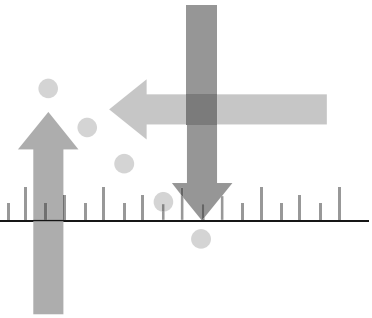


SECTION 3

Needs Assessment: Tools and Techniques

Introduction

Though needs assessments are akin to many other organizational processes from a project management perspective, the characteristics that make needs assessments unique (such as guiding decisions before they are made and focusing on results rather than on solutions) are those that also require a distinctive set of tools and techniques. Although many of the tools you use are not exclusive to a needs assessment—with many being borrowed from scientific research, evaluation, and other disciplines—their application in assessment projects often uses a slightly different perspective from how you may have encountered them before.

In section 3, we have identified 23 tools and techniques that are often applied at varying stages of a needs assessment. The approaches do not represent all of the tools that you might find useful, but rather they are a sample that we believe can expand your options and improve the quality of assessment projects. Rarely would any organization's decision-making culture support the use of each and every technique we describe, though most would benefit from trying tools beyond simple surveys or interviews.

We have broken the tools into two parts for different purposes in the needs assessment process. *Part 3A. Data Collection Tools and Techniques*

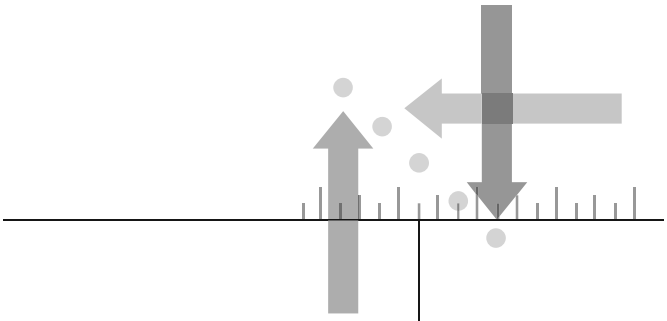
provides options for you to consider using when you are collecting data to inform your needs assessment. But after you have collected information for the needs assessment, another important step involves making decisions about that collected information. And there are tools to support the decision-making process.

Part 3B. Decision-Making Tools and Techniques offers suggested tools for analyzing and prioritizing issues in the needs assessment process and for ultimately deciding to take action. Prioritizing information and making choices can be a difficult task for both individuals and groups. Instead of making decisions through an informal, ad hoc process, tools are available that can be helpful in ensuring that issues are given due consideration in a participatory decision-making process.

For each tool and technique described in this section, we have applied a needs assessment perspective to its application. That is, we have viewed it from the standpoint of how it is best used to identify and analyze needs so you can make decisions about what to do. In several cases, this perspective required simplifying the tools as they are applied for other reasons, as well as adding new "twists" in other cases to ensure that the goals of your needs assessment can be met. In all cases, our descriptions are intended to introduce tools and techniques rather than provide "the definitive explanation" on how they are to be used. Therefore, at the end of each description, we have included websites, books, and articles that can further guide your use of each tool.

Try a few of them; see how it goes. Learn more about the ones you are most interested in. Build a variety of techniques and tools into your assessment plan. Customize the tools for your organizational context. In the end, you will likely find that a number of tools can improve the quality of assessment projects and the subsequent decision making. Keep those tools, use them again, and improve on them.

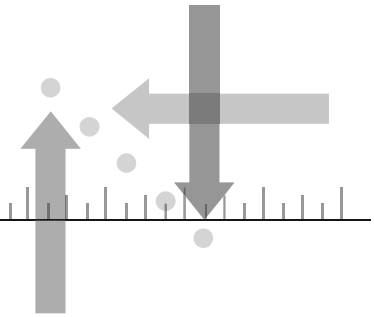
Note: For the convenience of our readers, copies of the individual tools are available and can be downloaded as single PDF files at http://www.needsassessment.org.



Part 3A

DATA COLLECTION TOOLS AND TECHNIQUES

Part 3A. Data Collection Tools and Techniques provides options for your consideration as you collect data for your needs assessment. After you have collected information for that assessment, you must consider another important step that involves making decisions about your collected data. There are also tools to support the decision-making process. We will explore those tools in *Part 3B. Decision-Making Tools and Techniques*.



DOCUMENT OR DATA REVIEW

Purpose

The purpose of conducting a document or data review is to review a variety of existing sources (for example, documents, reports, data files, and other written artifacts) with the intention of collecting independently verifiable data and information.

Needs Assessment Applications

Many times the information required to complete a needs assessment has already been collected for other purposes. For example, similar data to what you are looking for may have been previously collected for generating other reports, papers, or research. Ministries, government agencies, nongovernmental organizations (NGOs), and other organizations often collect and/or produce the valuable data or reports that can supplement your own data collection as part of your needs assessment. The document and data review process provides you with a systematic procedure for identifying, analyzing, and deriving useful information from the existing documents so you can make informed decisions.

Today, many government agencies, multilateral institutions, and other organizations are making documents and data sets available to the public (see box 3A.1). In 2011, the World Bank, for instance, expanded its access to information policies, thereby making many of its databases and project reports available on its public website. What is available varies widely, ranging from, for example, (a) planning documents related to small development projects in Africa, to (b) evaluation reports on a country's progress toward achieving the Millennium Development Goals, to (c) global information system maps showing crime hot spots in a city, to (d) health sector indicators for a particular nation.

Box 3A.1 Source Samples

Sample Sources for Documents

- World Bank project reports (including monitoring and evaluation reports) are available at http://go.worldbank.org/0FRO32VEI0.
- United Nations Development Programme reports can be found at http://www.undp.org/publications/.
- Publications from the Center for Global Development are at http://www.cgdev.org/section/publications.
- Country-level progress reports on the Millennium Development Goals can be found at http://mdgs.un.org.

Sample Sources for Databases

- Finance and project data from a number of development institutions are integrated at http://www.aiddata.org.
- Data and data sets from a vast array of U.S. government projects are now available at http://www.data.gov.
- World Bank data sets are available at http://data.worldbank.org/.
- United Nations databases are largely available through http://data.un.org/.
- The Organisation for Economic Co-operation and Development also provides data resources at http://stats.oecd.org/.

Access to information is, nevertheless, an essential starting place for any document review process. Look broadly for resources that already have the data you require to make decisions. Such resources can save you lots of time and money.

In the context of international development, the documents and data available are heavily biased toward the English language, as well as toward those with ready access to the Internet and basic skills to navigate the databases. Nevertheless, such initiatives are a start toward putting useful information in the hands of the public across the globe. We expect that this trend will grow with governments and organizations that are investing in establishing policies and information systems toward that end.

Advantages and Disadvantages

Advantages

- The information contained in extant data or documents is often independently verifiable.

- The document or data review process can be done independently and without having to solicit extensive input from other sources.
- A document or data review is typically less expensive than collecting the data on your own.

Disadvantages

- Information in the documents or data may represent a perspective that is not aligned with your needs assessment project. For example, the perspective of government reports may not be aligned with those of development organizations.
- Data in the document sources may not be exactly what you want for your needs assessment. For instance, you may want environmental records by village but extant records may document only by province.
- Obtaining and analyzing necessary documents can be a time-consuming process.
- You will not be able to control the quality of data being collected and must rely on the information provided in the documents as you assess quality and usability of the sources.

Process Overview

1. From a list of information required to complete your needs assessment, identify those elements or indicators that may be contained in previously written reports, planning papers, research synopses, or other documents. For instance, if you require statistics on the population growth within a region, then identify several government (or potentially United Nations) reports that provide the necessary information. Both published and unpublished sources can be considered for inclusion, though the validity of unpublished materials can make your quality assurance efforts more difficult.
2. Consider developing a list of characteristics (or attributes) that you are looking for in an existing record; that approach can help you identify a comprehensive list of available resources. For example, (a) do you want to use only data that were collected through internationally funded efforts, or (b) do you want only information that has been published with full disclosure of the participants and of the methods used to collect the

data, or (c) do you want only records from the past 10 years, or (d) do you need a combination of those elements?

3. For each item of required information that could potentially be found in an existing document, list three to five potential resources for obtaining that information. For instance, imagine that your needs assessment requires information on the number of current employees within a government agency who have the qualifications to perform financial audits. In this case, you want to determine which currently available agency documents or data monitoring systems may include such information, where those documents might be located, and from whom the documents can be obtained.
4. Identify the individual(s) who will be invited to participate in the document review. Most often, you want to invite at least two people to review each document, and you can also be a reviewer when appropriate. Having two or more reviewers improves the reliability of the reviews and gives you the opportunity to compare across reviews.
5. Develop a document or data review protocol, checklist, or examination form that can be used systematically by each reviewer to ensure that valuable information is identified, analyzed, coded, and documented. Be sure to include space at the top of each protocol, checklist, or examination form for the reviewer to describe the document and to state where it is stored if additional information is required later. As appropriate in the protocol, you should ensure that required information regarding both the current results and the desired results will be represented, along with the required information at each level of the program or project results chain.
6. Generate guidelines for using the protocol or checklist or the examination form in the review process. Consider providing a "positive example" of a completed review protocol, checklist, or examination form. Be sure to highlight how information can be recorded on the form to maximize its clarity and usability in the needs assessment process.
7. As each document or data set is reviewed, have the reviewer(s) complete the protocol, checklist, or examination form to verify that all useful information is documented.
8. When all of the relevant files have been reviewed, have all reviewers meet to collectively document the findings of their reviews (or what information has been collected through the document review process). In particular, the reviewers should identify specific instances where informa-

tion from different documents may disagree, where there are instances of multiple documents containing similar information, where additional information may be located, and what information may have to be collected directly through the needs assessment.

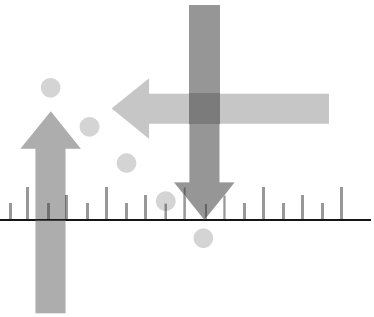
9. Collect the reviewers' documented findings from the review process, and codify the findings for inclusion in the needs assessment. Identify any conclusions regarding needs, root causes, and recommendations for addressing identified needs.

Tips for Success

- Be systematic in your review processes. From identifying potential documents and developing a review protocol to collectively reviewing the information attained through the review of multiple documents, systematic processes should ensure that valuable information is not missed during the review.
- Triangulate data to the extent possible. In other words, when the document review yields data or information that may directly feed into the needs assessment, attempt to locate the confirmatory data or information by examining other independent sources. If the data or information can be triangulated, it can increase your confidence in its accuracy.
- When multiple reviewers are tasked with the role of reviewing document sources, provide clear and consistent guidelines to all reviewers on the procedures for completing the protocol, checklist, or examination form. Ensuring that all reviewers receive the same guidelines for the protocol, checklist, or examination form will make certain that the information is identified, analyzed, coded, and documented in a consistent and reliable manner.

Reference

Witkin, Belle Ruth, and James W. Altschuld. 1995. *Planning and Conducting Needs Assessments: A Practical Guide*. Thousand Oaks, CA: Sage Publications.



GUIDED EXPERT REVIEWS

Purpose

The purpose of conducting guided expert reviews is to gain informed perspectives from valued experts who are outside the system (for example, education system, transportation system, and so on) on which the needs assessment is focused.

Needs Assessment Applications

Under certain circumstances, you or others associated with the needs assessment can be too familiar (or too unfamiliar) with the processes, procedures, people, tools, resources, performance data, or other variables that influence either current or desired performance to be able to adequately complete a needs assessment. In this situation, reviews by experts (for example, public financial management experts, environmental engineers, organizational development specialists, and so on) provide valuable external perspectives that can inform your decisions.

You should also use expert reviews to provide balanced perspectives when there are even minimal possibilities of internal predisposition or bias that could influence any needs assessment processes or stages. The expert reviews may include collecting data, analyzing information, reporting findings, and conducting other activities that lead to program or project recommendations.

In your needs assessments, guided expert reviews can provide external perspectives on the following:

- Needs (that is, the performance gaps that are the focus of decisions to be made)

- Decisions (that is, the results and recommendations of the assessment itself)

Advantages and Disadvantages

Advantages

- Expert reviews allow you to have a fresh set of eyes that can provide new ideas and insights that might not have come about without the expert's participation.
- The involvement of expert reviewers in the needs assessment process can increase the credibility of the assessment process and findings, thereby potentially increasing stakeholder buy-in.
- The use of expert reviews may allow you to pursue strategies and approaches that make inherent sense for the context in which you may be working but that you might not normally pursue if you did not have the assurance of the expert's careful review.
- Because experts generally bring insights and experiences from other (outside) contexts in which they have worked, the involvement of an expert in the needs assessment may make it possible for you to formally or informally benchmark against other, similar systems or contexts.
- Expert reviews, especially those focused on documents or data files, can often be done at a distance, thereby saving time and resources. For example, you may want expert review performance data to confirm your conclusions, or you may request a review of a pending project proposal; in either case, you could likely e-mail the relevant files or provide access to online databases.

Disadvantages

- It can be a challenge to identify reliable criteria (such as years of development experience, particular technology knowledge, work with specific at-risk populations, and so forth) for selecting experts to involve in the expert review process.
- If the context in which the needs assessment is being conducted is significantly different from the one in which the expert normally works, the extent to which the expert's observations and recommendations are relevant can be diminished.

- As is the case for any other individual, an expert's subjectivity and prior experience may affect the outcome of the expert review process (the effect of this expertise can potentially be mitigated somewhat through the involvement of more than one expert).
- Soliciting insight from experts can be expensive, and it may be difficult to find experts who are able to contribute large amounts of time responding (particularly if the area of expertise is one for which there is high demand).

Process Overview

Getting Started

1. Identify either a need (a gap between current and desired results) or a needs assessment decision (such as prioritizing needs or determining which mix of improvement activities or interventions will work best within your organization) that will be the focus of the guided expert review.
2. Determine what type of expert review you would like the expert to conduct, such as a peer, relevance, or benchmarking review. (a) A *peer review* involves judging the quality of something. For instance, a peer review could involve engaging a public-private sector development expert to assess the quality of a plan developed by a community and its business leaders to help them to address economic development issues for the community. (b) A *relevance review* judges whether an organization's activities are relevant to its mission. An example of a relevance review is when an organizational development specialist works with an organization and engages its stakeholders—management, employees, clients, and others—to understand the strategy of the organization and when the specialist offers an assessment on what could be changed, such as what activities the organization should and should not be doing to meet the goals of the strategy. (c) A *benchmarking review* involves judging the relative standing in an international, regional, sector, or other perspective. For instance, benchmarking reviews assess property rights across countries, thus allowing countries to compare their relative performance.

Finding Experts

Following are some considerations that are relevant when bringing experts on board for an expert review:

1. Generate a protocol (guide) for identifying appropriate experts to invite for the expert review process.
    - This protocol should be based on your understanding of the goals of your needs assessment, as well as the specific context in which the organization functions.
    - Carefully identify the skills and knowledge that someone should possess to be able to meaningfully function as an expert reviewer for the needs assessment, and include those competencies in the protocol.
    - Apply the protocol as you search for potential experts.
2. Identify potential experts from *outside* the system to participate in the review.
    - Experts can be from within the organization (but outside of the unit or division that is the focus of the needs assessment).
    - Or they can be from outside the organization when they have expertise with the performance system or similar such systems.
3. Determine whether you would like experts to be invited as individuals or as teams.
4. Determine whether you would like local or international experts or a combination of both. Consider carefully the benefits and drawbacks of involving experts from other countries. Example benefits and drawbacks include the following:
    - An advantage of involving international experts may be that they bring dynamic new insights to the situation and that they are able to size up the organization's relative standing from an international perspective.
    - A drawback may be that the international expert's ability to leverage his or her expertise may be limited if that expert has no familiarity with the local country context.
    - In some developing country contexts, there may be relatively modest capacity in certain areas of economic productivity, and it may thus be advisable to invite international experts to participate.
    - In many instances, using both local and international experts may provide a mix of the "best of both worlds."
5. As you begin to invite experts, find out about their availability during the time period for the expert review. Because they *are* experts, it is likely

that they are in demand elsewhere too, so you may have to do some creative planning to work around scheduling restrictions while still meeting the goals of an expert review. For instance, if a given expert is not available to come onsite, determine if he or she can review other documentation and reports to give you quality input at a distance (for example, using audio or video conferences).

6. Present the potential experts with unbiased background information on the purpose of their involvement in the needs assessment, and ask each potential expert to evaluate his or her experience and knowledge relative to the specific goals for your needs assessment.

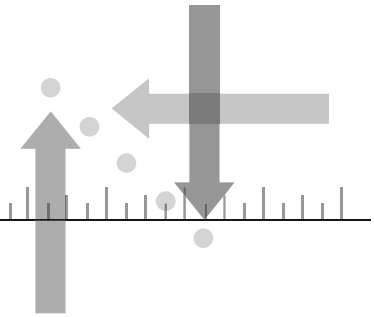
Planning and Conducting the Expert Review

1. Define your objectives for the expert review (or what results you expect to accomplish by the time the review is complete). Be realistic about what objectives can be accomplished. Determine when it is appropriate to use each expert, knowing what they can and cannot do given the constraints of the situation.
2. Generate terms of reference (that is, a scope of work) that can be used by experts prior to arriving on site. Doing so will allow experts to arrive prepared for the task, including giving them time to locate any hard-to-find materials that they may want to consult during the review process.
3. Contact each expert reviewer, and make arrangements for his or her participation. As noted previously, if one or more experts are not available for in-person participation, make arrangements to send relevant documentation that will allow the expert(s) to contribute at a distance.
4. Inform stakeholders and participants of the role of expert reviewer(s).
5. Consider providing metrics or protocols that the experts can use during the expert review. Such metrics or protocols can be valuable in increasing the objectivity and transparency of an expert review process, and they can also increase the chances that the expert review results are aligned with the objectives you defined at the beginning of the process.
6. Collect the necessary background information for each expert reviewer. This information may be valuable later if you have to justify decisions made during the needs assessment.
7. Be sure to include specific deliverables for each reviewer and for each context in which the review is to take place. For instance, do you expect a

written report at the conclusion of each review, or will reviewers be expected to present their findings during a presentation?

Tips for Success

- Develop and maintain a list or inventory of program review experts (especially for larger-scale efforts) to be used for subsequent expert review needs.
- Arrange logistics and provide onsite meeting support. Provide translation and interpretation services, as needed, when engaging international experts.
- Provide experts with specific guidelines or questions that should be used to guide the expert review process.
- Watch out for experts who may have an agenda of their own in completing the review (for example, making recommendations so they can gain future consulting contracts with your organization).
- If you are inviting experts from outside contexts, equip them with some information that will give them insight into the context in which the expert review will take place. This approach is especially important if experts are being invited from foreign countries where cultural and business practices may be significantly different from the context in which your needs assessment is being conducted.
- To the extent possible, schedule the onsite expert's review process during a time when the organization is otherwise functioning in a generally normal way. Scheduling the review process at this time increases the chances that the review will yield relevant results, and it also ensures that others in the organization are not negatively affected by the presence of outside experts.
- Prepare reports on the results of each review. In the reports, identify the relationship of the expert's review to the needs assessment, the goal of the specific expert review, the competencies or expertise of the expert or expert team, the type of expert review conducted, the findings from the expert review, and the potential implications of the findings for the needs assessment.



MANAGEMENT OF FOCUS GROUPS

Purpose

The purpose of conducting focus groups is to collect information from a small group (for instance, 5 to 12 participants) in a systematic and structured format (see box 3A.2). An effective focus group is designed around a clear and specific goal. Participants interact with a facilitator who presents the participants with questions designed to yield insight into current or desired results in relation to a specific topic or issue.

Needs Assessment Applications

Attaining the information required to complete a needs assessment will oftentimes require that you interview (or have a focused discussion with) a number of people at the same time. The focus group is an opportunity to gain valuable information related to both current results and desired results at each level of the program or project results chain.

Although focus groups can also be used to identify alternative activities to improve performance, during your needs assessment it is important to

Box 3A.2 Sample Uses of Focus Groups

- Collect information on current performance.
- Validate the results of a survey.
- Define the desired results.
- Identify potential solutions.
- Define strengths and weaknesses of potential solutions.

maintain attention (focus) on the collection of information that will help you identify (a) valid needs (or gaps between current and desired results), (b) evidence to support the validation of those needs, and (c) information that will allow you to prioritize needs before selecting a course of action for addressing the high-priority needs.

Advantages and Disadvantages

Advantages

- Through a focus group format, multiple people can be interviewed at one time.
- Focus group discussions allow members of the focus group to build on each other's comments and reactions. This approach can yield a synergy of discussion around topics or themes.
- Focus groups can help people come to consensus and make challenging decisions (such as prioritizing needs).

