

Needs Assessment and Analysis: Tools for Change

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Abstract. The purposes and processes associated with needs assessment, needs analysis, and other front-end activities are discussed. The author notes that the literature presents inconsistent views regarding the purposes of available processes. An organizational model is then presented and used as a basis for categorizing the purposes and utility of assessment and analysis activities. The author distinguishes various kinds of front-end activities from one another and concludes that "holistic needs assessment" is an essential tool for producing meaningful change and achieving lasting organizational success.

Most everyone agrees that needs assessment and associated analysis activities should be completed at the beginning of any contemplated instructional development effort (*cf.* Andrews & Goodson, 1980; Rossett, 1982). However, extant definitions of assessment and analysis activities are inconsistent (Jonassen & Hannum, 1986; Kaufman, 1982, 1986; Rossett, 1982, 1986).

Is it crucial to distinguish among needs assessment and analysis processes? Some say no, arguing that the central goal of front-end activities is to gather information which will reveal optimal solutions to performance problems (Harmon, 1982; Rossett, 1982, 1986). In contrast, others press for clarification of the operational defi-

nitions of various front-end processes. Such clarification, it is proposed, serves to distinguish the purposes of possible front-end processes and enables one to select and complete processes which are appropriate for the targetted planning level (Kaufman, 1982, 1983, 1986).

The divergent views regarding the purposes of front-end processes and the usefulness of differentiating among them imply an important question: Should the scope of front-end activities be limited to solving performance problems, or should one also be prepared to take a larger view of the world in order to conduct an *a priori* assessment of the long-range utility and worth of addressing a given performance discrepancy? Kaufman (1983) suggests that "An over-arching framework which considers and integrates available models, tools, and techniques will be useful for assuring the effectiveness and efficiency of organizational improvement attempts" (p. 3). Kaufman's view is sound. However, be-

fore the suggested integration can occur, further clarification of what various front-end processes entail is required.

Clarification of the purposes and operational definitions of front-end activities will improve our ability to choose and correctly apply them, to communicate our intentions to others, and to move toward synthesis of organizational planning and instructional development models. My purpose here is to contribute to such clarification.

The present discussion, then, considers the purposes and processes associated with holistic needs assessment (Kaufman, 1983) and other front-end activities such as needs analysis, front-end analysis, and task analysis. Linkages between the processes and a conceptual organizational model are presented in an effort to clarify how various processes relate to possible levels of organizational planning. Finally, the optimal context for use of each process is suggested.

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Needs Assessment: A State of Confusion?

A common assumption is that needs assessment is prerequisite to development of training. Thus, needs assessment has been variously defined as a means of specifying training requirements (Swierczek & Carmichael, 1985), as a means of determining required skills and knowledge necessary for mastery performance (Deden-Parker, 1980; Harmon, 1982) and as a means of obtaining opinions, ideas, facts, and feelings about a given performance problem (Rossett, 1985). In contrast, others hold that needs assessment may be applied more broadly as a macro-level planning tool used to assess total organizational contributions to society or clients prior to follow-up analysis of related micro-level problems such as deficient performance (Kaufman, 1982, 1983; Kaufman & Stone, 1983; Kimpston & Stockton, 1979; Witkin, 1984).

Because existing definitions of needs assessment incorporate diverse frames of reference, confusion results. A definitive frame of reference would allow for more precise specification of the meaning of needs assessment.

The Organizational Elements Model

The Organizational Elements Model (OEM) (Kaufman, 1982, 1983; Kaufman & Stone, 1983) provides a holistic, conceptual overview of organizational resources, activities, accomplishments, and contributions. Clarifying the relationships between means (such as resources and work activities) and end results, the OEM provides a consistent frame of reference for relating needs assessment, analysis processes, management, training, and other interventions (Kaufman, 1983; Kaufman & Stone, 1983; Sample & Kaufman, 1986).

The OEM framework consists of the following five primary components:

- *Inputs* are the existing starting conditions affecting organizational activities. Inputs include physical resources, goals and objectives, laws and policies, and human resources.

- *Processes* are methods of implementing and managing inputs. Also,

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any job function or activity may be classified as a process.

