true TNA (Desimone *et al.*, 2002; Tao *et al.*, 2006; Bowman and Wilson, 2008), which according to Mathews *et al.* (2001) can be performed if goal setting is considered as its one of the most important parts. This fact is also supported by Dolliver (1993) who emphasises that the TNA gives a road map to reach the organisational goals.

Like organisational goals, training and development goals have also strong relationship with TNA. Abdalla and Al-Homoud (1995) maintain that inadequate practices with regard to TNA may have survived and persisted in the past (e.g. banking on menu, laundry list, or wish lists approaches) but the new economic and social realities have made clear that these traditional practises are risky. Therefore, Agnaia (1996) recommends that TNA affects setting the training and development goals along with other benefits such as designing the curricula, selecting the trainers, adopting certain training methods, and evaluating the training programmes. Ashton and Easterby-Smith (1979) also emphasise that following up the training needs is imperative to attain objectives of the training and development programme.

McClelland (1994a) contends that the goal of TNA should be to identify training needs as they currently exist or have the potential to exist at some point in future. According to Chunn and Thacker (1993), TNA should be based on goals of management and mission of the organisation if conduct of a successful training programme is sought. McClelland (1994a) emphasises that one way to address goals of TNA is to go by carrying out preliminary research into probable training categories or issues. Along with an organisation's goals, training and/or course objectives are also

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common basis of TNA (Moore and Dutton, 1978; Gould *et al.*, 2004; Cekada, 2010). McClelland (1994b) is of the view that defined needs develop basis for the formulation of the course objectives, which can further help in developing the curriculum, devising an evaluation system to measure results, and presenting the course. Instructional design methodology states that a degree of logic should be used first to determine whether the objectives, as defined through the results of a needs assessment, focus on functionality, behavioural change(s), or both. Based on this discussion, we formulate our second proposition:

- P2. TNA identifies training and non-training needs that should be used for setting training goals and organisational goals respectively. However, these goals should also provide basis for the future TNA.

TNA is used for employee development as, on the one hand, it is exercised when personal development of employees is sought (Virmani, 2000), especially to motivate them for being honest and open with the organisation (Uhlmann, 1973). On the other hand, for professional development of employees, TNA is undertaken at the person level, focusing on how well particular individuals carry out the activities comprising their task roles (Leat and Lovell, 1997). Identifying training interventions addresses performance variances and promotes employee development. While answering a question regarding the greatest challenge faced by the training profession, Karen Fenton, head of human resource at UCI Cinemas, replied: "To become core to the business and anticipate training and development needs, spotting, nurturing and building talent for the future." (*Training Magazine*, 2005, p. 30). This challenge can be taken up by performing TNA as it helps management make decisions regarding employee development (DiLauro, 1979; Ashton and Easterby-Smith, 1979). Hence, employees are the potential stakeholders of TNA (Gould *et al.*, 2004), especially in case of reduction in force (RiF) placements, new employees, new supervisors, managerial competency assessments, reassignments, and promotions (Brown, 2002). Therefore, we offer the following proposition:

- P3. TNA provides information on training and non-training needs that should be used for employees' professional and personal development respectively.

Managing change entails deliberate TNA, especially when new system or technology (Collis, 2001), new products, new market changes (Katsanis, 2006), new equipments or programmes, and revisited mission, laws, and regulations are introduced (Brown, 2002). The purpose of identifying training needs, while preparing for change, is to ensure that the new work processes can be introduced in an efficient manner (Chiu *et al.*, 1999). For example, in the field of sales, training managers facing different sales productivity demands should devise effective programmes to address their companies' sales training needs (*Managing Training & Development.*, 2002). Organisations involved in sales related practises and procedures are keen to get their salespersons receptive to changing sales approaches, procedures and practises (Desimone *et al.*, 2002). Sometimes, jobs are redesigned, promotions take place, or employees are placed in lieu of those who are given golden handshakes in case of downsizing. All these possibilities entail TNA of those who are asked to take up new responsibilities. Therefore, training professionals maintain that TNA is useful when jobs are upgraded and new responsibilities are likely to be assumed by the employees (Collis, 2002). Also



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in case of downsizing, TNA is essential for those who are to succeed laid off workers enabling them to be able, ready and willing to perform in accordance with the set standards of the organisation (Desimone *et al.*, 2002). Similarly, the workforce plan predicts exposures resulting from promotions, retirements, and labour turnover which further provides a demographic base for identifying current and future training needs of the human resource of the organisation (Leat and Lovell, 1997). The literature also emphasises that lessons learnt from changes in system or subsystem (Moore and Dutton, 1978; Cekada, 2010) and organisational culture (Reed and Vakola, 2006) should be used as data sources for TNA. Hence, our fourth proposal is:

- P4. TNA identifies non-training needs that should be used for managing change in the organisation. On the contrary, the lessons learnt from the change management exercise should also be used for the future TNA.