Disadvantages

- Group members may not contribute equally to the discussion in a focus group format. More reserved members may not feel comfortable inserting their contributions in the discussion. Other participants may try to dominate discussions.
- Gaining information from the group can be challenging. There is a risk of "groupthink" that can emerge through this process, thus diverting the discussion and making it hard to refocus the group on different issues.
- Discussions may take too long to cover all of the relevant topics and to offer everyone a chance to participate.
- Because of the presence of others, participants may not feel comfortable sharing more sensitive information or views.
- Focus groups are often poorly done, particularly if the focus group facilitator is not experienced in managing focus groups. Focus groups can easily get "off task" if the facilitator does not maintain structure and control throughout the process. (For a helpful sample outline and a sample protocol, see pages 101–105.)

Process Overview

1. From the list of information required for the needs assessment, identify those elements that may best be attained through focus groups. For instance, identification of needs, validation of needs, root causes of needs, and alternative solutions identification, or a combination of these.
2. Prioritize the information requirements for each focus group, and use this ranking to create a facilitator's guide or protocol for each focus group.
3. Select a decision-making technique for each focus group. Although unstructured focus groups may be useful on limited occasions, more structured techniques are often valuable and can ensure that the focus group provides the information you require for making needs assessment decisions. Here are some sample decision-making techniques that you should consider for small groups:
    a. ***Critical Incident Technique:*** In their responses to focus group questions, participants are asked to provide past events as examples. Each event should include a description of the conditions or context for the event, the people involved in the event, the place of the event, and the associated activities or behaviors of people in the event. The focus of the discussions is then on previous incidents related to the topic rather than on speculations and generalizations.
    b. ***Brainstorming:*** This technique can be used to quickly generate new ideas or to identify and consider alternative solutions to a given problem. To initiate a productive brainstorming session, you should identify the specific topic that you would like group members to concentrate on. Introduce the topic, and encourage group members to brainstorm freely for a given amount of time. Encourage "on-the-spot" thoughts and ideas. Record all contributions from group members (it is helpful to record their thoughts in a format that is visible to all group members, such as a video-projected concept map or a word processing document). Categorize and combine ideas under overarching headings. Analyze and evaluate the ideas with the group, and prioritize the ideas in terms of their usability in the needs assessment.
    c. ***Straw Polls:*** An informal voting method that can be used to quickly probe opinions of participants. Straw polls give all participants the chance to give their opinion through a response such as a "yes" or

"no" to a question. It is important to recognize that straw polls are not generally considered to be binding, official votes. Instead, they are used to get a sense of the pulse of a group in relation to a specific issue or theme, and they can orient the subsequent discussion. Straw polls can be used effectively in situations where there is a long list of ideas and where you want the group members to eliminate ideas that have little or no support. The straw poll approach lets each group member choose a given number of items from the list for inclusion or elimination.

d. ***Round Robin Reporting:*** This technique can be implemented in at least two different ways, both of which are based on your having a specific question or suggestion. One approach is to share the question or suggestion with the group members and then to ask all group members to write down their ideas in relation to the question or issue. You next go around the group and have each person take turns to share one idea from his or her list. Continue this process by going around the room until nobody has any ideas left to share. Another approach is to share the question or suggestion with the group and then ask each person to give his or her reactions and ideas in relation to the question or suggestion you presented. In both formats, the round robin approach allows each group member to share equally in the group process, thereby ensuring that no one person dominates the discussion.

4. Create a facilitator's guide or protocol to guide each focus group. Ensure that required information regarding both the current results and the desired results of the needs assessment are represented, along with the required information at each level of the program or project results chain.

5. Locate an experienced facilitator, if possible, as well as a note taker. Using an experienced focus group facilitator will generally lead to better results than if you facilitate the group yourself; however, you may want to be present as a backup note taker during the focus group to capture some of the data firsthand.

6. The facilitator can use the facilitator's guide or protocol to generate a few specific questions that can be used to open the discussion in the focus group (or to come up with the questions, he or she can also consult the information about current and desired results that are based on the needs assessment).

7. Schedule a time for the focus group when the highest-priority participants are all available. Verify that you have both a focus group facilitator and a person to take notes during the meeting, that both are available at the scheduled time, and that both understand what is to be accomplished through the focus group. Arrange for an audio recorder so that the facilitator and note taker can verify information from the discussion when later preparing final notes or a report.
8. Implement the focus group session. The facilitator should remind participants to observe confidentiality of information shared. Allow the facilitator to manage the focus group process. If you serve as note taker for the focus group, avoid being tempted to interrupt the group. You are simply there to record data and to observe the focus group.
9. Immediately after the focus group has ended, the facilitator and note taker should verify that all of the essential information from the group has been captured in a written document.
10. If appropriate, run several focus groups. Doing so ensures that you gather enough information for the needs assessment.

Tips for Success

- Have a clear and specific goal for the focus group (in other words, have and maintain a clear focal point rather than an open conversation).
- Engage a facilitator who is experienced in managing focus groups. Focus groups are not as easy to facilitate as you might expect.
- Create a survey to be given out to participants so you can capture information that may not be discussed in the focus group because of time limitations.
- Carefully present each of your questions to the group, and allow the group members a couple of minutes to think about the question and to record their answers.
- Complete a test run of the focus group so you can identify potential problems, changes to questions, or additional materials that should be available to participants.
- After a question has been answered and before moving to the next question, verbally report back a summary of what you heard. This step confirms for the group members that they communicated what they in-

tended to, and it allows them to make any suggestions for adjustments in the event that their thoughts were not accurately represented.

- Don't be afraid to ask participants to leave if they are not willing to let others in the focus group participate. After all, the goal of the focus group is to gain multiple perspectives on the issues.
- If you are going to record (by video or audio) the focus group, then be sure to get the consent of all participants. Communicate to the group members what will be done with the video or audio recording of the session (for example, who will listen to it, how it will be stored, how long it will be stored, and so on). Such issues have consequences for how open the group members will feel about sharing their true opinions rather than those that they think you (or the organization) will want to hear.
- Write down any observations that you made during the focus group. For example, note if the audio or video equipment failed, if something unexpected took place, and so on. Such notes may help elucidate comments when you analyze the data that you gathered through the focus group.
- Plan for the focus group to take between 40 minutes and 3 hours.

References and Resources

McClelland, Samuel B. 1994b. "Training Needs Assessment Data-Gathering Methods: Part 3—Focus Groups." *Journal of European Industrial Training* 18(3): 29–32.

Witkin, Belle Ruth, and James W. Altschuld. 1995. *Planning and Conducting Needs Assessments: A Practical Guide*. Thousand Oaks, CA: Sage Publications.

Websites

"Brainstorming Process" is available at http://www.businessballs.com/brainstorming.htm.

"The Focus Group Interview and Other Kinds of Group Activities" is available at http://ppa.aces.uiuc.edu/pdf_files/Focus.pdf.

"Focus Groups—A Needs Assessment Tool" is available at http://www.joe.org/joe/1992spring/tt2.html.

"Small Group Techniques" is available at http://www.fhwa.dot.gov/reports/pittd/smlgroup.htm.

A USAID guide for conducting focus groups is available at http://pdf.usaid.gov/pdf_docs/PNABY233.pdf.

Sample: Focus Group Facilitator Outline and Protocol to Identify Factors Leading to Capacity Gaps in Primary Education

This outline will help lead the facilitator through the four key stages of a focus group, as well as serve as a sample protocol for the focus group. The sample protocol has been developed for a series of focus groups with village, provincial, and national administrators involved with the primary education in a developing country that has a mostly rural population. Such focus groups are part of a larger needs assessment study, and they supplement other data collection approaches that have already been completed.

The focus group facilitator should review this facilitator outline with other organizers of the needs assessment. It will be important to determine if all steps and arrangements for running the focus group have been planned and agreed. Modify this outline as necessary.

Sample of Facilitator Outline for Stages of the Focus Group

1. **Opening Remarks**
    - Explain the purpose of the focus group, how it differs from other types of discussions, and how the information will be used.
    - Encourage disagreement and debate over the issues.
    - Clarify that the group does not necessarily need to reach consensus or make decisions.
    - Describe the facilitator's neutral role, discuss issues about confidentiality of information (where appropriate), and solicit participant questions about the process to reduce anxiety.
    - Provide guidance about how the group will operate (for example, having a time frame, talking one at a time, respecting divergent opinions, no one person speaking for the whole group, having cell phones off, not smoking).
2. **Introductions**
    - Invite members to introduce themselves and to describe their role or relationship to the focus group topic.
    - To stimulate group interaction, have each person speak at least once.

- Establish the group as a safe, comfortable, nonthreatening context for discussion.
- Stimulate members to begin thinking concretely about the issues at hand.

3. **Leading the Focus Group**
   - Use the focus group protocol, but diverge where there are emergent data or paths to follow.
   - Build on initial questions with follow-up questions. Encourage increasingly deep responses to key questions.
   - Connect emergent data from separate questions into a complex, integrated analysis.
   - Ensure that all participants who want to comment on a question have the opportunity to contribute and to broaden the information collected.
4. **Closing**
   - Signal that the group discussion will end soon.
   - Identify and reiterate key themes that emerged from the discussion. Give participants an opportunity to refine the themes.
   - Summarize and test with the group the relative weight of certain categories of response.
   - Identify differences of perspective, contrasting opinions, and areas of agreement.
   - Allow a round of final comments and insights. Thank participants and describe any next steps.

The focus group facilitator should review this facilitator protocol with other organizers of the needs assessment. It will be important to determine if the protocol questions are appropriate for the potential respondents and if they address the main issues of the needs assessment. Beyond working with the needs assessment organizers and focus group, the facilitator may wish to ask for a review by others who know about the topic of the focus group. Modify this protocol as necessary.

Sample of Focus Group Protocol	
Welcome (Where appropriate, modify the script and questions.)	***Script:*** Thank you for agreeing to participate in this focus group today. We have interviewed a number of stakeholders of the education system in our country to identify capacity gaps of the primary education system, and now we want to learn more about the *factors* that are leading to those gaps. We are not here to debate or solve the capacity gaps, though if you have suggestions for how to improve capacity, please note them on a sheet of paper. We will collect those ideas at the end of the session. Here are nine common categories of factors that influence capacity and that we will use to guide our discussion. However, you are welcome to suggest others. • **Performance capability.** Do we have the right people in the right jobs to achieve desired results? • **Knowledge and skills.** Do people know what to do, and are they able to do it? • **Motivation and self-confidence.** Do people have the motivation and confidence to achieve desired results? • **Expectations and feedback.** Do we have formal and informal mechanisms to help people know how they are performing? • **Environment, tools, and processes.** Do we have what is necessary to achieve desired results (for example, policies, guidelines, data systems, computers)? • **Incentives, rewards, and recognition.** Do we encourage good performance and recognize the achievement of desired results? • **Resources.** Do we have the resources to achieve the desired results (for example, budget, time, personnel, buildings, books)? • **Goals, strategy, and organizational culture.** Does everyone know what we are trying to achieve and how we will achieve it? Do we have shared norms, habits, and beliefs? • **Coordination within and among ministries and government agencies.** Are the government agencies coordinating appropriately? • **Other.** Indicate other possible factors.
Do you have any questions regarding our goals of the focus group?	Notes:

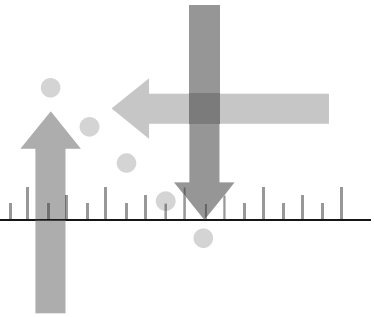
Questions	
Q1: One of the identified capacity gaps is the high variation in teacher commitment to the jobs (from those highly committed and engaged as teachers, to those frequently absent from work). Of the nine common factors leading to capacity gaps on your handout, which do you find are most responsible for the current gap?	Response:
	Follow-up question and response:
	Response:
	Follow-up question and response:
	Response:
	Follow-up question and response:
Q2: A second of the identified capacity gaps is the uneven and late delivery of textbooks for schools and pupils. Of the nine common factors leading to capacity gaps on your handout, which do find are most responsible for the current gap?	Response:
	Follow-up question and response:
	Response:
	Follow-up question and response:
	Response:

Q3: A third identified capacity gap is the increasing absenteeism among third grade girls in our most rural populations. Of the nine common factors leading to capacity gaps on your handout, which do you find are most responsible for the current gap?	Response:
	Follow-up question and response:
	Response:
	Follow-up question and response:
	Response:
	Follow-up question and response:
Q4: The fourth identified capacity gap is the *[insert gap]*. Of the nine common factors leading to capacity gaps on your handout, which do you find are most responsible for the current gap?	Response:
	Follow-up question and response:
	Response:
	Follow-up question and response:
	Response:
	Follow-up question and response:

Note: If you have time remaining, you can cover more remaining capacity gaps. If, however, you are short on time, then start the next focus group with the capacity gaps you were not able to include in this discussion.

Conclusions

Script: Summarize the major factors identified during the conversation, and then ask the focus group members to verify that you accurately interpreted their responses.



INTERVIEWS

Purpose

The purpose of conducting interviews is to collect information from a single person through a format that may range from structured, to semistructured, to unstructured.

Needs Assessment Applications

Individual interviews can often provide in-depth context, stories, and discussion related to one or more topics that are pertinent to the needs assessment. Such interviews can be done in an environment where the interviewer can ask for elaboration or explanation with follow-up questions. (For a helpful sample checklist and a sample protocol, see pages 110–115.)

Interviews also offer an opportunity for the interviewee to become familiar with the needs assessment and its objectives. Individuals in positions of influence may also appreciate the additional personal attention that the interview can offer as opposed to a survey or focus group.

Advantages and Disadvantages

Advantages

- Interviews typically allow for more focused discussions and follow-up questions.
- Individuals may offer information in interviews that they wouldn't offer in a group context.
- Interviews can be an excellent source for stories and context.
- The interviewer can observe the nonverbal behavior of an interviewee.

Disadvantages

- Time requirements for interviewers and interviewees can be significant.
- Interviews have the potential to reduce the scope and sample for data collection.
- The results of multiple interviews may contradict each other or may be difficult to analyze.
- Interviewees may be biased or may represent only a limited perspective on performance issues and themes.
- Interviews, if not done well, can get off topic and frustrate both interviewer and interviewee (the interviewer can leave without the necessary information to guide his or her assessment; the interviewee can feel that the time was not productive).

Process Overview

1. Create a list of all the information required for completing your needs assessment. Prioritize and align the list of information requirements on the basis of your assessment's objectives and of the participants available for the interviews.
2. Determine what information is required from each interview.
3. Select interviewees who can best provide the information you are looking for in the interviews. Experts are often included as interviewees, but novices should also be considered when questions regarding current (or entry) knowledge and skills are elements in the assessment's considerations.
4. For each interview, create a protocol that will guide the questions that are to be asked.
    a. Determine how structured the protocol should be. A *structured interview protocol* has clearly defined questions and order of questions and can be repeated to elicit the same type of information across different interviewees. A structured interview is preferable when you want to aggregate or generalize information. This approach to interviewing is also preferable when your interviewees are not necessarily experts on a given topic or experienced interviewees (for example, interns seeking to gather information for a needs assessment plan with community

leaders). An *unstructured interview* may start with a set of loosely planned questions in the protocol, but the interviewer may alter the questions and the order of questions depending on the information provided by each interviewee. An unstructured interview works best for interviewees who are well-informed about the topic and are able to deviate from a set plan.

b. Determine the types of questions to be included in the protocol. A protocol may include a range of types of questions, including open-ended questions (*What are the possible causes for these identified gaps?*) and closed-ended questions (*Of the six gaps in the handout provided, identify the gap that is most important to address this year*).

c. Leave room in the protocol for the interviewer to take notes during the interview, and include possible follow-up questions to help guide the discussion (see the link in the Websites section of this document for some suggestions on creating an interview protocol).

d. Conduct needs assessment interviews with a formal and systematic process that can be replicated.

e. Ensure that required information regarding both the current results and the desired results of the needs assessment are represented in the protocol, along with the required information at each level of the program or project results chain.

5. Schedule a convenient time and location for the interview. The interview should take place in a friendly location where both the interviewee and interviewer will feel comfortable discussing potentially delicate topics. Describe to the interviewee how the information will be used and the confidentiality of the information provided.

6. Take careful notes during the interview, offering to recap the response of the interviewee whenever there may be confusion. Follow the interview protocol carefully to ensure that you don't have to schedule a second interview to ask questions that may have been skipped. When possible, it is often a good idea to record an interview so you can verify your notes after the interview is complete. Another option is to have a note taker accompany the interviewer.

7. Immediately following the interview review your notes carefully to ensure that you have accurately captured all of the relevant information. If you find any confusion, this is the time to call or e-mail the interviewee to verify information or to ask for clarifications.

8. Relate the findings from each interview to other data sources for verification. For instance, if an interviewee quotes a news article or a research report, then it is typically useful to check that resource to ensure that the facts and figures provided by the interviewee were accurate and presented without bias.

Tips for Success

- Create a friendly and open environment by using active listening techniques (such as recapping, paraphrasing, taking notes, and using friendly body language).
- Refrain from asking leading questions (*"I'm sure you agree that . . ."*) or cutting off an interviewee during his or her response. If you are to avoid cutting off interviewees, it is often helpful to include potential follow-up questions as part of the interview protocol.
- Interviewers should not debate or argue with the interviewees. Interviewers are supposed to gather the views of others, not convince the interviewees of the interviewers' views.
- Using the critical incident technique can be a valuable way to differentiate between perceptions and past experiences. Interviewees are asked to provide past events as examples when they respond to specific questions. Each event should include a description of the conditions or context for the event, the people involved in the event, the place of the event, and the associated activities or behaviors of people in the event.
- Take good notes during the interview (or record it, if the participant is agreeable).

References and Resources

Altschuld, James W. 2010. *Needs Assessment Phase III: Collecting Data* (Book 3 of *Needs Assessment Kit*). Thousand Oaks, CA: Sage Publications.

Altschuld, James W., and J. N. Eastmond Jr. 2010. *Needs Assessment Phase II: Getting Started* (Book 2 of *Needs Assessment Kit*). Thousand Oaks, CA: Sage Publications.

McClelland, Samuel B. 1994a. "Training Needs Assessment Data-Gathering Methods: Part 2—Individual Interviews." *Journal of European Industrial Training* 18 (2): 27–31.

Witkin, Belle Ruth, and James W. Altschuld. 1995. *Planning and Conducting Needs Assessments: A Practical Guide.* Thousand Oaks, CA: Sage Publications.

Websites

"Getting the Lay of the Land on Health: A Guide for Using Interviews to Gather Information" is available at http://www.accessproject.org/adobe/getting_the_lay_of_the_land_on_health.pdf.

"Information Brief: Developing Interview Protocols" is available at http://www.neirtec.org/evaluation/PDFs/PreparingtoCollect5.pdf.

A sample interview protocol is available at http://www.ceismc.gatech.edu/MM_Tools/NIP.html.

A tip sheet on asking open-ended and probing questions is available at http://ppa.aces.uiuc.edu/pdf_files/Asking1.PDF.

A tip sheet on conducting key informant interviews is available at http://ppa.aces.uiuc.edu/pdf_files/Conducting1.PDF.

Tips for using individual interviews as a surveying technique are available at http://ppa.aces.uiuc.edu/pdf_files/Tips.PDF.

The USAID article on conducting needs assessment interviews is available at http://pdf.usaid.gov/pdf_docs/PNABS541.pdf.

Samples of Interview Preparation Checklist and Interview Release Agreement

Interview Preparation Checklist

- ☐ On what basis was this interviewee selected?
- ☐ Do I have the time and location of the interview?
- ☐ What do I know about the interviewee (title, experiences, background, and so on) ?
- ☐ Has the interviewee been sent information on the topic and focus of the interview?
- ☐ Should the interview questions be sent to the interviewee before the interview?
- ☐ Will the interview use closed-ended questions, open-ended questions, or a combination of both?
- ☐ Do I have some sample follow-up questions identified for each interview question?
- ☐ What information must I get from the interview?
- ☐ What information would it be nice to get, but is not necessary, from the interview?

- ☐ Are there documents I should ask for at the end of the interview (reports, files, and so on)?
- ☐ How will I take notes during the interview?
- ☐ Will I record the interview? If so, have I checked the batteries in the recorder? Have I asked the interviewee for permission to record the interview? (See the generic interview release agreement that follows.)
- ☐ How will I transcribe the interview recording (or notes)? Will I have time immediately after the interview to reflect on the answers and to take additional notes?

Interview Release Agreement

Sample Interview Permission or Release Form

(Organization)
(Address)

_____("Interviewer") has informed me that he or she is gathering research for a needs assessment and related Assessments on the subject of _____ (collectively "the Assessment") and has asked me to grant interviews and to otherwise cooperate with the Interviewer in connection with the Assessment.

To assist the Interviewer in preparing the Assessment, I have agreed to be interviewed and to provide information and other materials to be used in connection with the Assessment, including personal experiences, remarks, and recollections, as well as any other documents that I may choose to give to the Interviewer ("the Interview Materials").

I hereby grant and assign to the Interviewer and his or her licensees, successors, and assigns the following rights in connection with the Interview Materials for use as part of the Assessment in any and all reports, versions, and media in perpetuity throughout the world. Indicate your agreement with any of these statements below by checking the boxes and initialing your name next to each agreed item.