- *Products* include the internal, enroute results accomplished through application of inputs and processes. Examples include finished components (e.g., fenders or circuit boards) which are subsequently integrated with other products to form outputs (e.g., automobiles or microcomputers).

- *Outputs* include the services, goods, and aggregated products that an organization delivers to external clients or society.

- *Outcomes* are the impact on clients or society resulting from delivery of outputs. Outcomes are grounded in quality-of-life factors and individuals' relative levels of self-sufficiency.

The OEM clarifies organizational structure and purpose, illustrates the causal relationships among organizational components, and classifies the components from a holistic perspective. Means include inputs and processes. Internal organizational results are classified as products and outputs. Outcomes, which represent results external to the organization, are the societal or client-based impact resulting from internal organizational efforts. The distinctions inherent in the OEM establish a basis for defining need and needs assessment.

What Is Needs Assessment?

A need may be defined as a gap between current and desired results. Needs assessment identifies what is and what should be in terms of results and prioritizes the gaps (Kaufman,

1983). Results, as specified in the OEM, include products, outputs, and outcomes. By identifying gaps in outcomes at the beginning of the planning process, one can link instruction and other possible means to the attainment of worthy, long-range results. Kaufman and Stone (1983) provide numerous examples of documented needs for each level of results.

Needs assessments, then, may be conducted from one of two primary perspectives:

1. a holistic, externally oriented perspective that looks beyond the organization to consider the outcomes of organizational results (Kaufman, 1977).

2. an internal perspective which accepts the appropriateness of organizational goals and objectives and considers gaps at the product and output levels only.

Holistic needs assessment can be operationally defined as a process including the following major steps: (1) obtaining the commitment and input (i.e., perception data) of representative planning partners; (2) obtaining relevant performance data; (3) analyzing all data; and (4), listing and reconciling differences between current and desired results or outcomes, prioritizing the gaps, and selecting which gaps to close. The steps required to conduct a holistic needs assessment have been explicated by Kaufman and Stone (1983) and Kaufman (1986) and are summarized in Table 1.

Two types of quasi-needs assessments which identify gaps in organizational processes and inputs (means) are

Table 1

Essential Steps in Needs Assessment

1. Decide to plan using needs assessment data.
2. Select planning level.
3. Identify planning partners.
4. Arrange participation of partners and schedule meetings.
5. Explain OEM and possible needs assessment levels.
6. Obtain acceptance of needs assessment and planning level.
7. Determine gaps to investigate, specify data collection requirements, collect data.
8. Present findings, list documented gaps, complete needs assessment matrix.
9. Discuss, reconcile, and prioritize gaps and derive consensus.
10. List agreed-upon gaps to address.

Derived from Kaufman and Stone (1983) and Kaufman (1986).

also possible. Quasi-needs assessments are likely to be most useful when they are conducted to ascertain input and process gaps which have been previously linked to documented gaps in results. Needs assessment may be most useful when it utilizes a holistic perspective and focuses first on external organizational results—outcomes. Assessments at other levels can also be useful, depending on the context and purpose of the assessment and the assumptions made about the data that are obtained or collected (Kaufman, 1986; Witkin, 1984).

Outcome Indicators

The exact outcomes resulting from delivery of outputs may vary, depending on the organization. For instance, a desirable outcome for a hospital is the return of a patient to good health and full functioning. A desirable outcome for a school is to enable students to attain or exceed self-sufficiency as productive members of society. An outcome for an airline is to transport an individual from one place to another safely, on schedule, with minimal stress, and at acceptable cost.

While the specific outcomes resulting from delivery of outputs vary among organizations, all outcomes ultimately affect people's abilities to be self-sufficient. Thus, one possible mea-

sure of organizational success is the extent to which an organization promotes self-sufficiency in members of society.

Self-sufficiency may be defined as the point at which a person is producing as much or more than he or she is consuming, i.e., production ≥ consumption (Kaufman & Stone, 1983). Indicators of a person's relative degree

of self-sufficiency include such consequences as employment, financial autonomy, lack of criminal activity, and good credit status.