TNA is acknowledged for its contribution to career development, which has long been recognised in both organisational theory and practise (Rees *et al.*, 2005), because TNA's results reveal data that provide guidelines for employees' career development (Schneier *et al.*, 1988). While placing more emphasis, Brown (2002) maintains that career development demands for TNA, especially when new employees are accepted to work in the organisation, existing employees are promoted up the job ladder, or to deal and work with changes such as technology intervention and business expansion (Aagnaia, 1996). Therefore, a clear assessment of training needs of all employees who are involved in such processes enables an organisation with its limited resources to achieve its strategy in a suitable time. The literature also emphasises that the results of TNA are perceived to have significant implications for the future career progress (Ford and Noe, 1987), job security, and career prospects of key staff members (Clarke, 2003). Hence, we propose that:

- P5. TNA identifies training needs that should be used for employees' career development.

A set of knowledge, skills, and attitude is the most recurrent concept in the literature on TNA (see, e.g. Kirkpatrick, 1977; Moore and Dutton, 1978; Cooke, 1979; Ford and Noe, 1987; Dyer, 1994; Cheng and Dawson, 1998; Kellie, 1998; Brown, 2002; Grau-Gumbau *et al.*, 2002; Tao *et al.*, 2006; Bowman and Wilson, 2008; Cekada, 2010). Improvement of the employee's knowledge, skills, and attitude are not only fruitful for the organisation but for the development of the employee's career as well. The role of TNA is imperative because decisions relating to knowledge, skills, and attitude can be made through it (Schneier *et al.*, 1988) as it identifies the gap between what is happening in the organisation and what must happen in terms of employees' behaviours according to their knowledge, skills, and attitude. Training and development needs exist when an employee feels knowledge, skills, and attitude related deficiencies while performing an assigned task satisfactorily. The objective of TNA is to collect and evaluate information in order to determine what is currently being done and what should be done in future (Aagnaia, 1996). Based on this, our sixth proposition is:

- P6. TNA identifies training needs that should be used for improving the trainees' level of knowledge, skills, and attitude. However, the deficiencies in their knowledge, skills, and attitude should also be used as an input for the future TNA.

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The concept of trainability reveals that, among others, i.e. ability and perception of work environment, learning motivation is a crucial factor that facilitates in attaining optimum level of learning (Desimone *et al.*, 2002). Development of employees enables them to do their jobs and motivation creates willingness to perform. Hence, learning motivation of trainees has become the common issue among modern organisations which are providing training to their employees. Training professionals of these organisations should therefore, be able to respond to knowledge and skills training needs quickly, accurately, and cost effectively (Sandwith, 1993). Hence, Orpen (1999) reports and Sorenson (2002) highlights the direct relationship between motivation to learn and TNA as well as TNA-based training. Thus, training should always be planned according to needs of trainees and the organisation; otherwise outcome will be a bad training, which is worse than no training because it contributes to low morale of the employees (Chunn and Thacker, 1993). Therefore, our seventh proposition is:

- P7. TNA identifies training needs which help manage an increase in the level of trainees' motivation to learn.