☐ The right to **quote or paraphrase using my name** all or any portion of the Interview Materials and to generally use and publish the Interview Materials, including my experiences, recollections, incidents, remarks, and information, as well as any other documents that I may give to the Interviewer.

-- OR --

☐ The right to **anonymously quote or paraphrase** all or any portion of the Interview Materials and to generally use and publish the Interview Materials, including my experiences, recollections, incidents, remarks, and information, as well as any other documents that I may give to the Interviewer in manner where my identity is protected.
☐ The right to use my name, image, voice, likeness, and biographical data.
☐ The right to develop, produce, and distribute the Assessment in any manner that the Interviewer deems appropriate. I understand and acknowledge that the Interviewer's company (which may be the same as mine) will be the sole owner of all copyright and other rights pertaining to the Assessment.

To enable the Interviewer to develop the Assessment in any manner deemed best, I hereby release and discharge the Interviewer and his or her licensees, successors, and assigns from any and all claims, demands, or causes of action that I may have against them by reason of anything contained in the Assessment, or any of the above uses, including any claims based on the right of privacy, the right of publicity, copyright, libel, slander, or any other right.

I acknowledge and agree that I am not entitled to receive any form of payment from the Interviewer or from his or her licensees, successors, and assigns.

Agreed and confirmed:

_____ _____
Printed Name Date

_____ _____
Signature Date

Sample of Interview Protocol

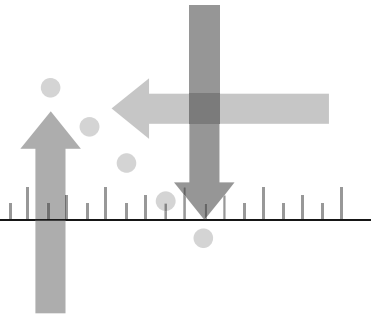
Interview Protocol to Identify Teachers' Capacity Gaps in Classroom Teaching Skills and Behaviors

Instructions: Use this protocol to interview principals from provincial schools. The purpose is to obtain information about capacity gaps that teachers have in the area of classroom teaching skills and behaviors.

Introduction	
Welcome (Where appropriate, modify the script and questions.)	***Script:*** Thank you for agreeing to participate in this interview. You are one principal in our sample of 58 principals who are from across the country and were selected to provide information on the topic discussed today. In this interview, we will focus on identifying the challenges and capacity gaps that exist among your teachers in the area of classroom teaching skills and behaviors. This interview is part of a broader needs assessment sponsored by the national ministry of education. The overall needs assessment is being conducted so people can understand capacity development issues in the education system—not just related to teachers' skills and behaviors—and then can make decisions on how to address the issues. The information that you provide will not be attributed directly to you.
Do you have any questions regarding our goals?	Notes:
Questions	
Q1. How many years have you served as a principal?	
Q2. How many years have you served as a principal in this school?	

Q3. What is your highest level of education?	☐ High school or secondary education or lower ☐ Basic university level (for example, associate's degree, Tecnicatura, and so on) ☐ Intermediate university level (for example, bachelor's degree, Licence, Licenciatura, and so on) ☐ Master's degree level or equivalent (for example, Master of Business Administration, Maîtrise, Maestria, and so on) ☐ Postmaster's level or equivalent (for example, All But Dissertation and so on) ☐ Doctorate level or higher ☐ Other: Please specify and describe it with regard to the earlier list
Q4. As a school principal, describe your work.	
Q5. How many teachers do you supervise?	
Q6. How many students were enrolled in the school at the beginning of the year (indicate start date of school year)?	
Q7. How many students are currently enrolled in the school now (indicate date)?	

Q8: Drawing on your experiences, can you describe the two or three major capacity gaps related to your teachers' classroom teaching skills and behaviors that limit your school and your province in achieving their educational goals?	Response:
	Follow-up question and response:
Q9: What do you believe are the causes of each of the capacity gaps that you identified in the previous question?	Response:
	Follow-up question and response:
Q10: Are there other challenges that you believe limit the capacity of your province to achieve its educational goals?	Response:
	Follow-up question and response:
Q11: Can you recommend anyone I should meet with to identify related capacity gaps?	Response:
	Follow-up question and response:
Conclusions	
Review	***Script:*** Summarize the major capacity gaps identified from the conversation, and then ask the interviewee to verify that you accurately interpreted the responses.



DUAL-RESPONSE SURVEYS

Purpose

The purpose of conducting dual-response surveys is to collect information from a large number of people—typically located in multiple locations—regarding their perspectives on both current and desired performance.

Needs Assessment Applications

Surveys are commonly used for needs assessments, but many types of surveys are available to you. The dual-response survey might be a new tool for you to consider. Surveys can be useful tools for needs assessments because they are relatively easy to develop, their data usually can be clearly transformed into useful information, and surveys (especially web-based ones) can easily be distributed to both large and small groups. Because surveys can require less time to complete than interviews or focus groups, and because they can be sent to people at other locations, they are often used in needs assessments (as well as in needs analyses).

Whereas the traditional single-response survey is a data collection tool used in a variety of organizational activities—such as opinion polling and evaluation—the dual-response survey format provides significant benefits over traditional single-response tools in completing a needs assessment. The dual-response survey, as presented here, collects information regarding both the *current* and *desired* performance, thereby providing clear data regarding the size, direction, and relative priority of performance gaps (or needs). This type of survey gives you more options for analyzing data than does its single-response counterpart, and it provides valuable information that is essential to the unique goals of a needs assessment.

Advantages and Disadvantages

Advantages

- A needs assessment survey allows you to capture the perspectives of multiple groups on a variety of performance-related topics.
- The dual-response format allows the needs assessment survey to simultaneously capture data regarding both the current and the desired levels of performance. Too often needs assessments assume that the desired performance is known and agreed upon by everyone in the organization when in reality this assumption is rarely the case.
- The dual-response format gives you multiple ways to view, analyze, and report on findings, including the size of the needs, the direction of the needs, and the relative priority that participants associate with the needs.
- Surveys offer a variable format where you can ask a few questions or many questions, and likewise you can ask open-ended or closed-ended questions.

Disadvantages

- Survey data are frequently confused with performance data. It is important to remember that survey data rely on the perceptions of those completing the survey. Thus, while a respondent may indicate that his or her perception is that performance is high, the reality may be that performance is low. Nevertheless, knowing the perceptions of those participating in the needs assessment is essential to making informed decisions.
- Many organizations frequently use surveys; as a result, employees can get "burned out" on completing surveys. This reaction can reduce your response rate, increase the number of respondents who complete only part of the survey, or otherwise compromise the integrity of your survey results.
- Surveys do not give you the opportunity to ask follow-up questions to respondents (unlike interviews or focus groups).
- Although surveys may seem easy to prepare, they are often developed poorly. Therefore, it is important to have an experienced survey developer involved in the process of developing a survey, assisting in survey development, determining the survey analysis approach, or reviewing the survey.

Process Overview

1. Drawing from the list of information required for the needs assessment, create a list of the information that you expect to gain from the needs assessment survey. The focus of developing an effective needs assessment survey should always be on the information required to make decisions. This focus will prevent you from asking questions that don't get used in subsequent decision making. (For helpful sample templates to serve as job aids, see pages 125–126.)

2. Create your needs assessment survey for a target audience. Also, consider using multiple versions of a survey to target different audiences or stakeholders. Surveys frequently are best used to collect information from a larger number of people than you would potentially invite for an interview or a focus group.

3. Identify questions to include in your needs assessment. Questions should focus on results and performance, rather than on what resources or changes participants may want. In the Tips for Writing Good Survey Questions section of this tool are many ideas on how to write successful survey questions.

4. Create the survey using the dual-response format. Multiple sections within a single survey can also use different response scales—you simply must clearly communicate those differences to the survey respondents. Table 3A.1. provides examples of three types of rating scales: agreement, satisfaction, and frequency. You can change the associated responses with each level of the Likert-type scales to represent appropriate responses for the questions in your assessment (see example in table 3A.1).

5. Pilot test your survey with participants who are representative of your target audience. When participants have completed the draft survey, calculate the results to ensure that you can use the information attained from each question. Typically, responses to some questions do not provide the useful information you were looking for; thus, changes must be made to the survey.

6. Needs assessment surveys can be done in a variety of formats and media depending on the target audience. Web surveys can easily be created, distributed, and analyzed using Internet-based survey systems. Paper-based surveys can also be effective, especially if members of your target audience may not have access to technology or have the computer skills necessary for completing an online survey. Select the format that you believe

Table 3A.1 Examples of Different Rating Scales

Agreement: *1 = Strongly Disagree; 2 = Disagree; 3 = Neutral; 4 = Agree; 5 = Strongly Agree*

Current performance	Survey question	Desired or optimal performance
① ② ③ ④ ⑤	Does the subway usually get me to where I am going on time?	① ② ③ ④ ⑤

Satisfaction: *1 = Very Dissatisfied; 2 = Dissatisfied; 3 = Neutral; 4 = Satisfied; 5 = Very Satisfied*

Current performance	Survey question	Desired or optimal performance
① ② ③ ④ ⑤	What is my overall satisfaction with the subway service provided by the city?	① ② ③ ④ ⑤

Frequency: *1 = Daily; 2 = Weekly (3–6 times per week); 3 = Occasionally (3–6 times per month); 4 = Sometimes (less than 3 times per month); 5 = Rarely (once a month to never)*

Current performance	Survey question	Desired or optimal performance
① ② ③ ④ ⑤	Does the subway have mechanical failures during my trips?	① ② ③ ④ ⑤

will give you the highest return rate of completed surveys. Ideally, you would want at least 50 percent (often more) of the surveys you send out to be completed. The higher the return rate, the more confidence you can have that your survey results represent the perspectives of the target audience. For national level, highly sensitive, or other important needs assessments, you will want to consult with a statistician about minimum response rates.

7. The data from a dual-response needs assessment can be analyzed using four analysis approaches—discrepancy, direction, position, and demographic differences—to inform decision making. See table 3A.2 for an example of responses from a single survey taker. See table 3A.3 to review how this survey taker's responses would be analyzed using the four analysis approaches.

Analysis 1: Discrepancy

For each question of the needs assessment survey, you should perform a gap analysis by subtracting the value assigned to the *current* column from

Table 3A.2 Example of a Completed Survey

Instructions: Indicate your level of agreement with the survey questions below. Note that desired or optimal performance ratings should be taken in consideration of costs (financial, and other costs) associated with achieving optimal performance. Therefore, take care to avoid giving all responses a rating of 5. (Scale: 1 = Strongly Disagree; 2 = Disagree; 3 = Neutral; 4 = Agree; 5 = Strongly Agree)

Current performance	Survey question	Desired or optimal performance
① ❷ ③ ④ ⑤	a. Does the subway usually get me to where I am going on time?	① ② ③ ❹ ⑤
① ② ③ ❹ ⑤	b. Does the subway station have an adequate number of employees at each station to serve my needs?	① ② ❸ ④ ⑤
❶ ② ③ ④ ⑤	c. Can the subway audio system be heard easily in all train cars?	① ② ❸ ④ ⑤
① ❷ ③ ④ ⑤	d. Is the subway system operated safely?	① ② ③ ④ ❺

the value assigned to the *desired* column (see table 3A.2). The results of this analysis will identify discrepancies between the *current* and *desired* performance for each variable associated with the performance system. The size of the gap can provide valuable information in determining the perceived acuteness of the need or the extent to which opportunities can be capitalized upon.

The results of this analysis are, however, necessary rather than sufficient for quality decision making. Alone, these results provide only isolated values (data points) that must be put into context through their relationships with the three other analysis approaches.

Analysis 2: Direction

For each question, the positive or negative value of the gap should be identified to differentiate needs (when desired is greater than current) from opportunities (when *what is* (WI) is greater than *what should be* (WSB).

- Positive discrepancies between *desired* and *current* (for example, desired = 5, current = 3, gap = 2 identifies a **need**.
- Negative discrepancies between *desired* and *current* (for example, *desired* = 3, *current* = 4, gap = –1) identifies an **opportunity** (for instance, to reallocate resources).

Table 3A.3 Example of an Analysis of the Completed Survey

Instructions for the survey analyst: For each item, tabulate the gap size by subtracting the current performance from the desired performance. Gap direction will be determined by whether the difference between desired and current performance is positive, negative, or neutral. Once this direction is determined, indicate in the next cells whether the response represents (a) a need, opportunity, or neither and (b) whether the position or priority in addressing the need or opportunity is low, medium, or high. The "analyst comments" column is to be used for summarizing the lengthier comments by the respondent. The example in the table provides analysis for one single respondent, but usually there are many more respondents. Thus, analyzing and aggregating results on a computer spreadsheet is advised.

Survey question	Gap size: *desired – current performance* Gap direction: *positive = need; negative = opportunity*	Need or opportunity	Position or priority	Analyst comments
a. Does the subway usually get me to where I am going on time?	+2	*Need*	Medium	The respondent recommends a reduction in schedule delays. (+2 points: need)
b. Does the subway station have an adequate number of employees at each station to serve my needs?	–1	*Opportunity*	Low	There may be an opportunity to reduce the number of employees at stations during nonpeak hours. (–1 point: opportunity)
c. Can the subway audio system be heard easily in all train cars?	+2	*Need*	Medium	The respondent noted difficulties in hearing the conductor. (+2 points: need).
d. Is the subway system operated safely?	+3	*Need*	High	The respondent indicated a problem with proper door closing during crowded periods. Safety hazard—requires immediate attention. (+3 points: need)

The distinction between needs and opportunities provides a context for discrepancy data, which by itself illustrates only the size of the gap between *current* and *desired* performance. By examining the direction of the discrepancy, decision makers can consider which gaps illustrate needs that have the potential to be addressed through organizational efforts and which gaps

identify opportunities that the organization may want to leverage (or maintain) to ensure future success.

Analysis 3: Position (that is, relative priority)

The position analysis illustrates the relative importance or priority of discrepancies from the perspective of the respondents. Although many gaps between *WSB* and *WI* may have equivalent discrepancies and may be in the same direction, the position of the discrepancy on the Likert scale of the instrument can demonstrate the relative priority of the discrepancy in relation to other gaps.

For example, two needs may be identified with a discrepancy of +3, but the first need illustrated a gap between WSB = 5 and WI = 2, whereas the second need illustrated a gap between WSB = 3 and WI = 0. As a result, the interpretation of these discrepancies in relation to each other would indicate a perceived prioritization of the first need over the second. This information can be valuable in selecting which discrepancies are addressed when resources are limited.

Together, three types of analysis (discrepancy, direction, and position) can offer valuable data for identifying and prioritizing needs.

Analysis 4: Demographic Differences (optional)

You may want to view the results of your needs assessment survey on the basis of demographic differences (for example, division, location, position type, or years of experience). Analysis of the results can be reviewed by demographic variables if items related to the desired demographic categories are added to the instrument. If your organization has collected data regarding the demographics of respondents to the survey, then you should complete an analysis for *discrepancy*, *direction*, and *position* for each demographic on a section, subsection, or item basis, depending on the level of information required for decision making.

Tips for Success

- An abundance of literature exists about survey development, implementation, and analysis. Developing surveys is not as easy as it may seem, so consult survey literature and survey developers when preparing your survey.

- You should pilot test any survey questions with representatives from the target audience.
- Before releasing your survey, plan ahead on how you will analyze the results.
- If you have diverse audiences, you should not try to write one survey that fits all audiences.
- You must plan to follow up with participants who have not completed the survey after a few days so you can remind them of the importance of their participation.
- If you must have survey results from an important stakeholder group to be able to make informed decisions, you should oversample that group to ensure that you get enough responses. In other words, if you want 50 returned surveys, then you would send out 200 surveys to the group in hopes of getting at least a 25 percent response rate rather than sending out 100 surveys with hopes of getting a 50 percent response rate.

Tips for Writing Good Survey Questions

- Ensure a common understanding.
- Start with the more interesting questions for the audience.
- Don't try to impress participants with big words.
- Don't write leading questions.
- Avoid double negatives or questions with multiple meanings.
- Stay focused: don't ask more questions than you require for making decisions.
- Put your questions in a logical order (for example, use sections or topic area headlines to organize questions).
- Verify that questions make sense for both response columns (current and desired).
- Don't let your survey get too long (for example, it should take participants no more than 15 minutes to complete).

References and Resources

Altschuld, James W. 2010. *Needs Assessment Phase III: Collecting Data* (Book 3 of *Needs Assessment Kit*). Thousand Oaks, CA: Sage Publications.

Altschuld, James W., and J. N. Eastmond Jr. 2010. *Needs Assessment Phase I: Getting Started* (Book 2 of *Needs Assessment Kit*). Thousand Oaks, CA: Sage Publications.

Kaufman, Roger, Ingrid Guerra-López, Ryan Watkins, and Doug Leigh. 2008. *The Assessment Book: Applied Strategic Thinking and Performance Improvement Through Self-Assessments.* Amherst, MA: HRD Press.

Websites

An inexpensive and easy-to-use survey development and deployment tool can be found at http://www.surveymonkey.com.

Another site that offers complete online survey services, including the development, deployment, and analysis of dual response and traditional surveys, is at http://www.evaluationsolutions.com.

Samples of Job Aids

Survey Template

Satisfaction Scale: *1 = Very Dissatisfied; 2 = Dissatisfied; 3 = Neutral; 4 = Satisfied; 5 = Very Satisfied*

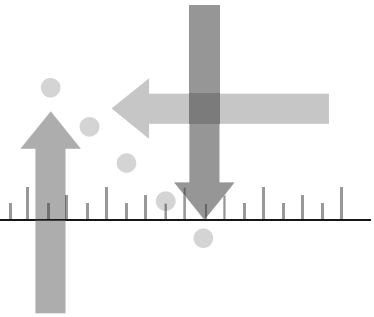
Sample Instructions: Indicate your level of agreement with the survey questions in the table. Note that desired or optimal performance ratings should be taken in consideration of costs (financial and other costs) associated with achieving optimal performance. Therefore, take care to avoid giving all responses a rating of 5. (Scale: *1 = Very Dissatisfied; 2 = Dissatisfied; 3 = Neutral; 4 = Satisfied; 5 = Very Satisfied*)

Current performance	Survey question	Desired or optimal performance
①②③④⑤	a.	①②③④⑤
①②③④⑤	b.	①②③④⑤
①②③④⑤	c.	①②③④⑤

Analysis Template

Instructions for the survey analyst: For each item, tabulate the gap size by subtracting the current performance from the desired performance. Gap direction will be determined by whether the difference between desired and current performance is positive, negative, or neutral. Once this direction is determined, indicate in the next cells whether the response represents (a) a need, opportunity, or neither and (b) whether the position or priority in addressing the need or opportunity is low, medium, or high. The "analyst comments" column is to be used for summarizing the lengthier comments by the respondent. The example in the table provides analysis for one single respondent, but usually there are many more respondents. Thus, analyzing and aggregating results on a computer spreadsheet is advised.

Survey question	Gap size: *desired – current performance* Gap direction: *positive = need; negative = opportunity*	Need or opportunity	Position or priority	Analyst comments
a.	0 1 2 3 4 5 Positive or Negative	Need or Opportunity	High Medium Low	
b.	0 1 2 3 4 5 Positive or Negative	Need or Opportunity	High Medium Low	
c.	0 1 2 3 4 5 Positive or Negative	Need or Opportunity	High Medium Low	



SWOT+

Purpose

The purpose of conducting a SWOT is to identify, organize, and prioritize the strengths, weaknesses, opportunities, and threats (or SWOTs) that influence the planning, design, development, implementation, and evaluation of almost any program or project.

Needs Assessment Applications

Identifying a list of SWOTs is a common brainstorming technique used in organizational planning. Developing a list alone, however, rarely provides the useful information required to guide a needs assessment. Instead, you should combine the benefits of brainstorming with an approach that defines the relationships among the identified SWOT factors, and then you should use those relationships to guide decisions about what to do next.

The resulting SWOT+ technique asks SWOT informants to assign values to each of the items on the SWOT list. Thus, in certain cases, the items on the list that are of highest value may be acted on first, and the items with lesser importance might need to be recognized but never acted on.

Advantages and Disadvantages

Advantages

- A SWOT builds on the value of a process that is already familiar in most organizations.

- SWOT factors are prioritized in relation to other SWOT factors, rather than simply listed and given equal value.
- A SWOT engages a group in defining the relationship among SWOT factors.

Disadvantages

- Assigning of values to each SWOT factor can be challenging for group members.
- Additional time is required to move from the SWOT factors to their relationships to the recommendations about what should be done next.