The holistic approach to needs assessment espoused by Kaufman and others has been criticized as being impractical and excessively difficult to operationalize. This is puzzling since numerous real-world illustrations of using the OEM as a basis for planning have been presented (Kaufman & Stone, 1983). Nonetheless, further specification of outcomes may contribute to the utility of the OEM as a planning framework.

Organizations affect people in at least one of four ways: economically, psychologically, physically, and socio-politically. Examples of these possible categories of "outcome indicators" are presented in Table 2. They are presented as possible bases for measuring organizational outcomes.

Needs Analysis

Needs analysis is another process which has been tagged with a variety of definitions. A common view is that needs analysis determines organizational goals and perceived problem areas; considers performance dis-

Table 2

Some Self-Sufficiency Indicators

Category	Indicator
Economic	Degree of dependency on others for financial support Extent of savings, investments, and real property Extent of credit, credit standing
Psychological	Extent of addictive relationships Self-image, state of mental health
Physical	Degree of fitness, state of physical well-being Extent of use of addictive substances
Socio-political	Extent to which in care or custody of police or governmental agency Extent of involvement with governmental rules, policies, and restrictions Extent of governmental fines/support

crepancies which hinder attainment of goals; analyzes related job requirements; and assesses existing skills and attitudes of potential trainees in order to derive training requirements. This multi-level "top down" approach was originally presented by McGehee and Thayer (1961) with various phases labelled as organizational, operational, and "man" analyses.

During preliminary organizational analysis, goal attainment is investigated and "organizational climate," senior management's concerns, and current human resources are assessed. During operations analysis, performance discrepancies are described in quantitative and behaviorally specific terms (Zemke & Kramlinger, 1982). During person analysis, existing performance and requirements for improving deficient performance are assessed. This phase is likely to entail testing and performance observation. Collected performance data may be used later when evaluating the effectiveness of the selected intervention (Michalak & Yager, 1979). Moore and Dutton (1978) later based their review of training needs analysis literature on McGehee and Thayer's analytic framework and presented substantive lists of data sources and data collection instruments appropriate for use in the various phases.

Zemke and Kramlinger (1982) also present a multi-level needs analysis model which uses the McGehee and Thayer model as its foundation. In applying this model, one would seek to answer key questions, such as the following: How does current performance impact attainment of organizational goals? In light of organizational goals, which performance discrepancies have the biggest effects? What does an optimally performing person or unit look like? How do the contingencies of reward, punishment, feedback, and other supports affect individuals in the performance environment? This conception of needs analysis articulates important questions regarding internal organizational results and associated processes.

The needs analysis model originally presented by McGehee and Thayer (1961) has been widely cited and utilized in both its original and expanded forms and provides a pragmatic framework for conducting "top-down," internal organizational and

performance discrepancy analyses of problems perceived by management (Deden-Parker, 1980; Moore & Dutton, 1978; Scott and Deadrick, 1982; Zemke & Kramlinger, 1982). Needs analysis usually assumes the worthiness of existing organizational goals. It cannot logically occur prior to needs assessment, since the subject and unit of analysis must be determined before analysis may occur. It is useful to the extent that it reveals solutions to performance problems which are linked to gaps in results, especially those at the outcome level.

Front-End Analysis

Front-end analysis (FEA) provides the means for determining causes of performance problems and considering multiple, possible solutions. It is closely related to and often incorporated in needs analysis.

The expression "front-end analysis" is attributed to Joe Harless (1975). He proposes that FEA should reveal answers to the following questions: "What are the symptoms and indicators that a problem exists? What are the performance deficiencies indicated by data? What is the performance problem? What is the relative value of solving that problem?" (p. 29).

Assuming that solving a given problem holds relatively high potential value, Harless recommends investigating all possible (not just probable) causes of the problem. He proposes that performance gaps result from lack of skills and knowledge, practical en-

vironmental impediments, or insufficient motivation. The nature of the causes of the problem dictates the solutions.

Romiszowski (1981), concurring with Harless and building on the important work of Mager and Pipe (1970), suggests that possible causes of deficient performance include insufficient skills or knowledge, boredom, inadequate feedback, rewarding or socially reinforcing undesired behavior, or punishing desired behavior. As Harmon (1982) notes, front-end analysis "... will often indicate that changes in physical aspects of the work, the feedback-consequence system, or in supervision will improve performance" (pp. 8-9).