Usually, senior management of an organisation avoids TNA considering it a cost (Morano, 1973), whereas in reality failure to conduct a TNA can lead to costly mistakes (Cekada, 2010) such as a total waste of training budget (Denby, 2010) and other valuable resources (Tao *et al.*, 2006). Management Training and Development (MTD) conducted an annual training management and cost control survey to assess the top cost control strategies used by training managers. Results revealed that overall "Performed TNA" was declared on top by 51 per cent respondents, being at third place in the rating of common cost control strategies (e-learning (53 per cent) and video/teleconferencing (52 per cent) took first two places respectively). Performed TNA was declared on top by 52 per cent respondents being at first place, 32 per cent at fourth place and 42 per cent at third place, in the companies employing less than 400, from 401 to 1,599, and more than 1,600 employees respectively (*Managing Training & Development*, 2005). Expenditure on TNA leads to cost effective training (Swierczek and Carmichael, 1985). Sims *et al.* (1989) communicate that if an organisation conducts training without an accurate TNA, this would lead to incurring heavy costs in the form of retraining. In the same way, TNA saves time and money along with providing high quality training (Snyder, 2004). Even it reduces the cost of human efforts as it helps avoid duplication of efforts to be put by all concerned human resource (Schneier *et al.*, 1988). Abdalla and Al-Homoud (1995) are of the view that TNA determines the gap between the current and desired performance and it is impossible for the organisation to improve competence without such knowledge. This knowledge also helps reduce training costs by placing managers on relevant programmes. Likewise, Elbadri (2001) emphasises that organisations can avoid the wastage of training investments like time, efforts, and money only by systematic identification of needs with valid assessment techniques. While communicating ways to conduct cost effective training, Sari Fried-Fiori, director of attorney development of a global law firm emphasises setting the organisation's direction by assessing its needs as a first step and then further suggests prioritising training needs (*Law Office Management & Administration Report*, 2004). TNA is a rational approach that identifies and addresses training needs in a cost effective and result oriented way (McClelland, 1993). It not only reduces the cost of training but also helps determine cost of training (Brown, 2002). DiLauro (1979)

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confirms that process of TNA is used to provide data for budgeting and scheduling purposes. There can be many reasons of avoiding TNA or performing ineffective needs assessment process. Floodgate and Nixon (1994) point out that a human resource professional sometimes avoids training needs to appear on a development plan, preferring to collect those needs separately via a structured TNA. They then give feedback to staff on how they should satisfy their needs. By allowing basic training needs to appear within a personal development document, individuals start to make up their own mind about what is the best way to satisfy their needs. This lets them solve many problems without being trained, which were otherwise planned to be solved through conduct of training. Hence it is proposed that:

- P8. TNA identifies training needs and therefore, administering training only for the identified needs makes it cost effective.

#### 4.2 Valuing the uses of TNA – antecedents

The literature apparently provides evidences for multiple uses of TNA but the question regarding valuing them is to be answered as yet. For the provision of a possible answer, we discuss two major aspects: importance being given to TNA by all its users/beneficiaries and management's interest. In addition, the use of performance appraisal results for conduct of TNA is also discussed.

Importance of TNA is obvious but how much importance needs to be given to TNA can be imagined by knowing the fact that training programmes are expected to fail due to lack of attention to the assessment/analysis phase. However, each phase of the training process is important but TNA is the most critical one because if this phase is performed successfully then the rest of the phases of a training programme will result accordingly, otherwise adverse effects on training programme are likely to be experienced (Elbadri, 2001). Kaufman (1994) emphasises that needs assessment is a powerful organisational and performance improvement tool that helps identify what is working for an organisation and what is not.

Organisations in the developed segment of the world give due importance to the use of TNA. For example, according to Ruthanne Russell, vice president of training and development, at Bright Horizons Family Solutions (a provider of employer-sponsored childcare, early education and work/life solutions), she and her staff, along with the company's human resource department, planned to devote most of the next year for TNA and formulating clear and comprehensive recommendations. Likewise, TNA was also a focal point at Mellon Financial Corp., a financial services provider. Mellon had almost 2,000 experienced managers located in offices all over the world. Deborah Guldish, corporate manager for Mellon's learning and development team was to start out the year with two major leadership initiatives: conducting TNA of global leadership competencies and using distance learning for leadership competency development (Hall, 2005). Contrarily, the case of developing countries' organisations is different. For example, a study of Kuwaiti organisations by Abdalla and Al-Homoud (1995) reveals that one-third of the organisations conduct some type of TNA, which shows lesser interest in it as compared to organisations discussed in previous examples. Likewise, a survey of Greek firms conducted by Papalexandris and Chalikias (2002) reveals that 71.4 per cent of the companies conduct TNA of their employees, which is comparatively appreciable. While studying TNA for the top populous province of Pakistan, i.e. Punjab, Ruck *et al.* (1999) emphasise that importance needs to be given to TNA for training in the

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health sector. Their study recommends the use of TNA for solution of the following problems in health sector of Punjab: lack of clarity on roles between different levels of the services; duplication of functions; decision-making structures without community representation; poor supervision; low motivation of personnel; and poor management of information and finances. They also regarded these factors as indicators of potential value of TNA. Realising the importance of TNA, especially for conduct of successful training programme is crucial because it determines the nature and scope of a training programme as a first step and then lets the trainer and the trainee put directed efforts to provide surety for success of the training programme (Sorenson, 2002). Therefore, we propose that:

- P9. Importance being given to TNA by its users and beneficiaries can contribute in making it effective.