Process Overview

1. Decide on a focus for your SWOT+ analysis. For instance, are you looking for SWOT factors that influence just your project or unit, or SWOT factors that affect the entire organization? This context will provide boundaries for the discussion and will help you identify SWOT factors that will best guide your needs assessment.
2. Identify internal and external stakeholders for the SWOT analysis. These partners should represent an array of perspectives around the performance issue at the center of your needs assessment.
3. In a meeting (or by e-mail), have group members identify SWOT factors from their perspectives. In most situations, begin your SWOT analysis by asking participants to simply brainstorm ideas to fit into the following four categories:

   Strength: An internal competence, valuable resource, or attribute that an organization can use to exploit opportunities in the external environment

   Weakness: An internal lack of a competence, resource, or attribute that an organization requires to perform in the external environment

   Opportunity: An external possibility that an organization can pursue or exploit to gain benefit

   Threat: An external factor that has the potential to reduce an organization's performance

4. When you have identified an adequate number of SWOT factors (6 to 10 per category is typically enough), sort them into a SWOT matrix (see table 3A.4).
5. To enhance the SWOT factors, ask the group members to define their relative value or importance within the context. Do this by using a continuum along each of the X and Y axes of your SWOT matrix (see figure 3A.1). Use the continuum of internal-to-external control for the X axis and the asset-to-liability continuum for the Y axis. Individual factors can then be plotted within the matrix according to their relationships to other factors.
6. Place a mark (for example, S1, S2, and so on) for each SWOT factor where it intersects along the two continuums, thus defining its relationship to other SWOT factors. Figure 3A.1 shows how value assignments were given to each item on the SWOT list (from table 3A.4) and were plotted on the matrix.
7. Use the plotted SWOT factors to determine which factors should be fixed immediately, which should be improved on over time, which should be sustained, and which should be monitored (see figure 3A.1).

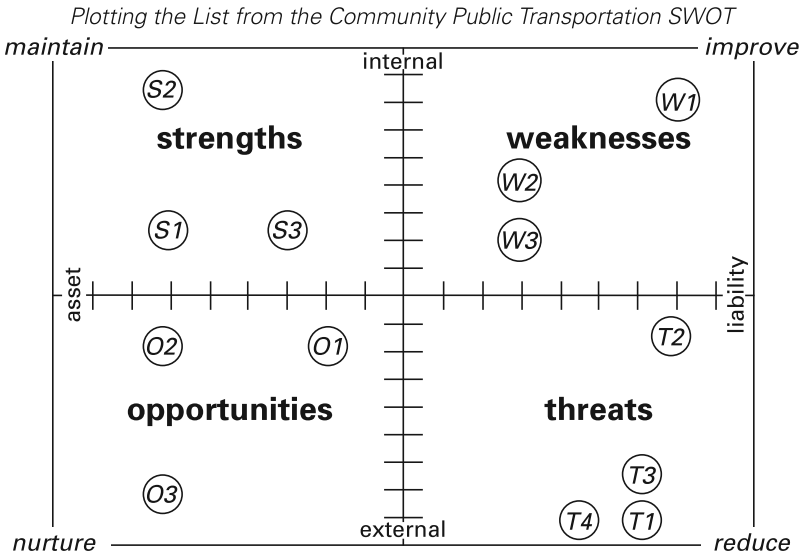
Table 3A.4 Traditional SWOT Matrix

SWOT Analysis

Community Public Transportation SWOT

Strengths	***Weaknesses***
S1 = Four new subway stations have been completed in the past year; three more are expected in the next two years.	W1 = Approximately 18% of subway and bus mechanics are expected to retire in the next five years.
S2 = There is a growing demand—a 15% increase in subway riders in the past year.	W2 = Development of new bike lanes in the city center has been delayed.
S3 = The past year saw a 3% increase in "overall satisfaction" among subway riders.	W3 = Increased subway and bus fees have reduced the ability of poorer citizens to afford public transportation.
Opportunities	***Threats***
O1 = Increasing fuel costs may push more people to public transportation.	T1 = Increasing fuel costs increase bus costs.
O2 = Biking and walking to work are becoming more popular.	T2 = The roads in the city center are clogged during rush hours, increasing commuting times and delaying bus schedules.
O3 = National subsidy is possible to help finance reduced fee transit cards for elderly and disabled populations.	T3 = Labor costs are increasing.
	T4 = Delays in delivery of new buses and subway cars from manufacturers are averaging 4–6 months behind schedule.

Figure 3A.1 Expanded Versions of the SWOT Matrix (SWOT+)



Note: The letters and numbers within the quadrants correspond to information provided in table 3A.4.

8. With each SWOT factor plotted into the matrix from table 3A.4 , prioritize the factors in order of importance for achieving desired performance objectives.
9. Use the prioritized list of SWOT factors to guide your decisions. You can see that with this information visually plotted, the participants can go a step further and can discuss the relationship among the items plotted; (a) which items to act on and in what order and (b) which items can possibly be monitored for now, but perhaps never acted on.

Tips for Success

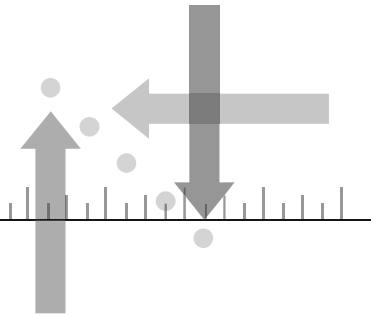
- When identifying SWOT factors, use an open brainstorming process that allows all participants to share their ideas.
- Avoid ambiguous SWOT factors; link each factor to a specific and measurable indicator to ensure that everyone is using the same operational definition of the factor.

- Work to build consensus around the placement of SWOT factors within the matrix; keep in mind that often there are many opinions about where individual factors should go on the continuums of internal–external and asset–liability.

References and Resources

Leigh, Doug. 2006. "SWOT Analysis." In *The Handbook of Human Performance Technology*, edited by J. Pershing, 1089–1108. San Francisco, CA: Jossey-Bass/Pfeiffer.

Watkins, Ryan. 2007. *Performance by Design: The Systematic Selection, Design, and Development of Performance Technologies That Produce Useful Results.* Amherst, MA: HRD Press, and Silver Spring, MD: International Society for Performance Improvement.



WORLD CAFÉ™ (WITH "SPEED DATING" VARIATION)

Purpose

The World Café is a format for collaborative conversations designed to yield deeper insights into pressing collective issues. The collaborative conversations bring together stakeholders in group settings to formulate directions (or ideas, opinions, and so on) concerning needs, next steps, and solutions.

Needs Assessment Applications

The World Café format has gained in popularity over recent years because it is an easy approach to gathering information through collaboration; also it is a generally quick and usually fun process. (See http://www.theworldcafe.com for more information on the approach.) The following discussion draws on the trademarked World Café approach, but it has been adapted for needs assessment purposes.

When used in a needs assessment context, the World Café approach offers a useful, fluid framework for structuring a productive, problem-solving discussion among a group of participants who typically would have diverse perspectives (but, in many cases, they could have shared or common perspectives). Because of the way in which the conversations are structured, participants circulate about the room, cross-pollinating ideas and building upon one another's suggestions. This approach lends itself well to needs assessment because it can provide unique opportunities for gathering information when other techniques would not be appropriate, viable, affordable, or useful.

Advantages and Disadvantages

Advantages

- This approach can be used with a large and diverse group of participants and stakeholders.
- A collaborative setting allows for transparent decision making.
- The approach can yield more nuanced data and findings than can structured interviews or focus groups.
- The flexible technique can be applied in many settings and for different objectives.

Disadvantages

- The "results" of World Café sessions are subject to interpretation.
- The findings of this approach will depend largely on which stakeholders participate.
- The approach requires substantial advance planning for determining key discussion questions.

Process Overview[1]

1. Have organizers determine in advance the targeted questions that will address the key objectives for holding the World Café.
2. Seat groups of four or five people at small tables or in clusters. Each table is led by a host who has been given some guidance about duties of facilitating the table work.
3. Set up progressive (usually three) rounds of conversation of approximately 20–30 minutes each.
4. Encourage both table hosts and members to write or draw key ideas using the markers and paper provided.
5. When groups have completed the initial round of conversation, ask one person to remain at the table as the host while the other group members become ambassadors. Ambassadors carry key ideas, themes, and questions from their first group into their new conversations.

6. Ask the table host to welcome the new guests and to briefly share the main ideas, themes, and questions of the initial conversation. Encourage the ambassadors to link and connect ideas coming from their previous table conversations as they listen carefully and build on each other's contributions.
7. In the third round of conversation, either have people return to their first table or have them continue traveling to new tables. Sometimes facilitators will add a new question in the third round of discussion to help deepen the exploration.
8. After several rounds of conversation, initiate a period of whole-group discussion.

Tips for Success

- Clarify your purpose, and keep in mind the reason for gathering your group. Design the session with targeted questions and issues in mind.
- As an important component of the World Café approach, create a welcoming environment so participants can share their ideas. Consider how your invitation and the meeting's location will contribute to a hospitable atmosphere.
- Have your World Café explore only one question or a set of related questions. Remember that choosing questions that are of central importance to your meeting objectives and, for that matter, to your participants can produce powerful results.
- Importantly, encourage participants to be active contributors of their ideas and perspectives while allowing those who wish to participate by simply observing to do so.
- Remember that in the World Café design, participants circulate about the large group and take ideas from each small group's discussion to the next table as they become ambassadors. Typically, one participant stays behind as a host, sharing the previous group's ideas with the new arrivals. By using the center of the small-group tables as spaces for drawing with markers, your facilitators and hosts can draw attention to the illustrations and diagrams created as an example of a shared, collaborative vision.
- Encourage participants to sharpen their listening skills as they go into the World Café. Encourage participants (a) to listen rather than plan

their response to the current speaker, (b) to be open to being influenced by another's ideas, (c) to listen for deeper questions and insights that may emerge in the group discussion, and (d) to listen for what questions are not being asked or for what is not being spoken.

- To tie in the whole group's progress, first ask each table to spend a few minutes brainstorming about what has emerged in their World Café rounds that has been most meaningful. Depending on the range of ideas that have emerged, the ambassadors and table participants might want to prepare a summary list of the ideas. The list could include those items that were suggested frequently, but it could also include ideas that were suggested less often but that could represent an important and perhaps underrepresented view. Because the World Café is meant to collect expansive ideas around an issue, under many circumstances it will be useful to think beyond the "top five" type of items and to dig deeper about items that were not suggested as frequently. After this period, begin a whole-group discussion. Perhaps tailor this exercise into thematic clusters by asking people from each table to share one thing that they found new or surprising, and then asking others to share ideas and observations that build on that one thing. Ask the whole group the following questions:
  - If there were a single voice in the room, what would the group say are the key takeaways?
  - What deeper questions are emerging as a result of these conversations?
  - Do we notice any patterns emerging? If so, what do these patterns point to?
  - What do we now see and know as a result of these conversations?

"Speed Dating" Variation

As with speed dating events—where single adults meet to have timed interactions with other singles so they can determine if there is a match—adding a similar set of timed and focused conversations among pairs of participants can be a useful variation of World Café. The same general World Café setup would occur, but instead of starting with small groups for 20 minutes, you would start with paired participants talking and brainstorming together for about 5 to 8 minutes.

Following two or three rounds of the paired conversations, you would then begin the process of sharing ideas on white boards or through index cards handed to a facilitator. This information would then be collapsed into the whole-group session of the World Café. This variation on the format allows for more sharing by each participant and potentially for an even deeper conversation on issues (with a reduced threat that a single person would dominate a group conversation).

Notes

1. Based in part on "Café to Go" in World Café (2008) at http://www.theworldcafe.com/pdfs/cafetogo.pdf.

References and Resources

Brown, Juanita, and David Isaacs. 2005. *The World Café: Shaping Our Futures through Conversations That Matter*. San Francisco, CA: Berrett-Koehler Publishers.

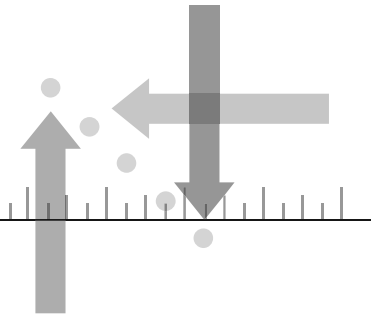
Brown, Juanita, David Isaacs, Eric Vogt, and Nancy Margulies. 2002. "Strategic Questioning: Engaging People's Best Thinking." *The Systems Thinker* 13 (9).

Brown, Juanita, David Isaacs, Nancy Margulies, and Gary Warhaftig. 1999. "The World Café: Catalyzing Large-Scale Collective Learning." *Leverage Magazine* (33): 1–2.

Websites

"Café to Go: A Quick Reference Guide for Putting Conversations to Work" is available at http://www.theworldcafe.com/pdfs/cafetogo.pdf.

Additional World Café information is available at http://www.theworldcafe.com/.



DELPHI TECHNIQUE

Purpose

The Delphi technique is a powerful approach that can be used (a) to gather data and opinions from experts (such as identifying primary performance constraints) or (b) to lead to a group decision (such as making recommendations about what to do). The Delphi technique is also referred to as the Delphi method, Delphi approach, Delphi activity, or Delphi study. It was developed by RAND during the 1950s for warfare forecasting, and it relied on panels of experts to provide information in a systematic and iterative manner.

Needs Assessment Applications

The Delphi technique is a data collection tool that you can use to solicit insight from a group of experts in a structured way. In a needs assessment, the Delphi technique is typically used to gain expert input for defining needs, to identify desired results, to prioritize causes, or to recommend solutions. The intention with the Delphi technique is for the iterative process not only to solicit insight from experts, but also to ultimately reveal the areas where experts have consensus in their views. This consensus expert insight can be an invaluable source of information to support decision making about things such as needs, goals, and anticipated outcomes.

The Delphi technique uses a "layered," or iterative, strategy to gather information and arrive at consensus about a specific subject, situation, need, or goal. The technique is similar to the nominal group technique (see page 166 in part 3B) in terms of its structure. One of the unique features of

the Delphi technique, however, is that the information solicitation and consensus-building processes can be done through either postal or electronic mail. The Delphi technique can be used for planning, problem solving, decision making, or data collection. The information that is generated through this technique typically (a) provides insight about a variety of different alternatives, (b) seeks to correlate expert insight on a specific subject, (c) provides the background information necessary for decision making, or (d) reveals consensus in expert opinions about a particular subject or theme.

Advantages and Disadvantages

Advantages

- The Delphi technique is versatile in terms of its potential application and can, therefore, be used to tackle a very wide variety of issues, subjects, and situations.
- Through this technique, you have the option of setting up a broad and dynamic panel of experts from a variety of disciplines and professional sectors (for example, donors, community organizations, government officials, and academia).
- Location is not a constraint in terms of access to expert insight. This technique accommodates data collection through either postal or electronic mail, making it possible to involve experts from almost any part of the world.
- The iterative process of the Delphi technique promotes reflective and evaluative contributions from experts.
- The technique enables the natural group process of sharing and evaluating ideas and expert insight without the need for an in-person meeting format. Because the objective of the Delphi technique is to achieve convergence, as opposed to divergence, in expert perspectives, it promotes a nonconfrontational format for communication and exchange. Expert contributions also remain anonymous to other participants in the expert panel, which may help participants to feel more at ease with fully and honestly providing their insights and opinions.
- The structured and step-by-step nature of the technique makes it very democratic in nature, giving each invited participant an equal opportunity for contribution.

- Quantitative analysis of the data from a Delphi study is relatively simple and can be done using spreadsheet software (such as Microsoft Excel).

Disadvantages

- If the coordinator of a Delphi activity fails to (a) select a representative expert panel, (b) select a good initial question, or (c) follow the recommended implementation steps for the technique, the outcomes of the activity may be compromised.
- If the Delphi technique is conducted through postal mail, the time required for the process can be lengthy, particularly if the panel of expert participants is located in a variety of different countries. If you decide to use the Delphi approach with postal mail, you should expect to allocate between one and three months for data collection.
- The technique requires sustained involvement from the participants. Participant dropout is, therefore, a risk.
- The viewpoints and judgments that are collected through the Delphi technique are subjective in nature. Thus, the extent of accuracy and comprehensiveness of the data may, in some instances, be uncertain.
- The Delphi technique, although generating valuable information, should not be used as the sole source of information for making definitive decisions about needs or future strategies.

Process Overview

The procedure for the Delphi technique essentially consists of four steps: (a) planning, (b) setting up the expert panel, (c) administering questionnaires, and (d) interpreting final data for decision making.

Planning

1. Form a small group of colleagues to work with you on implementing and monitoring the Delphi study. The Delphi depends on the group's ability to identify and engage a number of experts on the topic, which is often challenging for one individual to manage.
2. Use the list of information required for the needs assessment to determine the specific issue, purpose, scope, and focus of the Delphi study.
3. Develop a time line for the Delphi activity. This time line should include intended deadlines for (a) setting up the expert panel, (b) sending out each

of the questionnaires, (c) receiving responses to each of the questionnaires, and (d) analyzing and interpreting the final results from the Delphi.

4. Determine how you will define *consensus* from the responses you receive. For example, does a simple majority (51 percent) represent consensus, or is greater agreement required?
5. Create the first questionnaire for the Delphi study. Ensure that the questionnaire clearly aligns with the scope and purpose of the Delphi.
    a. The questionnaire can consist of one single question that targets the specific focus area of the Delphi. If a single question is used, make sure that it is an open-response question (that is, a question that allows the respondent to submit his or her own answer rather than being forced to choose an answer). An example might be a question asking experts to identify all possible causes of a specific performance gap.
    b. Plan on testing the questionnaire before you distribute it so you can make sure that it is worded correctly to elicit the types of information that you are looking for.

Setting Up the Expert Panel

1. Select a panel of experts to match the scope and purpose of the Delphi study. The initial panel should typically consist of between 30 and 50 participants, though more may be warranted in some cases. The specifics of the kind of panel that you create may differ depending on the specific goals of the assessment. Here are some tips:
    a. Although a larger panel will generate more information on the focus of the activity, it will also increase the data to be analyzed in each phase of the Delphi.
    b. The panel should include individuals who are experts in the focus area of the study.
    c. It is advisable that you select participants who have both conceptual and applied (practical) understanding of the focus areas of your Delphi activity.
    d. If the focus area of your Delphi endeavor extends over several sectors, you may want to invite experts representing each of those sectors.
    e. You should try to screen the panel to make sure that you have selected a group of participants who represent diverse perspectives about your focus area.

2. Prepare and distribute a letter to invite the experts you want to participate on the expert panel. The letter should include the following:
   a. The specific scope and purpose of the Delphi
   b. The general process that will be used in the activity
   c. The anticipated time commitment the expert will be asked to make (This commitment should include the amount of time that you expect the expert will require to complete each questionnaire, as well as the span of time over which the Delphi activity will take place.)
3. Remember that sustained participation of the expert panelists is essential to the success of the Delphi activity. Consider following up the invitation letters with a telephone call to each invitee.

Administering Questionnaires

1. Send out the questionnaire that you prepared during the planning phase. Make sure that you include directions on when and how responses should be returned (for example, "Please submit your responses to this questionnaire by replying to this e-mail. The deadline for submitting responses is April 2.").
2. Code the responses by identifying all the elements or factors that are referred to in the responses you receive. For example, if you asked experts to identify all "possible factors contributing to a performance problem," then your task is to identify each statement referring to a "possible factor" in the responses. Next, you compile all those statements of possible factors into one single list. Make sure that the duplicate references are removed and that each factor represents only one idea or construct.
3. Create a second questionnaire using the list of elements that you compiled in step 2, directly above. In your instructions to this questionnaire, ask the respondents to rate each element on the list in terms of importance or relevance to the focus of the Delphi. For example, provide a scale as follows: "*Low Importance = 1 2 3 4 5 = High Importance.*" Ask respondents to rank each element in the list while using that scale. Make sure that you include directions on when and how responses should be returned.
4. Tabulate the results from the second questionnaire by calculating the mean (average), median (middle), and mode (most) scores, as well as standard deviation (dispersion of scores around the average) and inter-

quartile range (percentage of similar responses). Each can be calculated in spreadsheet programs such as Microsoft Excel.

5. Using your analysis, determine where there is consensus among the experts. Typically median (middle) scores, along with interquartile ranges, are of the most value in determining consensus although how you define consensus can vary from project to project. In their article, Hsin-Ling Hung and his colleagues (2008) identify a number of important considerations in defining and calculating consensus.
6. Drawing from the results of the second questionnaire, develop a third questionnaire with the items from the second questionnaire that had the greatest consensus among the experts. Depending on the context, you will want to determine an appropriate "cut score" for consensus to be able to reduce the list.
7. Conduct a third and fourth round of questionnaires, calculating consensus among experts using the results of each.
8. Remember that research indicates most Delphi applications reach stable consensus among experts (in other words, few changes from one round to the next) after four rounds. If you do not see this consensus, then you can use additional rounds of data collection (five or six in total) or can consider including both median scores and interquartile ranges for each element in the fifth round to help the experts move toward consensus. When you find stability in responses from one round to the next, you can then use those findings in your needs assessment.

Interpreting Final Data for Decision Making

1. Report the final results to the panel of experts; they will be interested.
2. Use the results to focus in on the specific issue, purpose, and scope of the Delphi study, and use the insight from the expert panel as guidance in your needs assessment decisions.

Tips for Success

- Consider seeking endorsement from an influential person for the Delphi activity. This endorsement may help you to solicit and sustain involvement from the experts you wish to involve in the activity.