Determining the cause of a performance discrepancy allows one to pursue the appropriate solution. Possible solutions other than training include altering personnel selection criteria, improving supervision, redesigning the job, modifying work conditions, or improving information exchange (Romiszowski, 1981). Providing job aids is often another means of improving job performance.

Successful FEA reveals why actual performance is inconsistent with desired performance, reveals the means by which performance may be improved, and assesses the financial viability of implementing the solution. FEA focuses on internal organizational processes, not on results. Like needs analysis, front-end analysis may be most fruitfully applied when deficient performance is linked to a gap in results, especially at the outcome level.

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Job Analysis

Job analysis has been defined as "... a process by which jobs are subdivided into elements, such as tasks, through the application of a formalized, systematic procedure for data collection, analysis, and synthesis" (McCormick, 1976, cited in Levine, Ash, Hall, & Sistrunk, 1983, p. 339). Regardless of which job analysis technique is applied, the purpose of such analysis is to produce a validated list of job tasks and to document associated tools, conditions, cues, and standards. Job analysis specifies work activities and can reveal gaps in processes or quasi-needs. Job analysis should not be equated with needs assessment, since it does not lead to determination of gaps in results.

One clear advantage of conducting a job analysis is that it tends to ensure that instruction which is developed includes relevant, job-related tasks and accounts for on-the-job conditions. Job analysis also has utility for designing criterion measures which may be used for purposes of personnel selection,

Job analysis should not be equated with needs assessment.

advancement tests, and monitoring the relative adequacy of ongoing job performance. Job analysis may be most useful when it is applied to improve performances that are linked to gaps in results and to attainment of worthy outcomes. Table 3 illustrates the purposes of external, internal, and quasi-needs assessments, needs analysis, front-end analysis, job analysis, and learning analysis relative to the Organizational Elements Model.

Learning Task Analysis

Learning task analysis is an instructional development procedure that occurs after a performance problem has been investigated and instruction has been identified as a viable solution. Assuming that a problem is susceptible to a training solution and that performance requirements are known, learning task analysis should be conducted to determine "... the prerequisites of

Table 3

Relationships of Assessment & Analysis Activities to the OEM

Organizational Element	Activity	Purpose
OUTCOMES	External Needs Assessment	Identify gaps in societal/client impact
OUTPUTS	Internal Needs Assessment	Identify gaps in deliverable goods and services
	Needs Analysis	Identify causes of perceived or documented gaps in delivered goods and services
PRODUCTS	Internal Needs Assessment	Identify gaps in en-route results
	Needs Analysis & Front-End Analysis	Identify causes of perceived or documented gaps in en-route results
PROCESSES	Quasi-Needs Assessment	Identify performance gaps
	Needs Analysis & Front-End Analysis	Determine causes and solutions of performance problems
	Job Analysis	Document job tasks
	Learning Analysis	Specify prerequisite skills/knowledge required for performance
INPUTS	Quasi-Needs Assessment	Identify gaps in laws, policies, physical and human resources
	Front-End Analysis	Determine how laws, policies, and work environment affect performance

what is to be learned" (Gagne & Briggs, 1979, p. 105).

Learning analysis entails classifying tasks into one of five categories of learning results: cognitive strategies, intellectual skills, verbal information, motor skills, and attitudes. In addition, procedural components for each task must be analyzed to determine prerequisite skills and knowledge (Gagne, 1985). Once these are determined, instruction can be designed so as to produce the internal conditions in learners required to facilitate attainment of the desired learning results. In training contexts, the utility of instructional analysis techniques presented by Gagne and Briggs (1979), Gagne (1985), Briggs and Wager (1981) and others hinges on whether improving job performance through training will promote attainment of desirable outcomes.

Conclusion

Simplistic or short-sighted approaches are not likely to contribute significantly to true or enduring organizational success or to bring about deep change (Kaufman & English, 1979). The linkage of the Organizational Elements Model with needs assessment and other analysis activities provides the means for attaining meaningful results and establishes a basis for evaluation. By viewing an organization from a holistic perspective, we can consider why an organization exists and

plan how to improve people's lives through meaningful, well-considered interventions.

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