The other real issue is management's interest in TNA as how senior and line management perceive the training function and the process used to assess training needs (Dulworth and Shea, 1995). Dolliver (1993) points out that though an essential first step is TNA but it is often overlooked because some managers consider it difficult and others think of it as costing valuable time that should be spent on problem solving without training or by means of management tactics. The literature highlights that management's mandate is found as a primary response to the investigation why companies assess employees' training needs (Elbadri, 2001). In addition, Bowers *et al.* (1998) are of the view that usually training interventions are designed on the basis of common sense instead of TNA, which reveals that senior, and/or line management at many organisations either avoid TNA, they practise it half-heartedly, or even show resistance to training (Cheng and Dawson, 1998). Abdalla and Al-Homoud (1995) reported that all government and 96 per cent of private and joint venture organisations had no specific practises or procedures for determining training needs of their managerial personnel. These results reveal that perception of senior, and/or line management plays an important role in practising true TNA. Organisations should focus their attention on analysing the possible motives of senior management for understanding the TNA. There is a need to gain more involvement and support from top management and supervisors in training processes in order to achieve the best results (Elbadri, 2001; Brown, 2002; Clarke, 2003). Thus, we propose that:

- P10. The management's interest in TNA increases its usefulness.

Performance appraisal models have one aspect in common that they aim to improve performance by identifying training and non-training interventions (Holton *et al.*, 2000). Therefore, the literature points out that if training is not particularly planned to fulfil trainees' needs (based on segregation of training and non-training needs) it will not deliver the desired results (Virmani, 2000). The process of TNA helps establish that planned training is not a cost but a necessary investment (Rees and Porter, 2004). They also emphasise that in considering the training needs of staff, risk of management's wish lists should be avoided that is potentially in conflict with individual and organisational objectives. Formal staff appraisal schemes have a number of objectives such as performance assessment and improvement, providing a basis for individual remuneration, assessing suitability for promotion and probationary review and identifying ways in which training needs can realistically be assessed. The link

between formal and informal appraisal schemes is crucial as they complement each other in improving staff performance. Informal appraisal dialogues with staff reveal their training needs, such as basic management skills and workplace counselling. Identifying competences at individual, work organisation, team and leadership levels focuses on TNA to achieve performance goals of the organisation (Horwitz, 1999). The words competence and competency are used interchangeably to mean, personal qualities that lead to outstanding performance and capability to perform every activity effectively. Competence in the context of activities of the employees engaged in management refers to the capability for performance in relation to the body of activities subsumed under the broad definition of “management task”. By convention, competence is taken as a combination of “knowledge”, “skills” and “awareness/attitude”. These terms should be given considerations to avoid ambiguities and confusions (Dingle, 1995). The above discussion develops the understanding that performance appraisal highlights individual’s competence related gray areas. Therefore, numerous studies of different types such as reviews (Moore and Dutton, 1978; Herbert and Doverspike, 1990; Cekada, 2010), conceptual (Tao *et al.*, 2006), empirical (Ford and Noe, 1987; Al-Khayyat and Elgamal, 1997; Yadapadithaya and Stewart, 2003; van Eerde *et al.*, 2008), case study (Noble, 1997; Patton and Pratt, 2002), viewpoint (Kirkpatrick, 1977; Cooke, 1979; Peters, 1994), and qualitative (O’Driscoll and Taylor, 1992; de Jong *et al.*, 1999; Bowman and Wilson, 2008) emphasise the use of performance appraisal results as a source of TNA. Thus, the final proposition is:

- P11.* Results of performance appraisal should be used as a source of TNA to make it effective.

## 5. Implications and future research

This paper provides rationale for linking TNA with nine major human resource management and development areas such as training plans, goal setting, employee development, managing change, career development, knowledge, skills, and attitude, learning motivation, cost effectiveness, and performance appraisal. This broadens the scope of TNA for practice as well as theory.

### 5.1 Practical implications

This paper highlights the diagnostic and curative roles of TNA, which broadens its scope for HR managers who can utilise it for practical solutions of varied problems at organisational, work group, and individual levels. A comprehensive TNA can help HR managers identify, and then ponder on both training and non-training issues at one point in activity. This is just like “killing two birds with one stone”.