- Remain in contact with participants throughout the Delphi activity. For example, consider calling each of the experts after you have sent them the invitation to participate. In addition, follow up personally with participants who do not respond to the subsequent questionnaires.
- If possible, plan to provide incentives to participants at each round in the Delphi activity. Incentives can be of either a material or a nonmaterial nature. Following up with thank-you cards or other personalized communication may play an important role in keeping participants involved.

References and Resources

Hung, Hsin-Ling, James W. Altschuld, and Y-F. Lee. 2008. "Methodological and Conceptual Issues Confronting a Cross-Country Delphi Study of Educational Program Evaluation." *Evaluation and Program Planning* 31 (2): 191–98.

Websites

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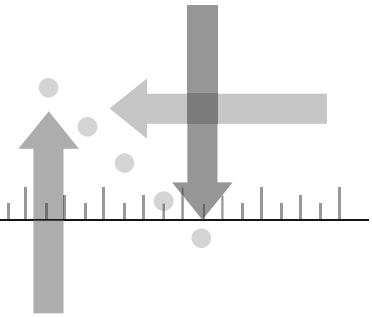
An article on the art of the Delphi technique is available at http://findarticles.com/p/articles/mi_6820/is_4_12/ai_n28482367/?tag=content;col1.

A descriptive definition, including a history of the technique and valuable resources, is available at http://en.wikipedia.org/wiki/Delphi_method.



PERFORMANCE OBSERVATIONS

Purpose

The goal of a performance observation is to accurately document the steps, procedures, tools, and decisions used to accomplish current performance (see box 3A.3).

Needs Assessment Applications

To fully understand what is involved in accomplishing current results, you should use performance observations to document the current individual or team processes. Performance observations can, thereby, provide essential information in the analysis of current performance (or information that is helpful in determining what is working and what is not working in the current process).

Information from the performance observation can then be compared and contrasted with information from other sources (such as interviews with expert performers, statistical performance measures, task protocols and procedures, best practices for the task, and performance standards for desired performance).

Box 3A.3 Sample Uses of Performance Observations

- Identify procedural breakdowns in current delivery of HIV/AIDS medications.
- Modify procurement process to reduce redundancies.
- Reduce the time required to conduct inspections to identify potholes in roads.
- Improve team member collaboration.

Advantages and Disadvantages

Advantages

- By observing without interfering, you can create a performance observation that accurately documents the steps, procedures, tools, and decisions made in completing a task.
- Performance observations don't rely on the perspectives or memories of performers to define how tasks are currently completed.
- Performance observations can be done by multiple members of the needs assessment team to validate the findings.

Disadvantages

- Performance observations require the time and related expenses of having an observer to document the current performance.
- Observations alone may miss some of the decisions and other nonvisible aspects that go into performing a task (especially with regard to complex cognitive tasks).
- Observers may introduce biases into the needs assessment. Therefore, it is important that observers are trained in the observation process and are sensitized about biases and the need for objectivity. Having multiple observers can also be a way to address issues of observer bias. Observers should also be aware that those being observed might change their behavior, change what they say or do, or say or do things they think the observer would want to hear. The observer should consider options on how to conduct the observation to avoid influencing the person(s) being observed.

Process Overview

1. After needs (or gaps between current and desired performance) have been identified, use performance observations to document the current processes, procedures, tools, and decisions that helped achieve current results. To begin, identify essential tasks involved in the achievement of current performance (for example, develop a concept note, monitor procurement transactions, or review project reports).

2. For each essential task involved in the achievement of current performance, determine which tasks can be observed during the needs assessment. For instance, if a task will not be completed again for another 12–18 months, then it is unlikely that you can include a performance observation of that task in your needs assessment.

3. Remember that performance observations are rarely done as an exclusive information-collection process because observations should involve minimal interactions with the performers (which could be distracting and could compromise the validity of the observation). Plan to integrate your performance observations with other processes such as post-performance interviews, document reviews, or performer focus groups.

4. Before observing the completion of a task associated with the performance, review any documentation on the processes, procedures, tools, or decisions that may be used in completing the task. Having an idea of what steps are coming next can help you to focus your observations.

5. Create a performance observation protocol or checklist to ensure that you systematically assess the current performance. This step will also be valuable if multiple reviewers will be observing the performance or if multiple tasks are to be observed.

6. Select the performers to be observed. It is frequently helpful, when possible, to observe the performance of both an expert and a novice so you can isolate potential differences. For most needs assessments, as compared with performance evaluations, it is useful to inform the performer that he or she will be observed and to schedule time to debrief him or her after the observation.

7. Observe the performer while he or she completes the task. During the observation, the observer should not interfere with the performance. For example, do not stop the performer to ask questions or make suggestions; hold questions and comments until the post-observation debrief. Use the observation protocol to track activities and to make observations about how the task is completed.

8. After the task is completed, meet with the performer to debrief him or her on the observation. During the debrief, ask questions to (a) identify any unique characteristics of the observed performance that may not be relevant to your assessment (for instance, unrelated activities or interruptions that took place during the observation), (b) determine if the observation is representative of task performance by others, or (c) find out

what recommendations the performer would offer for completing the task more efficiently or effectively.

9. Write a summary report of the findings from each performance observation. Include these in the report: background information on the task, performer, and performance environment; notes from each performance observation; notes from each observation debrief; and your comments or recommendations that are based on observations.

Tips for Success

- Observe the complete performance of the task being reviewed; you don't want to leave early and potentially miss critical steps, tools, or decisions. However, for tasks that are completed over several days or weeks (such as developing a project plan), it can be useful to conduct performance observations that focus on select subtasks.
- Make arrangements early in the needs assessment process if you want to observe performance, especially for tasks that are not completed on a routine basis within the organization.

References and Resources

McClelland, Samuel B. 1994c. "Training Needs Assessment Data-Gathering Methods: Part 4—Onsite Observations." *Journal of European Industrial Training* 18 (5): 4–7.

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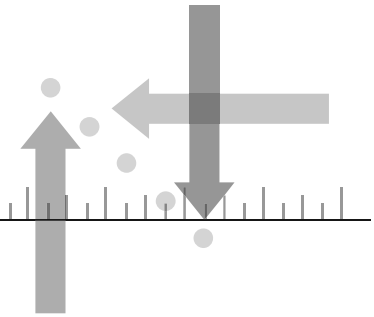


TASK ANALYSIS (HIERARCHICAL OR SEQUENTIAL, IF-THEN, AND MODEL-BASED)

Purpose

The purpose of a task analysis is to systematically describe, document, and analyze the activities, procedures, processes, and resources that are used by individuals or groups to accomplish current results.

Needs Assessment Applications

A task analysis explains the processes and inputs that are being used at this time to accomplish results. Consequently, a task analysis defines what individuals and teams both are doing and should be doing to contribute to current results. As part of a needs assessment, this vital tool can inform both the diagnosis of needs and the detection of potential remedies for improving performance.

In many ways, a task analysis process parallels the performance analysis process although the former begins with the results currently being achieved, whereas the latter begins with the desired results that should be accomplished in the future. Sometimes these starting places are one and the same. Yet, from their unique vantage points, the two processes parallel each other as they identify the tasks, processes, procedures, tools, and resources that are used to achieve results.

Your focus during a task analysis is on systematically documenting what individuals or groups are doing (or should be doing). From observable processes and behaviors to scripted procedures and organic creativity, it is important to detail current events so that they may be compared with desired events when identifying future actions.

Advantages and Disadvantages

Advantages

- A task analysis can attain a clear definition of what resources, processes, and results are related to current tasks that are (or will be) related to your program or project.
- By using a task analysis to systematically review the completion of current tasks and their results, you will ensure that your needs assessment will be better prepared to make recommendations regarding changes to current procedures and new tasks.
- A task analysis will help you to identify both what is working well and what is not working as well within the current organization.

Disadvantages

- Effective task analyses require time and resources that may not have been included in your initial planning.
- Completing a task analysis is usually more complex than completing the task itself. For complex tasks, you will likely want to use a task analysis expert.
- It can be challenging to determine (a) if and how the completion of tasks would change because of needs assessment recommendations and (b) how those changes would influence other parts of the system.

Process Overview[1]

1. Identify key positions and tasks related to the completion of results within your results framework. For example, if your results framework identifies food safety inspections conducted by the state health and agriculture agencies as an essential result for improving performance in the overall food safety system, then you would want to identify which positions and tasks within the agencies are (or would be) responsible for the successful completion of food safety inspections.
2. Select a task analysis method. Several systematic task analysis methods can be applied, each with advantages and disadvantages depending on the context. As a result, use a mix of task analysis methods during any needs assessment. Three possible methods are (a) hierarchical (sequential), (b) if–then, and (c) model-based.

a. ***Hierarchical (Sequential) Task Analysis***

(1) This kind of analysis identifies both the component steps in completing the given task and their hierarchical (or sequential) relationship to one another. When desired results are not being accomplished, use the hierarchical analysis to provide insights into the obstacles preventing success. Equally, when desired results are being accomplished, use the analysis to detail the constructive processes that lead to accomplishment of objectives.

(2) To begin, you should review, observe, and document each step taken by the performer in completing the task. Verify the appropriate sequence of steps for accomplishing results, and identify the resources (for example, supplies, computers, or other employees) used to complete the task. Routinely, processes will involve steps that cannot be observed. Talk with the individuals or teams that perform selected tasks to identify both internal and external behaviors. Most often, a hierarchical task analysis requires a combination of observation and interviews with expert performers.

(3) For example, a task analysis may identify that receptionists complete the following steps in accomplishing a performance objective for the pension office:

- Check voice mail messages.
- Take detailed and accurate notes on each voice mail message.
- Send e-mail to district pension officers along with voice mail messages.
- Copy managers on e-mail messages sent to their respective pension officers.
- Clear phone messages after e-mail messages have been sent.

(4) Depending on the level of detail required for making useful decisions, additional analysis may be done on any single step within the process to determine more detailed actions taken by the expert performer (for example, what steps are required to check voice mail messages). The level of detail required for a task analysis varies greatly from initiative to initiative. Balance (a) the desired level of detail for making improvement decisions with (b) the available time and resources.

(5) Create a graphic depicting the tasks and their relationships (see figure 3A.2).

b. ***If-Then Task Analysis***

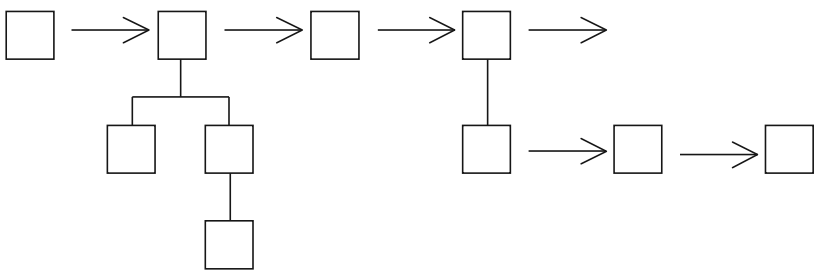
(1) If–then analysis applies process logic to the determination of the important decision steps for completing a task. This analysis technique can be useful when you have multiple decision steps. For example, for the task of using a word processing software application, you might include "*If* a word in the text is underlined in red, *then* right-click on the word to identify options for revising the spelling of the word." As tasks gain in complexity, multiple decisions must typically be made by the performer. The if–then analysis becomes an effective technique for identifying and documenting decisions and behaviors that cannot be observed.

(2) In a manner similar to the hierarchical analysis technique, you can use both observations and interviews with expert performers to complete an if–then analysis. In addition, combinations of methods are commonly used to identify the constituent steps in completing many complex tasks.

(3) Continuing the example, receptionists in another pension office might identify the following steps for achieving the same performance objective:

- Step 1: Check voice mail messages when you arrive at work. If there are messages, then take detailed notes on each voice mail message.

Figure 3A.2 Example of a Hierarchical Task Analysis Graphic



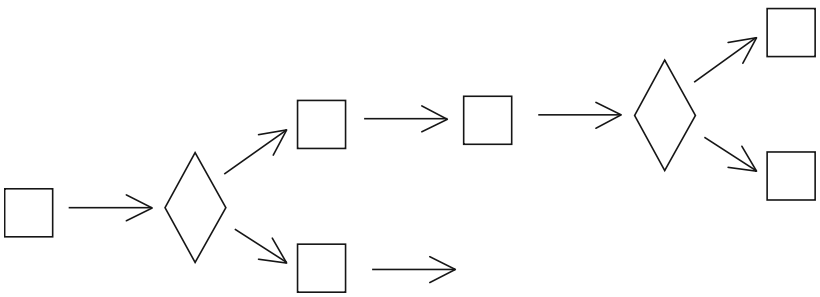
- Step 2: If the voice mail was for a pension officer, then e-mail the pension officer the contact information and message from the voice mail (and proceed to step 4).
- Step 3: If the voice mail message was for a manager, then forward the voice mail to the manager using the *8 feature of the phone.
- Step 4: Copy (or inform) the managers about e-mails going to their respective pension officers.
- Step 5: If you have completed steps 2, 3, and 4 for all voice mail messages, then delete phone messages.

(4) Create a graphic depicting the tasks and their relationships (see figure 3A.3).

c. ***Model-Based Task Analysis***

(1) Use a model-based analysis when the task being reviewed is vague or difficult to define. Because many "soft skills" or professional tasks (for example, demonstrating leadership, group problem solving) are characterized by their elusive definitions and reliance on situational context, model-based analysis can provide you with essential information for describing how performance objectives get accomplished in these situations. In completing a model-based analysis, you work closely with performers to develop a model or framework for completing the task. Performance is then the result of applying the model even when there are ambiguous guidelines for performing the task.

Figure 3A.3 Example of an If-Then Task Analysis Graphic



(2) For example, for the soft skills task of mentoring pension office employees, the analysis may identify the following performance model:

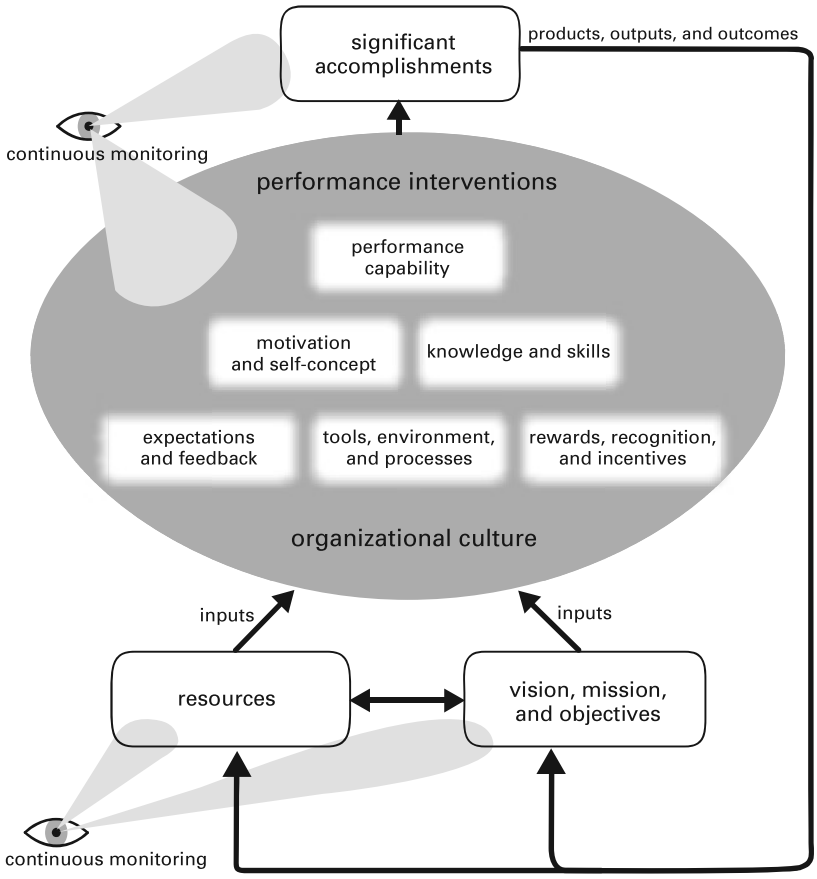
> Describe for the employee the optional techniques that may be used to complete his or her work. In mentoring the employee, use one or more of the following techniques: (a) use examples of other current and previous employees, (b) have the employee form a mental picture of performing the work at his or her desk, (c) demonstrate successful performance of the work-related tasks, (d) have the employee practice the work steps and then provide immediate feedback to the employee, and (e) suggest additional training opportunities offered within the organization.

(3) Use interviews (or focus groups) with expert performers to define a model for a task. After a model is developed, expert performers should again review the procedures and options to ensure that the model adequately represents a framework for accomplishing desired results. The ability of a model to represent the successful completion of a task depends on the flexibility of the model. If your model-based analysis does not result in a flexible framework that can be applied in a variety of contexts, then review the task using another task analysis technique.

(4) When possible, create a graphic depicting the tasks and their relationships (see figure 3A.4).

3. To collect information in a task analysis, use a combination of interviews, observations, intensive observations, focus groups, surveys, document reviews, data reviews, and other techniques.
4. After the initial task analysis is completed and as a useful step, have the participants in the analysis review your findings to provide clarifications and corrections when appropriate. Depending on the complexity of your tasks, several rounds of revisions may be required.
5. Write a summary report of the findings from the task analysis.
6. Remember that the task analysis is an essential ingredient to a needs assessment and should be used as a point of comparison with other assessment data (for example, surveys, interviews, focus groups) to inform your decisions.

Figure 3A.4 Example of a Model-Based Task Analysis Graphic



Source: The example is the performance pyramid model found in Wedman (2010). Reused with permission. Also available at http://needsassessment.missouri.edu.

Tips for Success

- Strive to be very systematic in your analysis.
- Communicate openly with those participating in your analysis to assure them that the results of the analysis will be used only for improving results and not for placing blame.
- Remember that actions speak louder than words; it is better to observe individuals performing a task than to simply ask them what they do.

Note

1. Based in part on http://www.nwlink.com/~donclark/hrd/tasks.html and Watkins (2007).

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Website

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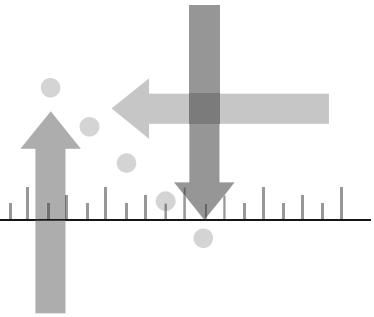

COGNITIVE TASK ANALYSIS

Purpose

The purpose of a cognitive task analysis (CTA) is to systematically define the decision requirements and psychological processes used by expert individuals (or performers) in accomplishing results.

Needs Assessment Applications

A standard task analysis explains the processes and inputs that are being used at this time to accomplish results. As a consequence, a task analysis defines what individuals and teams either are doing or should be doing to contribute to current results. In the completion of a needs assessment, the task analysis is a vital tool for informing both the diagnosis of needs and the detection of potential remedies for improving performance.

In a CTA, however, cognitive analysis methods focus on the psychological processes underlying the completion of a task. For example, CTA may be used when one is trying to understand how master teachers are able to manage student behaviors in classrooms. CTA should be used whenever complex decisions are required (such as when multiple contributing variables and options must be weighed by the performer) and when few observable behaviors can be identified. Subtle cues from the performance context and the experience of expert performers are often discovered through the CTA technique. Of the many tools and techniques offered in this book, CTA is one of the more difficult approaches to undertake.

Advantages and Disadvantages

Advantages

- A CTA generates detailed, precise information on the nature of expert performance in a specific task of interest.
- When implemented correctly, CTA techniques provide highly valid sources of information on expert cognitive processes.
- A CTA provides systematic procedures (rather than hit-or-miss steps) for ascertaining expert cognitive processes.

Disadvantages

- Analysis of the data gathered during a CTA can be time-intensive.
- CTA does not always capture other noncognitive attributes necessary for accomplishing results (such as physical capabilities, access to resources, and interpersonal relationships).
- The results of a CTA can be misleading when expert performers have performance capacities beyond that of others (for example, a CTA can be done with high-performing professional athletes, but implementation of cognitive processes alone will not duplicate performance).
- Completing a task analysis, especially a CTA, is usually more complex than completing the task itself. For complex tasks, you will likely want to use a task analysis expert to get useful results.

Process Overview[1]

Collect Preliminary Knowledge

To kick off the CTA process, identify some key cognitive tasks to study (for example, how master teachers manage classroom behavior) that are important elements in the achievement of particular results (for example, improvements in student performance on tests). In particular, identify those cognitive tasks that merit *detailed* study through CTA. As you proceed through the following steps, pay special attention to (a) tasks that are important, fre-

quent, and highly critical cognitive tasks within the job performance that you are studying and (b) tasks or problems that are within the job performance and that allow for discrimination between expert and novice performance (such tasks are referred to as *representative tasks*).

1. Develop some general understanding of the domain area (for example, training of teachers) in which the CTA will be conducted and of the common terminology used in that domain area. This understanding will make it a lot easier to conduct an effective CTA.
2. Identify experts who are good candidates (for example, master teachers) for serving as subjects of the CTA (ideally two or more experts should be identified for participation). Experts with recent experience in both performing and teaching the cognitive skill are generally considered to be good candidates for participation.
3. Identify the knowledge structures associated with the task area through one or more of the following substeps:
    a. ***Document review and analysis:*** Review any written materials that you can locate and that provide relevant information on the tasks you have identified as being of interest. Documents could include job descriptions, reports, training materials, and so on. By reviewing available documents and research, you are better prepared to conduct interviews with experts, and you are able to (later on) identify discrepancies between extant training (performance support materials) and expert performance.
    b. ***Observation:*** Observe an expert conducting the tasks and procedures of interest to the CTA (for example, teaching a classroom subject to high school students). Record the actions and conditions that are naturally a part of the process of executing the tasks that are of interest. Make special notes of points in the task-completion process where it seems that the expert is engaged in decision making, analysis, or other critical cognitive tasks.
    c. ***Unstructured interviews:*** When you are conducting an unstructured interview, it generally is helpful if you have been able to do a document analysis or observation beforehand. For the interview, your goal is to ask the expert direct questions that will give you more information about the tasks and to sort through preliminary questions that may help you in preparing for structured interviews that you complete later in the process. Because the interview is unstructured, you may opt to

take a "go with the flow" approach for the interview, or you may ask the expert to focus on a specific aspect or task related to the domain area.

Identify Knowledge Representations

Using the results from the preliminary knowledge data collection, identify the subtasks and knowledge that are associated with each of the primary tasks that you are interested in studying further. Generally, an effective approach for visually organizing this information is by creating a visual representation of the relationship between the tasks, subtasks, and knowledge associated with the domain of interest. Concept maps can be an effective approach to visually representing the knowledge and task structures.

Use Focused Methods to Gather Information

1. If the CTA will be conducted by someone other than you, identify someone to serve as the cognitive task analyst. Note that it is highly desirable to choose this individual carefully. Ideally, it is someone who can interact comfortably with the subject matter expert and who can learn domain- and task-specific terminology efficiently.
2. Choose one or more of the following methods to work with the expert(s) to identify, cluster, link, and prioritize the critical cognitive decisions that are routine in expert performance. All of these knowledge-gathering methods can be used with expert performers. If you intend to also gather information from novices, however, it is recommended that you select either *structured and unstructured interviews* or *concurrent verbal protocol analysis* as knowledge-gathering methods, because the other techniques assume a high level of domain knowledge.
    - ***Structured and unstructured interviews:*** One approach is to ask the expert (for example, a master teacher) to list (a) all of the steps involved in completing the subtasks (for example, how to call on students, how to deal with misbehaviors, and so on) that are part of the larger task (for example, classroom management) that you are studying; (b) key decision points, and when those decision points appear; (c) procedures that can be used to make decisions between alternate options; (d) conceptual knowledge required to tackle the subtasks; and (e) ways that the expert determines when the conditions call for beginning the process for completing the subtask(s).

- ***Concurrent verbal protocol analysis:*** To begin a protocol analysis, you should work with experts to identify a good "representative task" in the task area. An example could be how a master teacher would deal with a disruptive student. Develop a problem or scenario around that representative task, and ask several experts (such as master teachers) to review and modify the problem or scenario before using it for knowledge gathering.

  To begin understanding the task (for example, the process of dealing with disruptive students), you should schedule time with the expert in a quiet location where you have audio or video recording capabilities. Prepare and train the expert for solving problems aloud by giving him or her instructions on how to think aloud, as well as by giving the expert the chance to think aloud while solving at least two or three sample problems so that he or she can get comfortable with the verbalization process. Next, present the main problem or challenge to the expert. Record all of the verbal utterances of the expert as he or she solves the problem. It is very important that you avoid interrupting the expert at any time during the problem-solving process. If possible, gather verbal protocols from several experts for the same problem, and pay special attention to problem-solving steps and strategies used by all or most of the experts.

- ***Applied cognitive tasks analysis:*** In this approach, you conduct three structured interviews. Each interview generates a separate product. Through the first interview, you develop a *task diagram* that gives a broad representation of the task and specifically allows you to hone in on complex cognitive processes that merit further consideration. The second interview yields a *knowledge audit*, which probes the expert on the skills and knowledge applied to tackle specific component tasks or decision points in the overarching task process. The third and final interview involves presenting the expert with a specific and relevant scenario designed to elicit insight into the cognitive processes used by the expert in the scenario context. The compiled and analyzed results from the applied cognitive tasks analysis are represented in a *cognitive demands table.*

- ***Critical incident (or decision) method:*** This procedure begins with the expert identifying a situation in which he or she had to apply expertise to a critical and uncommon situation relating to the task area of interest (for example, a classroom where students were starting physical fights). The expert describes the incident, and the analyst works with the expert to create a time line for the incident. The ana-

lyst then works with the expert to try to identify key points on the incident time line when decisions had to be made (for example, when to intervene to prevent fights in classrooms). From there, the analyst closely questions the expert to identify perceptual cues and prior knowledge that were used in the decision making, as well as alternative decisions that could have been made. An understanding of those key decision points, as well as of the representative tasks that experts can perform and that novices have difficulty performing, is an important result of using the critical incident method.

3. Develop a protocol for each of the knowledge-gathering methods selected. Next are recommendations for the design of the protocols for each of the knowledge-gathering techniques:

   - ***Protocol for structured and unstructured interviews:*** Develop instructions and questions for interviews, focusing on key decision points, procedures for choosing between different options at decision points, and domain knowledge.

   - ***Protocol for concurrent verbal protocol analysis:*** Develop a protocol that provides participants with information on procedures for verbalizing thought sequences, as well as a few simple problem-solving tasks that can be used to practice the verbalization process. The protocol should conclude with the presentation of the main problem (based on the representative task).

   - ***Protocol for applied cognitive task analysis:*** Develop instructions and questions for each of the three interviews. For the task diagram, come prepared with paper, sticky notes, markers, or a computer to diagram the tasks. For the knowledge audit, come prepared with some idea of what the possible knowledge and skills would be so you are able to probe for more information. For the third interview, prepare scenarios for the expert to discuss.

   - ***Protocol for critical decision method:*** Develop instructions and questions, focusing on key decision points, procedures for choosing between different options at decision points, and domain knowledge in use in the critical incident identified by the expert.

4. Apply the knowledge-gathering technique. It is highly advisable that you record the knowledge-gathering session in either audio or video format (video format is justified in cases where the task includes psychomotor actions). Make sure that you have the expert's permission in

advance to record the session. Because people generally do not feel immediately at ease with being recorded, and because the knowledge-gathering exercise may be unfamiliar to the expert, it is highly recommended that you run through with the expert an example session of the exercise before conducting the actual knowledge-gathering session. This suggestion is particularly relevant if you choose to implement a concurrent verbal protocol analysis, an applied CTA, or the critical decision method.

Analyze and Verify Data Required

1. If you have recorded the knowledge-gathering session(s), transcribe the recorded information into a text-based format.
2. Prepare the transcripts for further categorization and synthesis by coding them. Pay special attention to diagnosing and characterizing key decision points on the basis of the techniques used, the cues signaling the decision points, and the inferences made.
3. After coding has been completed, organize the data from the transcripts into a format that summarizes and categorizes the data.
4. Provide a copy of the formatted results from the knowledge-gathering session to each of the experts from whom you gathered data. Allow the experts to make any suggestions for changes or clarifications.
5. Integrate edits and adjustments recommended by the experts.
6. Compare the formatted results for each of the expert knowledge-gathering sessions, and verify that the formatted results reflect the knowledge representation for the task area.

Format Results for Intended Application

1. Using the formatted results from the expert knowledge-gathering sessions, create a single model task analysis, representing all the skills, knowledge, and strategies used by the experts when functioning in the task area.
2. Write a summary report of the findings from the CTA.
3. The task analysis is an essential ingredient of a needs assessment and should be used as a point of comparison with other assessment data (for example, surveys, interviews, focus groups) to inform your decisions.

Tips for Success

- Strive to be very systematic in your analysis.
- Remember that actions speak louder than words; it is better to observe individuals performing the task than to simply ask them what they do.
- Also remember that expert performers have often internalized or made habitual many of the key decisions that go into performing the related steps within the task. This internalization makes completing a cognitive analysis challenging. Aid expert performers in communicating their cognitive processes by using techniques such as card sorting, process tracing, or concept mapping.

Note

1. Based in part on Clark et al. (2008). Also available at http://www.cogtech.usc.edu/publications/clark_etal_cognitive_task_analysis_chapter.pdf.

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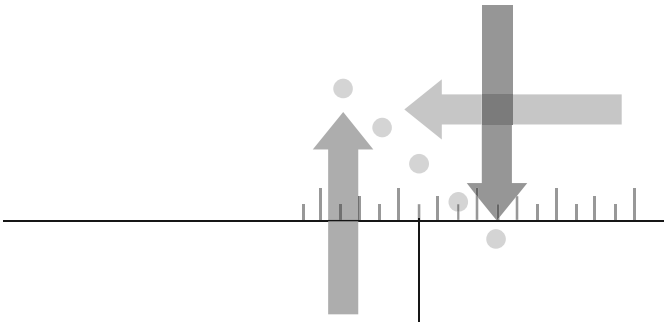
"Cognitive Task Analysis" (by Clark, Feldon, van Merriënboer, Yates, and Early) is available at http://www.cogtech.usc.edu/publications/clark_etal_cognitive_task_analysis_chapter.pdf.

"Cognitive Task Analysis" (from NATO) is available at http://ftp.rta.nato.int/public//PubFulltext/RTO/TR/RTO-TR-024/TR-024-$$ALL.pdf.

"Cognitive Task Analysis for HPTers" (presentation slides generated by Stone and Villachica) is available at http://www.dls.com/1090_CTA_Panel.pdf.

"Protocols for Cognitive Task Analysis" (from the Institute for Human and Machine Cognition) is available at http://www.ihmc.us/research/projects/CTAProtocols/ProtocolsForCognitiveTaskAnalysis.pdf.

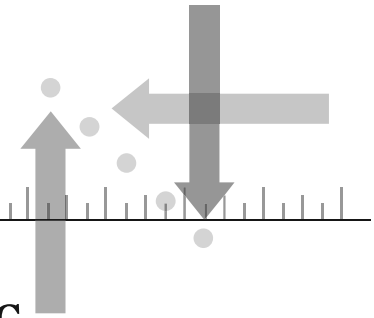


Part 3B

DECISION-MAKING TOOLS AND TECHNIQUES

As seen in *Part 3A. Data Collection Tools and Techniques*, this book provides options to consider using as you collect data to inform your needs assessment. However, once you have collected that information, another important step is required as you make decisions about using the data. And there are tools to support your decision-making process.

Part 3B. Decision-Making Tools and Techniques suggests tools for analyzing and prioritizing issues in your needs assessment process and, ultimately, for deciding to take action. Prioritizing information and making choices can be a difficult task for both individuals and groups. Instead of your making decisions through an informal, ad hoc process, this part describes tools that can be helpful in ensuring that issues are given due consideration in a participatory decision-making process.



NOMINAL GROUP TECHNIQUE (A GROUP CONSENSUS-BUILDING AND RANKING TECHNIQUE)

Purpose

The nominal group technique is used to engage in consensus planning so you can prioritize issues and make decisions.

Needs Assessment Applications

The nominal group technique can be a valuable tool for facilitating group decision making, and it can also be useful for data collection (such as for generating a list of the possible causes of a particular problem). The theorists who originated this technique used the term *nominal* (meaning *in name only*) to express the bringing together of a group that is assembled for the purpose of pooling ideas around a particular issue and ranking those ideas. We can also think of this technique simply as a *group ranking technique*. The technique provides a structured process for working with group members to prioritize their ideas, concerns, or other decision inputs in a format that is both inclusive and consensus-building.

During data collection, for instance, a nominal group technique can help a group of community members as they prioritize their list of public services that are provided by the city and that are inadequately addressing community expectations. This dynamic group decision-making process is flexible enough that you may use it multiple times at different steps within your needs assessment—whenever a group with multiple perspectives has to make a difficult decision.

Advantages and Disadvantages

Advantages

- The nominal group technique is more structured than the ordinary group discussion approach.
- Through a nominal group technique, everyone in the group is given an opportunity to contribute to the discussion and decision, thereby avoiding a situation where one person dominates the group process.
- The nominal group technique can be used with small (3–9 people) groups as well as with larger groups (for example, 10–30 people).
- By using the nominal group technique, you can get a sense of priority concerns that are represented among the group's members.

Disadvantages

- The synergism that is experienced in more open-ended group discussions may not develop as easily in the nominal group approach.
- The nominal group technique may feel somewhat mechanical to some participants. This situation can be circumvented to some extent by ensuring that the facilitator shows flexibility in process and implementation.
- Although the nominal group technique can be used with a range of group sizes, it is hard to implement the technique effectively with large audiences unless you plan very carefully beforehand.

Process Overview

1. From the list of decisions to be made during your needs assessment, identify those elements that may best be attained through the nominal group technique.
2. Create a facilitator's guide or protocol to guide the group. In the protocol, ensure that all participants are given multiple opportunities to contribute to group decisions. At the same time, the process must intentionally and continually move the group toward a decision, rather than letting discussions continue without advancing. The guide should offer

the facilitator a fair amount of flexibility to modify the process when the group requires additional information or when subdecisions must be made prior to other decisions.

3. Schedule a time for the group when the highest number of priority participants are available. Verify that you have a group facilitator available at the scheduled time.
4. To begin the exercise, give each group member some paper and a writing implement.
5. Present the session's single topic to the group members. For example, the group members could be presented with a context for why the group is meeting and could be asked to "identify what results you should be accomplishing but are not able to accomplish at this time," "list all of the things that could be improved about . . . ," or "list which of the factors causing the performance gap should be our priorities for the next year." Only one key question should, however, be used in a session so that you can maintain a clear focus and objective.
6. Give the group members an opportunity to ask any questions that come to mind or to discuss anything that helps to elucidate the scope and specifics of the topic. In other words, accommodate interaction that will help increase clarity for the discussion.
7. Ask the group members to take time (generally a few minutes) to think about the topic and to write notes for their responses. Encourage group members to write down their thoughts in a bulleted, abbreviated format.
8. On a turn-by-turn basis, ask each group member to share a response with the group. As each group member shares his or her response, write it on a flip chart. Invite the group member to elaborate if necessary, but do not allow other group members to ask questions, challenge, or otherwise discuss the responses (to avoid subtle peer pressure, disagreements, arguments, unwanted embarrassment, and other undesired behaviors or emotions).
9. After all group members have given one response, go around the room again and ask each group member to give a second response, and then a third. Continue this process until all answers have been written on the flip chart sheets. Ask participants to scratch items from their individual lists as those points are added to the flip charts (to avoid duplication). Again, group members should not discuss the responses, but the

facilitator may ask for clarifications to ensure an accurate response is recorded.

10. Hang the flip chart sheets next to one another so all sheets can be seen at the same time by all group members. Assign a letter to each discrete contribution on each flip chart sheet. To facilitate discussion, give each item on the flip charts a unique letter.
11. Give each group member a stack of index cards. Ask each member to identify, for example, the five responses that he or she feels is most important, identifying each response on a separate index card by the letter it has been assigned on the flip chart.
12. Next, ask the group members to rank the five responses they selected in order of priority, from one to five (five being the highest priority and one being the least high priority). They should do this on their index card by writing the rank order value of each response next to the letter for the response. When the group members are done, ask them to reorganize their index cards in alphabetical order.
13. Reading from the flip chart, go through the list of responses in alphabetical order. As you read aloud the letter corresponding with a response, ask each group member to state the rank (if any) that they gave it.
14. Aggregate all the ranks for each response on the flip chart. The responses with the highest aggregated value constitute the top priorities for the group.
15. If necessary, a second or third round of rankings can be done to further reduce the responses and to advance the group toward a decision.

Tips for Success

- Each nominal group session that you conduct should last between 30 minutes and four hours. Each session should present only one key question to the participants.
- Arrange to have the following supplies available at the group meeting site: flip chart, masking tape, markers, paper, index cards, and pens or pencils.
- If you are working with a large group, consider assigning individual participants to smaller groups, with an assigned leader for each group.

References and Resources

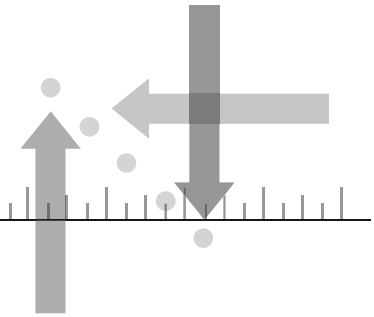
Witkin, Belle Ruth, and James W. Altschuld. 1995. *Planning and Conducting Needs Assessments: A Practical Guide.* Thousand Oaks, CA: Sage Publications.

Websites

"Expressed Satisfaction with the Nominal Group Technique among Change Agents" is available at http://cogprints.org/4767/01/Gresham.pdf. (This is a dissertation document; however, the literature review provides interesting and in-depth information on the use of the nominal group technique.)

"Nominal Group Technique" is available at http://syque.com/quality_tools/toolbook/NGT/ngt.htm. (This website includes a worked example of the technique being implemented.)

"Using Nominal Groups" is available at http://ppa.aces.uiuc.edu/pdf_files/NomGroup1.PDF.



MULTICRITERIA ANALYSIS

Purpose

The purpose of multicriteria analysis is to systematically provide a quantitative comparison across multiple options.

Needs Assessment Applications

Multicriteria analysis is a valuable tool for making decisions on the basis of information collected during a needs assessment. This analysis technique, which is based on the multi-attribute utility analysis frequently used by engineers and architects to select materials,[1] provides a systematic process of assigning and weighing quantitative (or numeric) values to a variety of potential performance-improvement programs and projects. Thus, it provides you with a justifiable process for determining what actions should be taken. As such, multicriteria analysis is a worthwhile tool for comparing across potential improvement activities, which can be particularly beneficial in organizational sectors (such as financial, manufacturing, aviation, construction, disaster management, and so on) that especially value quantitative and systematic comparisons of alternatives.

Advantages and Disadvantages

Advantages

- Multicriteria analysis offers a systematic and quantitative analysis procedure for comparing potential options. This method can be especially valuable if one alternative improvement activity is particularly popular (for instance six sigma, training, coaching, wells, roads, irrigation sys-

tems), even though it might not be the most useful activity for accomplishing desired results.

- Additional variables can be added to the comparison as the field of potential interventions or activities is narrowed. In the end, you can make justified recommendations based on the interventions or activities that score best across a variety of variables.
- Variables in the analysis (for instance, cost, time, expected outcomes) can each be given a weighting that reflects the priorities of the project. For example, if budgets are very tight, then scores related to costs of alternative activities may be weighted at four times the value of expected time to implement the activities.

Disadvantages

- Multicriteria analysis requires a higher level of effort than does some other analysis procedures because information regarding each potential solution (intervention, activity, and so on) is necessary for accurate comparisons. As a result, additional time and resources may be required; therefore, you may prefer to use this method only for high-cost or high-priority needs.
- The multicriteria analysis process can be manipulated by only selecting comparison variables that favor a preferred activity. Or other participants can manipulate their weightings on variables so they produce the results they desire. Such challenges can be controlled, but you have to be aware of the risk in order to ensure that this manipulation doesn't happen to you.

Process Overview

1. Understand that the multicriteria analysis process typically begins when two or more alternative interventions or activities have been identified as potential solutions to a need. Although you can complete the analysis for as many potential solutions as you have, the time and effort required to collect valid information for comparison typically will necessitate that you limit the analysis to the most likely contenders. (For helpful sample templates to serve as job aids, see page 179.)
2. Identify (a) the most important criteria to making the decision and (b) the performance criteria (attributes or characteristics) required of

alternative solutions. Typically, consider no more than five to eight attributes for any decision. Example criteria could include the following:

- Results you can expect after six months
- Total time required
- Number of outputs
- Client satisfaction
- Feasibility of implementation
- Environmental impact
- Ability to accomplish desired outcomes
- Cost of the activity over the first year
- Safety expectations
- Number of people who will be working on the project in the first month

3. Note any "must have" (or "must not have") attributes. For instance, if an activity or intervention must not cost more than the budget set by the organization, then this attribute provides a cap at which alternatives that go beyond the budget are no longer considered. Likewise, if minimal improvements in results must be demonstrated after three months, then potential solutions that cannot meet those specifications should also be dropped.
4. Depending on the context of your decision and as a useful technique, apply weighting to the diverse criteria. The weights differentiate criteria according to their relative importance to the decision. For example, as you select among alternative irrigation technologies, the cost criteria may be twice as important to the decision as the time it will take to implement the technology.
5. To establish weights, discuss the criteria with those who will be part of the decision-making process. During the discussion (which could apply a survey, interview, or focus group technique as an alternative), you should ask questions to establish the relative importance of each performance criteria that you identified in the previous step.
6. In both establishing criteria to apply and weighing those criteria relative to one another, use a number of techniques[2] either separately or in combination, including the following

    a. To assist decision makers, consider using a 100-point system (or ratio method). For instance, of the 100 total possible points, a decision

maker may assign 60 points to the maximum achievement of desired results, 40 points to cost, and 20 points to the number of staff members assigned to the project. Each value can then be divided by the total so that a percentage can be calculated. For example, if participants indicate a weight, on average, of 70 out of 100 for the cost criteria, then .70 would be the weight assigned to cost.

b. Use hypothetical tradeoffs to prioritize criteria or set weights. For instance, ask partners whether they would prefer for the project to be completed several months late and achieve all of its objectives or for it to be completed on time but not achieve all of its objectives. Those establishing the criteria, thereby, have to make tradeoffs regarding which criteria are most important or should have the greatest weight in the decision.

c. Also include costs in the establishing of weights by using the pricing-out method combined with tradeoffs. This method would, for example, ask those establishing the criteria if they would prefer for the project to be completed two months late but on budget or for the project to be completed on time but 2 percent over the set budget.

d. Consider the *swing method*. Imagine, for example, that all of the criteria being considered were at their worst possible level (for instance, the project achieves none of its goals), then ask those establishing the criteria to identify which criterion they would want to "swing" to the highest potential level (for instance, the project achieves all of its goals), and assign this criterion 100 points. Next, ask which of the remaining criteria would be second-most important and swing its potential value. In points, how does the second criterion relate to the previous criterion (for instance, completing the project on budget might be assigned 80 points in relation to 100 points for completing all project goals)? Apply this method until you have identified the criteria to be applied or assigned weights to each criterion.