*Training and development initiatives.* Modern organisations invest in training programmes for increase in work-based learning of their human resource because it is crucial to fit the needs of particular industries (Harmon, 2000). For achieving this objective, HR managers need to adopt a systematic approach to training, i.e. preparing purposeful training plan and using training budgets cost effectively. Our model suggests that continuous TNA can help HR/training professionals prepare purposeful training plans and utilise training budgets cost effectively. Adding more to the purposiveness, continuous TNA also helps set training objectives in line with the real needs of trainees.

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Training and development programmes focus on modification of employee attitudes, mainly to fill the will gap (Desimone *et al.*, 2002). Thus, this paper gives due importance to the issue of trainees' motivation to learn because without it overall effectiveness of the programme cannot be attained. According to our definition, competence and performance focused TNA provides useful information for managing an increase in the level of trainees' motivation to learn. Like training, other employee development activities can also be well managed if an organisation's HR department keeps itself informed of employees' needs. We suggest TNA for employees' professional development as making them fit for the future assignments helps organisation satisfy its long-range training and development needs. Similarly, a comprehensive TNA informs about career needs of the employees. Satisfying these needs helps employees plan, manage, and develop their careers. This is also beneficial for the respective organisation because the employees' development is a key source to meet the organisational expectations through means of their capabilities (Benham, 1993). Employee development programmes make human resource valuable and the moment they realise they are considered valuable for their organisation, their productivity starts increasing (Sims *et al.*, 1989).

*Non-training initiatives.* The diagnostic phase of TNA identifies both training and non-training issues. However, the curative phase separates non-training needs from training ones. The non-training needs require different responses at organisation, group and individual levels. These needs not merely confront present deficiencies but also future change. HR professionals can get benefits from highlighting non-training issues in two ways. On the one hand, they can put directed efforts for the ultimate success of a training programme, among others, which depends on eliminating non-training needs. On the other hand, for satisfying the non-training needs they can manage to take an appropriate management action. For example, if employees of an organisation are dissatisfied with the prevalent compensation policy. The identified non-training need is "pay raise". This problem can be solved by revisiting organisation's wage and administration policy, surveying the respective market's pay structure for the same job families, re-appropriation of salary budgets etc. It means identification of non-training needs helps HR managers work on the real issue instead of wasting time on trial and errors. Likewise, organisations going for mergers, acquisitions, or joint ventures had better perform a comprehensive TNA before and after the change. This will help them make sound decisions on critical issues like HR planning and downsizing.

### *5.2 Theoretical implications*

As far as theoretical developments are concerned, this paper attempts to make a significant contribution towards understanding the growing concept of TNA by expanding the long-established way of looking at it through increasing its potential effects and subsequently enhancing its purposes and uses for both training and non-training initiatives. Valuing uses of TNA not only contributes to training but also helps bundle TNA with other human resource activities viz. training plans, goal setting, employee development, managing change, career development, knowledge, skills, and attitude, learning motivation, cost effective training, and performance appraisal. We hope that the research model proposed in this paper will contribute for further development of an integrated framework of utilisation criteria for effectiveness of TNA.

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### 5.3 Future research

Objective of this paper was to present a systematic review of the relevant literature on the growing concept of TNA and its multiple uses that manifestly seems achieved. However, keeping in view the apparent caution which exists regarding multiple uses of TNA, empirical evidence on “what is” and “what should be” regarding uses of TNA discussed in this paper, in different sets of organisations, is yet to be provided. Moreover, this paper just triggers thinking process to be deployed for expanding the application area of TNA, but future research needs to be carried out to bring out a structured framework revealing a comprehensive view of TNA’s backward and forward linkages with other operational and strategic human resource and overall business activities.

Last but not the least, this paper attempted to present the expanded view of TNA by proposing its links with nine major human resource management and development activities, which was one dimension. However, we realise that future research needs to be carried out on the other dimension. Within TNA, expansions can take place if we answer the journalistic six on TNA, i.e. what, when, where, who, why, and how related aspects. The suggested future research would not only strengthen the growing concept of TNA theorised in this paper but it would also ensue expanded view of TNA itself, for example, with regard to TNA inputs and TNA products/outcomes (what), TNA timeline, i.e. immediate versus long-range TNA (when), TNA situate, i.e. in-house conduct of TNA versus outsourcing (where), knowledge, skills, and attitude specific TNA (why), TNA decision makers (who), and TNA mechanisms/methodologies (how). Thus, the horizontal integration among above areas is assumed to increase the usefulness of TNA.

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