7. See how the examples in tables 3B.1 and 3B.2 illustrate how applying weighted criteria can influence the results of a multicriteria analysis. Now that you have your criteria (and weights for each when appropriate), it is time to rate each alternative activity on each of the criteria. It is important to use the same scale for each attribute. For example, if you select a scale from 1 to 10 for rating the attribute of client satisfaction (with 10 being given to alternatives that will achieve the highest levels of client satisfaction), then you would also rate the cost attribute from

Table 3B.1 Multicriteria Analysis Table Example

Comparison of Regional Government-Sponsored Alternatives for Providing Temporary Shelters after a Natural Disaster
Ratings: 1–2 = very low, 3–4 = low, 5–6 = medium, 7–8 = high, 9–10 = very high

	Criterion 1 rating Speed in meeting needs	**Criterion 2 rating** Affordability (per unit)	**Criterion 3 rating** Quality of the shelter	**Criterion 4 rating** Durability (up to 12 months)	**Criterion 5 rating** Ease in coordination	***Average rating***
Alternative 1 Canvas tents (small, per family)	9	7	3	2	9	6.0
Alternative 2 Canvas tents (large, 4–6 families)	7	9	3	2	9	6.0
Alternative 3 Construction of temporary wooden structures	4	5	6	7	5	5.4
Alternative 4 Trailers, prefabricated	4	1	9	10	2	5.2

1 to 10 for each alternative (with 10 being given to the alternatives whose cost are most closely aligned with the desired budget).

8. Create a table or spreadsheet with the performance attributes listed in the columns along the top and the potential solutions listed in the rows. For each alternative intervention or activity, include an estimate for each performance criterion.
9. Review the results of the analysis. Just because a single alternative scores the highest doesn't always mean that it is by itself the right choice. In tables 3B.1 and 3B.2, for instance, alternatives 1 and 2 scored the highest overall in the unweighted comparison, suggesting that a combination of alternatives might be desirable. However, in the weighted example, where the option to assign relative value to each criterion was applied, alternative 1 was somewhat superior to alternative 2.

Table 3B.2 Multicriteria Analysis Table Example (with Weighted Criteria)

Comparison of Regional Government-Sponsored Alternatives for Providing Temporary Shelters after a Natural Disaster
Ratings: 1–2 = very low, 3–4 = low, 5–6 = medium, 7–8 = high, 9–10 = very high

	Criterion 1 rating Speed in meeting needs	**Criterion 2 rating** Affordability (per unit)	**Criterion 3 rating** Quality of the shelter	**Criterion 4 rating** Durability (up to 12 months)	**Criterion 5 rating** Ease in coordination	***Sum of weighted ratings***
Weights	.30	.20	.15	.15	.20	
Alternative 1 Canvas tents (small, per family)	9 × .30 = **2.70**	7 × .20 = **1.40**	3 × .15 = **0.45**	2 × .15 = **0.30**	9 × .20 = **1.80**	6.65
Alternative 2 Canvas tents (large, 4–6 families)	7 ×.30 = **2.10**	9 × .20 = **1.80**	3 × .15 = **0.45**	2 × .15 = **0.30**	9 × .20 = **1.80**	6.45
Alternative 3 Construction of temporary wooden structures	4 × .30 = **1.20**	5 × .20 = **1.00**	6 × .15 = **0.90**	7 × .15 = **1.05**	5 × .20 = **1.00**	5.15
Alternative 4 Trailers, prefabricated	4 × .30 = **1.20**	1 × .20 = **0.20**	9 × .15 = **1.35**	10 × .15 = **1.50**	2 × .20 = **0.40**	4.65

10. In most needs assessments and as a useful approach, consider a combination of alternative activities rather than viewing each option as mutually exclusive. You might find that combining alternatives accomplishes desired results and mitigates the potential risks of any activity on its own. In the earlier example, even though alternative 1 (small tents) ranked highest, there might be some basis for choosing a combination of the top three alternatives (small and large tents, plus wooden structures), and eliminating the remaining alternative (prefabricated trailers).
11. Use the results of the analysis and your interpretation of those results as you present decision makers with recommendations about which alternative solutions they should consider.

Note: Also consider using the multicriteria analysis technique to prioritize or rank needs (that is, gaps in results). In this application of the technique, you would work with decision makers to identify the criteria on which they would compare needs in order to set priorities (for example, the numbers of people affected by the continuation of the need, the availability of partners to help address the need, the costs to meet the need, the increasing severity of the need over time, and so forth). Then ask decision makers to compare each option using those criteria.

Tips for Success

- Don't get carried away with adding too many variables to the comparison. It is best to stick to the top five or six highest-priority variables and then to collect valid information for each alternative intervention or activity.
- Remember that no rule says you can select only one activity or solution. As you complete the analysis, keep in mind that a combination of one, two, three, or more potential activities or solutions may be the right choice for your organization and the identified need.
- As another alternative, ask participants to choose from options that include different levels of performance characteristics (for example, would you choose a solution that achieves 80 percent of the desired results over the next three years if it costs twice as much as the solution that achieves 50 percent of the desired results?). Each question in this format should include at least two of the performance characteristics at opposing levels so that you can move participants toward making a decision about which are the higher-priority characteristics in relation to the others. This procedure is an adaptation of analytic hierarchy process, another form of multicriteria analysis.
- Use multicriteria analysis in conjunction with other tools and techniques described in this section to ensure that valuable decisions are made about which performance-improvement programs and projects should be implemented.

Notes

1. The technique also uses elements of the simple multi-attribute ranking technique (SMART), which is an alternative used by engineers for applying the principles of multi-attribute utility analysis.

2. Borcherding, Eppel, and von Winterfeldt (1991) compared four methods for establishing weights; the results of the research indicated that a mix of methods was typically best, with no one technique being superior to the others.

References and Resources

Altschuld, James W. 2010. *Needs Assessment Phase III: Collecting Data* (Book 3 of *Needs Assessment Kit*). Thousand Oaks, CA: Sage Publications.

Altschuld, James W., and J. N. Eastmond Jr. 2010. *Needs Assessment Phase II: Getting Started* (Book 2 of *Needs Assessment Kit*). Thousand Oaks, CA: Sage Publications.

Borcherding, K., T. Eppel, and D. von Winterfeldt. 1991. "Comparison of Weighting Judgments in Multiattribute Utility Measurement." *Management Science* 37 (12): 1603–19.

Roth, R., F. Field, and J. Clark. 2011. "Multi-Attribute Utility Analysis." http://msl1.mit.edu/maua_paper.pdf.

Witkin, Belle Ruth, and James W. Altschuld. 1995. *Planning and Conducting Needs Assessments: A Practical Guide*. Thousand Oaks, CA: Sage Publications.

Websites

"Analytic Hierarchy Process" can be found at http://en.wikipedia.org/wiki/Analytic_Hierarchy_Process.

"Answers to Frequently Asked Questions about Decision Analysis" can be found at http://www.infoharvest.com/ihroot/infoharv/infoharvestfaq.asp.

Multiattribute utility models can be found at http://www.ctg.albany.edu/publications/guides/and_justice_for_all?chapter=9&PrintVersion=2.

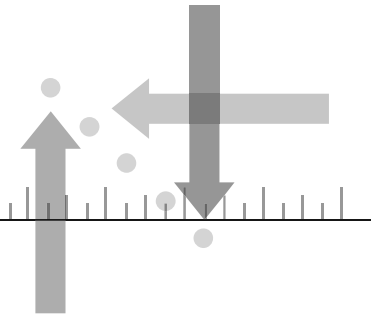
Samples of Job Aids

Multicriteria Analysis Template (no weights)

	Criterion 1	Criterion 2	Criterion 3	Criterion 4	Criterion 5	*Average rating*
Alternative 1						
Alternative 2						
Alternative 3						
Alternative 4						

Multicriteria Analysis Template (with weights)

	Criterion 1	Criterion 2	Criterion 3	Criterion 4	Criterion 5	*Sum of weighted ratings*
Weights	Insert weight	Insert weight	Insert weight	Insert weight	Insert weight	
Alternative 1						
Alternative 2						
Alternative 3						
Alternative 4						



TABLETOP ANALYSIS

Purpose

Tabletop analyses are facilitator-led discussions that are used in a wide variety of settings to identify gaps, performance deficiencies, and communication problems in a given system.

Needs Assessment Applications

Tabletop analyses can be used as a decision-making technique for numerous needs assessment applications. They can identify gaps in performance at several levels (individual performance, unit or group performance, or organizational performance). In addition, they can *identify gaps within systems*, such as communication breakdowns or poor resource allocation). Finally, a tabletop analysis can *identify, analyze, and evaluate potential solutions* to a performance problem.

A tabletop analysis is a discussion-based activity in which a group of participants works with a facilitator. A problem or need, which is based on a specific performance area (such as municipal sanitation services), is presented to the participants. The participants then (a) systematically work through, discuss, and refine the problem focus; (b) develop a strategy for analyzing the problem; (c) collect data on the basis of the analysis plan; (d) analyze the data to determine the specific performance gaps; and (e) identify potential solutions for the performance gap. The participants and facilitator use a collaborative problem-solving approach to identify and find solutions to performance-related problems. The outcomes from this exercise allow you to identify and analyze the actual performance and to identify potential sources (and solutions) for a given performance area.

Advantages and Disadvantages

Advantages

- You do not require access to a lot of resources to conduct a tabletop analysis. This technique is not expensive to use in terms of material requirements.
- Tabletop analyses are usually conducted over a time frame of only a few hours, so the time requirements for participants are minimal. Note, however, that the time required to effectively prepare and analyze the tabletop analysis is longer.
- Employee participants learn about the needs assessment process and key issues (such as goals, gaps, actual, and ideals) through their active participation and are, therefore, able to create awareness of such issues in their on-the-job environment.[1]
- The tabletop analysis is an effective technique for
  - Reviewing and analyzing existing plans, procedures, and policies
  - Identifying any factors inhibiting effective performance
  - Handling breakdowns in communication between groups or systems
- Tabletop analyses promote buy-in for both the process and the results of the exercise, because stakeholders and representatives from the organization are an active part of the process.
- Tabletop exercises generally require participants to review performance-related documents and to participate actively in discussions about the performance environment. The tabletop analysis can, therefore, yield much information in a short time span, potentially reducing the necessity for extensive use of other techniques and tools to complete the needs assessment.[2]

Disadvantages

- The tabletop analysis process is a discussion-based approach to analyzing performance within a system. Because no simulation and no on-the-job performance observations are conducted, the tabletop analysis may not be a true test of the effectiveness of a system's performance.
- An essential ingredient for the tabletop analysis is the active participation of key representatives from the system where the performance gap is sus-

pected to be. If you are not able to secure the involvement of key participants, the effectiveness and accuracy of the tabletop analysis will be hampered significantly.

- Active participation and dialogue are an essential part of this technique. If the facilitator cannot enable a high level of active engagement during the technique, then the amount of insight gained from the activity is very limited.
- The activity requires two sessions (or meetings), with some work being done by group members in between sessions.

Process Overview

Planning and Preparing

1. From the list of information required for the needs assessment, determine the specific scope of the tabletop analysis by focusing on what functions or elements should be analyzed through the tabletop analysis and on who should participate in the tabletop analysis.
    a. When identifying the functions or elements, ask, "What is the specific performance area, and what are the key procedures or operations that should be analyzed by the tabletop analysis participants?"
    b. When selecting participants, ask, "Who are the specific individuals who should take part in the exercise?" Examples of individuals interested in municipal sanitation could include sanitation department managers and supervisors, sanitation workers, staff members from the mayor's office, commercial business owners, and community members—among others.
2. Schedule the tabletop analysis activity, and invite the appropriate participants. Introduce the participants to the tabletop analysis by (a) introducing them to the concept of a tabletop exercise and (b) explaining how the tabletop analysis is being used in the context of the needs assessment. Set the tone for the collaboration process and the ground rules for the activity, if appropriate.
3. If possible, arrange to have an experienced facilitator coordinate the implementation of the tabletop analysis.
4. Make arrangements for a comfortable meeting facility that provides conditions for the use of projection technology, if appropriate.

Conducting the Tabletop Analysis: First Session

1. Use the broad information identified during the planning and preparation stage. To kick off the tabletop analysis with the participants, focus on building consensus about the problem to be tackled and the desired outcomes from the tabletop analysis. Introduce the problem to the participants (for example, community frustration with sanitation services), and engage them in a brainstorming discussion as they explore questions and issues such as the following:

   a. Effect of the problem on the community

      - Garbage is piling up in some communities. Residents complain of rodents, smells, and other related problems to the mayor's office.

   b. Factors potentially contributing to the problem

      - The community has increased urbanization, inadequate housing, garbage truck breakdowns, inadequate inspections, and shortages of sanitation workers.

   c. Questions that should be answered to analyze the problem

      - How does the community plan to address housing shortages?
      - What can be done in the short and long term to address increases in garbage quantity?
      - What are options for recycling and reducing community consumption?

   d. Expected outcomes of the tabletop analysis

      - Recommendations will be made to the sanitation department to address the different causes of the sanitation complaints.

   e. Strategy for using the results from the tabletop analysis

      - The organizers of the tabletop analysis will follow up with community leaders on recommendations and will bring back this group in six months to discuss changes that have and have not occurred.

2. Work with the participants to generate a specific problem statement. Write the problem statement and the expected outcomes of the tabletop analysis in a prominent place, so that both the participants and the facilitator can refer to the list during the remainder of the activity.

3. Facilitate a discussion to develop a strategy for analyzing the problem. Begin the discussion by asking participants to identify the following:

a. Describe the specific types of information required to answer the key unknowns about the problem. These types of information should be structured in general categories such as (a) ideal performance, (b) current (actual) performance, (c) performance gaps, (d) causes of performance gaps, and (e) solutions to performance gaps.

b. Name the sources that can be consulted to gather each type of information that participants identify as part of the analysis. Sources of information may include documents, individuals, performance observations, work products, and so on. Ask participants to identify, to the extent possible, the specific source of information (for example, the specific documents that provide information on ideal performance).

c. As the participants identify the information necessary, verify that the information requirements are aligned with the purpose statement. Ask, "Will this information help you find answers to your original problem and to the outcomes you wish to achieve?"

4. After the list of sources has been identified, make the arrangements necessary for locating any document sources that participants identified and that have not been located yet. In addition, schedule the interviews and meetings that are required to gather information described in the analysis plan. Assign interview responsibilities to participants as required.

Conducting the Tabletop Analysis: Second Session

1. Ask the participants to reconvene and to work through the data that were identified during the first session so they clearly formulate the current and ideal performance for the problem area explicated in the purpose statement.

2. Guide the participants in creating a systematic listing of the conditions, procedures, and tasks that would, under ideal circumstances, take place. Encourage participants to refer to the document sources and collected data as this list is created. Create the list on a flip chart or whiteboard so that it can be seen by all participants.

3. Ask the participants to review the list of ideal tasks, procedures, and conditions and to verify its completeness and accuracy.

4. Next, ask participants to refer to the documents and data that were collected so they identify specific gaps in the performance area. Emphasize that gaps, rather than causes, should be identified. Also verify regularly that the gaps that are being identified are directly related to the purpose

statement for the tabletop analysis. If appropriate, work with the participants to group together gaps that have common attributes. Write the list of gaps on the flip chart or whiteboard.

5. After the gaps have been identified, ask participants for insight about potential causes of each of the gaps, as well as for potential solution strategies. Work through the list of gaps in a systematic manner, and write possible solutions for each gap (or group of gaps) on the flip chart or whiteboard. Solutions should be aligned with the original purpose statement and should be evaluated for feasibility.
6. To conclude the tabletop analysis, evaluate the results from the analysis against the expected outcomes that were listed during the first tabletop analysis session. If there is consensus that the expected outcomes have been achieved, then conclude the discussion by working with the participants to determine what to do with the results from the analysis. For example, a debriefing session could be conducted with key stakeholders to report on the results of the analysis and to discuss the solution strategies that were identified. Alternatively, the decision could be made to use additional data collection techniques to validate the results from the tabletop analysis.

Tips for Success

- Carefully select the participants for the tabletop analysis. Consider including experts, decision makers, supervisors, and current employees in the activity. The specific participants in the tabletop analysis should be aligned with the specific goal of the activity.
- Because facilitation is an essential ingredient for the success of the tabletop analysis, select an experienced facilitator for implementing this technique.[3] The facilitator should be well informed about the topics of discussion, including potential areas of sensitivity among tabletop participants.
- Develop and distribute materials about the goal, focus, and purpose ahead for the scheduled activity of the tabletop analysis. These materials will ensure that the tabletop analysis can get under way most efficiently.
- Limit the length of each tabletop analysis session. Each session should generally not last more than 3–4 hours.
- Consider recording the actual tabletop analysis, thereby giving you the option at a later date to revisit the information shared during the activity.

If you decide to record the session, make sure that you inform all of the participants and that you identify a secure way of storing the recorded data so that participants do not have to be concerned about their participation in the tabletop analysis negatively affecting them professionally.

- Control the size of the group for the tabletop analysis. To be effective and manageable, the size of the group of participants should generally range from between 5 and 15 participants.

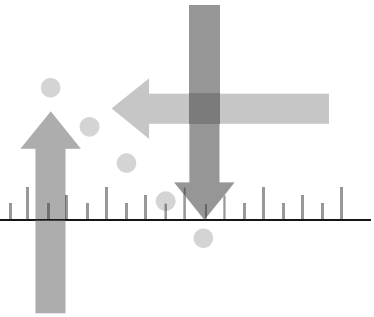
Notes

1. See http://www.hss.doe.gov/nuclearsafety/ns/techstds/docs/handbook/hdbk1103.pdf.
2. Ibid.
3. Ibid.

Websites

An example of the technique applied in instructional design context can be found at http://www.nwlink.com/~donclark/hrd/needsalt.html#various2.

The U.S. Department of Energy handbook on tabletop needs analysis is located at http://www.osti.gov/bridge/servlets/purl/459762-JeQi3h/webviewable/459762.pdf.



PAIR-WISE COMPARISON

Purpose

The pair-wise comparison technique is used when you have multiple options to prioritize. It helps you to narrow the options according to a set of agreed-upon criteria. It may be used to prioritize or rank needs (that is, gaps in results) or possible solutions (that is, interventions or activities) to address those needs.

Needs Assessment Applications

A pair-wise comparison is a simple, yet effective, tool for facilitating group decisions that are based on the information collected during a needs assessment. This analysis technique is a worthwhile tool for prioritizing needs, determining the relationships among multiple causal factors, or recommending potential improvement activities. Whenever you have multiple options or alternatives to consider, you can quickly use a pair-wise comparison to advance group discussions toward a decision. (For a helpful sample template to serve as job aids, see page 190.)

Advantages and Disadvantages

Advantages

- A pair-wise comparison is easily done and can be completed quickly during a group discussion to progress toward a decision or recommendation.

- Criteria for comparing options can remain informal, thereby letting participants make judgments that are based on their experience and expertise.

Disadvantages

- Pair-wise comparisons do not provide the level of detail or sophistication of a multicriteria analysis (see page 171).
- Although criteria for making comparisons are discussed within the group, each participant may apply varying criteria (without public disclosure to other group members) when making comparisons.

Process Overview

1. Make sure that the analysis process begins (as is typical) with (a) two or more needs, (b) two or more alternative interventions, or (c) activities that were previously identified as potential solutions to a need. Although you can complete the analysis for the number of potential needs solutions that you have, the time and effort required to collect valid information for comparison typically necessitates that you limit the analysis to no more than five or six of the most likely contenders.
2. List the possible options in both the first column and the first row of the pair-wise comparison table (see table 3B.3). Working with those who will be making the decision or recommendation, discuss the performance criteria required of alternatives.

   Examples of Criteria for Comparing Needs and Solutions

   Example criteria for comparing **needs** could include the following:

   - Number of people influenced by the continuation of the need
   - Availability of partners to help address the need
   - Anticipated costs to meet the need
   - Increasing severity of the need over time
   - Alignment of the needs with the institution's mission

   Example criteria for comparing **solutions** could include the following:

   - Total time required
   - Cost of the activity over the first year
   - Environmental impact

Table 3B.3 Sample of a Completed Pair-Wise Comparison Table

	Option A Playground equipment	**Option B** Benches	**Option C** Picnic tables	**Option D** Tree and flower planting	**Option E** Walking paths
Option A Playground equipment					
Option B Benches	B				
Option C Picnic tables	A	B			
Option D Tree and flower planting	D	D	D		
Option E Walking paths	E	B	E	D	

Note: This example presents some options preferred by community members for a new community park, which is part of a larger municipal project to build and improve green spaces in the city. In the example, the number of pair-wise "wins" is as follows: A (playground equipment) = 1, B (benches) = 3, C (picnic tables) = 0, D (tree and flower planting) = 4, E (walking paths) = 2. By using this example, you might concentrate your group discussions going forward more on building a park that emphasizes trees and flowers, benches, and walking paths. But you might also consider that you may not have had a representative number of young parents with children in your pair-wise session. This example gives one set of rankings at one point in time and is a good reminder that multiple sessions may be needed with different groups to get a representative picture of community preferences.

- Results expected after six months
- Feasibility of implementation

3. Talk with others about the most important criteria (or attributes) to making the decision (time, cost, number of outputs, client satisfaction index, number of injuries, ability to accomplish desired outcomes, and so on). Typically, consider no more than two to three criteria for any decision.
4. If you are in a group setting, write the agreed-upon criteria on a whiteboard or flip chart.
5. Ask participants who will be making the decision or recommendation to keep each of the discussed criteria in mind as they compare each option using the pair-wise comparison table in table 3B.3. For example, is Option A or Option B the preferred option according to the discussed criteria? Then, is Option A or Option C the preferred option, and so forth. Continue until all options have been compared.

6. Have participants count the number of times each option appears in the table. The option that was selected the greatest number of times, in comparison with the alternatives, is the leading option.
7. Review the analysis carefully, noting that this technique does not directly facilitate the comparison of combinations (for example, Option A combined with Option C). Discuss with participants the results of the analysis so that you can make decisions or recommendations, with the analysis results being one of the primary inputs to the decision.

Websites

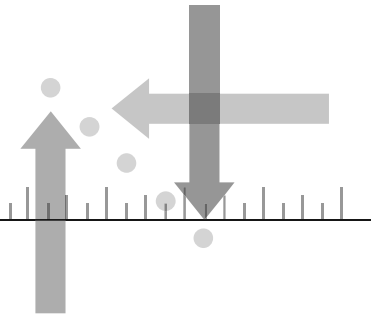
An example of pair-wise comparisons applied to voting can be found at http://www.pbs.org/teachers/mathline/concepts/voting/activity3.shtm.

Examples worked through to illustrate the technique can be found at http://deseng.ryerson.ca/xiki/Learning/Main:Pairwise_comparison.

Sample of Job Aids

Pair-Wise Comparison Template

	Option A	Option B	Option C	Option D	Option E
Option A					
Option B					
Option C					
Option D					
Option E					



2 × 2 MATRIX DECISION AIDS

Purpose

The purpose of a 2 × 2 matrix decision aid is to examine multiple perspectives on issues identified during a needs assessment. A number of perspectives can be compared in the 2 × 2 matrix format (for instance, risks vs. rewards, your view vs. the view of others, what you know vs. what you don't know, or urgency vs. importance). Therefore, we have combined these techniques on the basis of their shared similarity of using the 2 × 2 matrix to represent alternative perspectives.

Needs Assessment Applications

Needs (or gaps between current and desired results) are viewed from many perspectives within an organization, which can make the findings of an assessment challenging to prioritize and to turn into justifiable decisions. For example, when gaps between current and desired results are identified, the perspectives of individuals directly associated with the performance (for example, public service providers) will often differ from the perspectives of those who depend on the results (for example, general public, customers, and so on). Likewise, perspectives on the amount of potential risk that can be tolerated in relation to the potential benefits will also vary across individuals and groups—including the views of partners internal to your organization (such as managers from other units, technology specialists, and others) and those external to your organization (such as government agency staff members, development partners, community groups, and others).

Use 2 × 2 matrix decision aids to assist in identifying the priorities, selecting solutions or activities, facilitating group discussions, or verifying that you have examined the issues identified in the needs assessment from multiple viewpoints. Although examples of 2 × 2 matrix decisions aids are

used in this guide to illustrate the value of the technique, you can substitute these examples with other examples within the context of your assessment. The 2 × 2 matrix format allows you to compare and contrast a variety of perspectives in an easy-to-complete format.

Advantages and Disadvantages

Advantages

- A 2 × 2 matrix decision aid can ensure that multiple perspectives are considered when needs assessment findings are prioritized.
- The results of a 2 × 2 matrix decision aid can help you communicate with others when prioritizing needs, identifying appropriate solutions, or justifying decisions.
- You can use a 2 × 2 matrix decision aid to expand on needs assessment findings, including information on the preferences of differing groups regarding what should be done in response to identified needs.
- A 2 × 2 matrix decision aid allows for potential positive and negative consequences to be considered prior to decision making.
- Using this technique, you can compare and contrast the value of taking an action (or selecting a need as a high priority, or implementing a solution) to *not* taking an action (or not selecting a need as a high priority, or not implementing a solution). Too often the latter—decisions not to do something—are not considered for their potential consequences or payoffs.
- A 2 × 2 matrix decision aid ensures that multiple perspectives are included in decisions regarding all needs and potential solutions, thus avoiding a situation where needs assessment data are simply used to confirm preexisting perspectives about what should be done.

Disadvantages

- A 2 × 2 matrix decision aid can be more limited than other tools or techniques (for example, SWOT or brainstorming) for generating ideas about what to do next.
- A 2 × 2 matrix decision aid typically requires that all stakeholders value the perspectives and potential differences between groups within the organization.

- The analysis of this technique is only as useful as the quality of information available from the needs assessment.
- Identified comparative characteristics in each "cell" of the 2 × 2 matrix decision aid are only listed, and not prioritized or given differentiating weights.

Process Overview

1. Create either a list of the needs (or gaps in results) that were already identified in the needs assessment process or a list of the potential activities (or solutions) that you are considering as recommendations that are based on the needs identified during the assessment. It is best not to mix the two (needs and solutions). If you want to gain perspectives on both the prioritization of the needs and the prioritization of potential interventions, then conduct two separate applications of the 2 × 2 matrix decision aid.
2. Identify representatives from other groups with varying perspectives on the issue (for instance, agency managers, new employees, field employees, central or headquarters employees, donor institution representatives, government ministry officials, community members, or other development partners).

Example of Differing Perspective[1]

1. Provide the representatives with the issues identified during the needs assessment (for instance, needs or potential activities), and ask them to prioritize these issues according to their perspective.
2. Prioritize the same list of issues from your perspective as well. If you are working with a team on the needs assessment, then this prioritization can be done as a team through a variety of group decision-making techniques.
3. With a priority list from each group, place the highest priority data elements into the 2 × 2 matrix decision aid. Consider including your priorities in comparison with the priorities of another group (see table 3B.4). Or compare the priorities from differing groups, leaving out your perspective (see table 3B.5).
4. Review the complete 2 × 2 matrix decision aid—along with recommendations of how to expand the needs assessment to address gaps between

Table 3B.4 Differing Perspectives Example A: Prioritizing Needs (Youth Employment)

	High priorities of city youth	Low priorities of city youth
High priorities of city employment agency	• Low youth employment rate • Few internship opportunities with local businesses	• Low employment rate for aging populations
Low priorities of city employment agency	• Few youth recreation centers open in evenings • Moderately high education fees for youth training courses	• Decreasing retention rate of city employment agency employees

Table 3B.5 Differing Perspectives Example B: Comparing Potential Solutions (Organizational Performance)

	High priorities for new employees	Low priorities for new employees
High priorities for managers	• Performance specific training • Redesigned new employee orientation	• New hiring standards • Renewed emphasis on standardized interviewing procedures
Low priorities for managers	• Improved mentoring program • Quarterly performance feedback system	• Motivational workshops

what is known and what is unknown from each perspective—with your needs assessment partners.

Example of Risk vs. Rewards

1. Provide the representatives with the issues identified during the needs assessment (for instance, needs or potential activities), and ask them to identify the associated risks and rewards for each issue. For example,
   - What are the associated risks and rewards of addressing or not addressing the identified need?

- What are the associated risks and rewards of implementing or not implementing this activity?

2. Note that the analysis combines perspectives to examine the risks and rewards of taking or not taking action. Work with assessment partners to come to an agreement about the risks and rewards included in each 2×2 matrix.
3. Create a 2×2 matrix to illustrate the associated risks and rewards for each issue (see tables 3B.6 and 3B.7).
4. Review the complete 2×2 matrix with your needs assessment partners, along with recommendations of how to expand the needs assessment to address gaps between what is known and what is unknown.

Table 3B.6 Rewards vs. Risks Example C: Addressing Needs (Project Completion Delays)

	Address need (takes too long to complete projects)	**Do not address need** (takes too long to complete projects)
Rewards	• Reduces the time to complete projects • Makes project completion as important as project initiation	• Maintains focus on project initiation
Risks	• Distracts managers from other strategic priorities • Increases the cost of projects	• More projects are at risk of failure to meet goals • Country needs change before a project can be completed

Table 3B.7 Rewards vs. Risks Example D: Implementing Solutions (Employee Mentoring)

	Implement mentoring program	**Do not implement mentoring program**
Rewards	• Knowledge sharing • Better engagement of new staff members	• Saves time and money • Do not have to place additional burdens on managers
Risks	• Encourages sharing of bad habits • Requires time of managers	• New staff members are not able to perform roles as soon • Knowledge of staff members continues to leave when they leave

Tips for Success

- Before getting started, discuss with participants the specific goals you are hoping to accomplish by using the 2 × 2 matrix decision aid.
- Work with group members to include factors in all four quadrants of the matrix. Leaving quadrants of the matrix empty will limit your ability to make quality decisions.
- Focus each 2 × 2 matrix on just one need or potential solution. It can be tempting to save time by combining needs or solutions, but doing so typically leads to general discussions rather than to a focused decision.
- Strive to include at least three items in each of the four cells of the 2 × 2 matrix.
- Remember that a decision not to take action (or not to address a need, or not to implement a solution) is a decision that carries potential risks and rewards, just as does a decision to take action.
- The book by Alex Lowy and Phil Hood (2004) contains more than 50 examples of 2 × 2 decision aids that can be used to improve performance.

Note

1. The differing perspectives example is loosely based on the Johari Window activity used by psychologists.

References and Resources

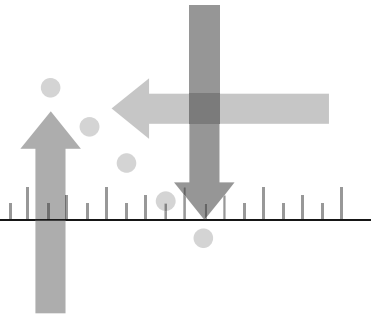
Beach, E. K. 1982. "Johari's Window as a Framework for Needs Assessment." *Journal of Continuing Education in Nursing* 13 (1): 28–32.

Lowy, Alex, and Phil Hood. 2004. *The Power of the 2 × 2 Matrix: Using 2 × 2 Thinking to Solve Business Problems and Make Better Decisions.* San Francisco: Jossey-Bass.

Witkin, Belle Ruth, and James W. Altschuld. 1995. *Planning and Conducting Needs Assessments: A Practical Guide*. Thousand Oaks, CA: Sage Publications.

Website

"Risks versus Rewards Worksheet" is available at http://www.lifehack.org/articles/lifehack/risks-versus-rewards-worksheet.html.



FISHBONE DIAGRAMS

Purpose

The fishbone diagram—so called because of its resemblance to a fish skeleton—is a cause-and-effect diagram that can be used to identify the potential (or actual) cause(s) for a performance problem. Fishbone diagrams provide a structure for a group's discussion about the potential causes of a problem.

Needs Assessment Applications

Fishbone diagrams are often used in needs assessment to assist in illustrating and communicating the relationships among several potential (or actual) causes of a performance problem. Likewise, these graphical representations of relationships between needs (or discrepancies between desired and actual results) offer you a pragmatic tool for building a system of performance-improvement interventions—for instance, a combination of mentoring, using job aids, training, enhancing motivation, and arriving at new expectations—around the often complex relationships found across potential (or actual) causes.

Advantages and Disadvantages

Advantages

- Fishbone diagrams permit a thoughtful analysis that avoids overlooking any possible root causes for a need.

- The fishbone technique is easy to implement and creates an easy-to-understand visual representation of the causes, the categories of causes, and the need.
- By using a fishbone diagram, you are able to focus the group on the big picture as to possible causes or factors influencing the problem or need.
- Even after the need has been addressed, the fishbone diagram shows areas of weakness that—once exposed—can be rectified before causing more sustained difficulties.

Disadvantages

- The simplicity of a fishbone diagram can be both its strength and its weakness. As a weakness, the simplicity of the fishbone diagram may make it difficult to represent the truly interrelated nature of problems and causes in some very complex situations.

Process Overview

1. Identify gaps between the results (or performance) that are required for the successful accomplishment of your program's or project's results chain (also commonly referred to as a results framework, logic frame, or logic model) and the current achievements to date.
2. Generate a clear, concise statement of the need(s). Make sure that everyone in the group agrees with the need as it is stated. For example, the application of modern agricultural techniques among the population is at 25 percent, and the aim of your program or project is for 75 percent of the population to use modern techniques (leaving you with a gap or need of 50 percent).
3. Using a long sheet of paper or a white board, draw a horizontal line. This line will be the spine of the fish. Write the need along the spine, on the left-hand side.
4. Identify the overarching categories of causes of the need. Brainstorming is often an effective technique for identifying the categories of causes. For each category of causes, draw a bone—a line at a 45-degree angle from the spine of the fish. Label each bone (see figure 3B.1) with the cause categories; for instance, categories could include materials, knowledge or skills, time, motivation, incentives, performance feedback, and others.[1]
5. Have the group brainstorm to identify the factors that may be affecting the cause or the need or both. For each category of causes, the group

should be asking, "Why is this happening?" Add each "why" to the diagram, clustered around the major cause category it influences.

6. Repeat the procedure by asking, "Why is this happening?" for each effect until the question yields no more meaningful answers (see figure 3B.2).

Figure 3B.1 A Basic Fishbone Diagram

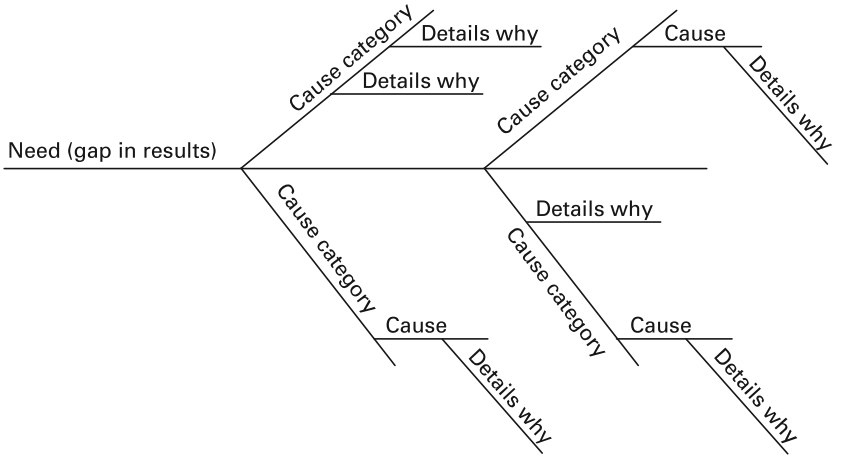
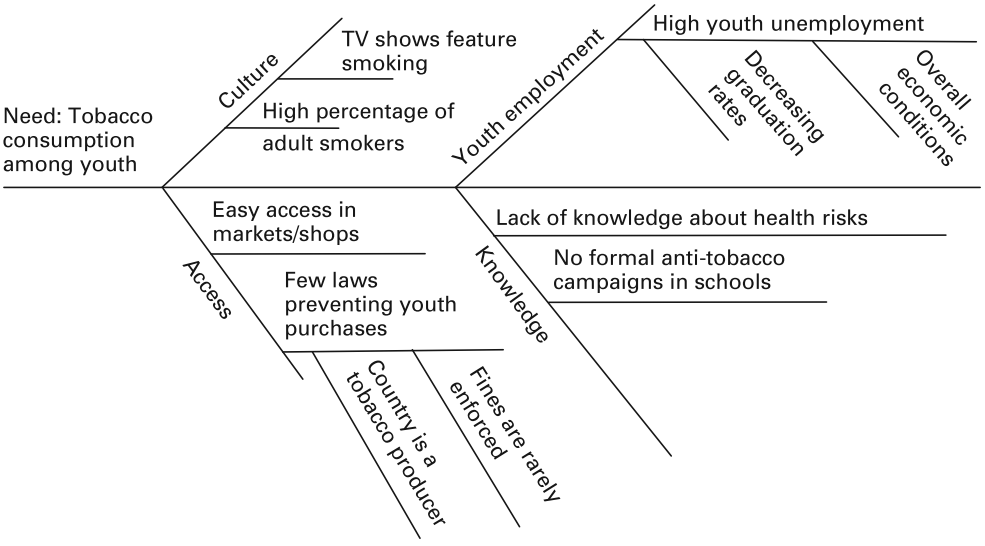


Figure 3B.2 An Annotated Fishbone Diagram



7. When the group has reached a consensus that the diagram contains an adequate amount of information, analyze the diagram. In particular, look for causes that are appearing in more than one section of the diagram.
8. Circle anything that seems to be a root cause for the need. Prioritize the root causes, and decide to take action, a move that may involve further investigation of the root causes.

Tips for Success

- Make sure that the group has consensus about both the need and the characteristics of the cause statement before beginning the process of building the fishbone diagram.
- If appropriate, graft (add) branches that do not contain a lot of information onto other branches. Likewise, you can split branches that have too much information into two or more branches.
- Make parsimonious use of words while populating the fishbone diagram. Only use as many words as necessary to describe the cause or effect.

Note

1. Also see the performance pyramid tool (page 236) for additional categories that may be applied.

References and Resources

Altschuld, James W. 2010. *Needs Assessment Phase III: Collecting Data* (Book 3 of *Needs Assessment Kit*). Thousand Oaks, CA: Sage Publications.

Altschuld, James W., and J. N. Eastmond Jr. 2010. *Needs Assessment Phase II: Getting Started* (Book 2 of *Needs Assessment Kit*). Thousand Oaks, CA: Sage Publications.

Gupta, Kavita, Catherine M. Sleezer, and Darlene F. Russ-Eft. 2007. *A Practical Guide to Needs Assessment*. San Francisco: Pfeiffer.

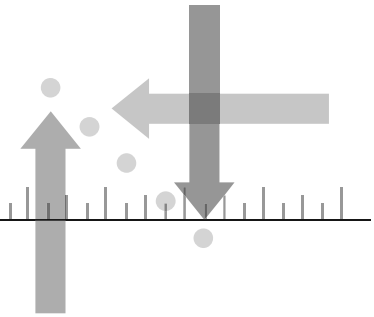
Witkin, Belle Ruth, and James W. Altschuld. 1995. *Planning and Conducting Needs Assessments: A Practical Guide.* Thousand Oaks, CA: Sage Publications.

Websites

Cause analysis tools (American Society for Quality has an example of a fishbone diagram) are available at http://www.asq.org/learn-about-quality/cause-analysis-tools/overview/fishbone.html.

The fishbone diagram (Six Sigma has templates for making fishbone diagrams in Microsoft Word and Microsoft Excel) is available at http://www.isixsigma.com/index.php?option=com_k2&view=item&id=1416:the-cause-and-effect-aka-fishbone-diagram&Itemid=200.

"Use a Fishbone Diagram to Help Attack Complex Problems" (from TechRepublic) is available at http://articles.techrepublic.com.com/5100-10878_11-6092236.html?tag=nl.e053.



SCENARIOS

Purpose

The purpose of scenarios is to provide contextual explorations of the potential strengths and weaknesses of different combinations of performance-improvement interventions. Scenarios are most useful in situations where the number of possible directions is large or where there is a large degree of uncertainty.

Needs Assessment Applications

The best decisions are typically made when you can compare and contrast the potential benefits and the potential risks of each decision. The same is true in needs assessment, especially when it is time to recommend what to do next according to your needs assessment findings.

Use scenarios during this stage of your needs assessment to provide examples of different combinations of performance-improvement activities. For instance, scenario A could be a mentoring program paired with some training and a job aid, whereas scenario B could be a management performance feedback tool paired with training, new work policies, and a new rewards structure. By comparing both the benefits and the risks of alternative scenarios, you have a foundation for recommendations about the appropriate balance of risk and reward for your program or organization.

Advantages and Disadvantages

Advantages

- Scenarios allow decisions to be made by examining multiple alternatives rather than single solutions.
- Instead of simply reviewing options as discrete alternatives, scenarios can provide contexts for making decisions. Scenarios are especially valuable when you are dealing with a complex situation in the context of the needs assessment.
- Decision makers often value scenarios for their ability to provide a visual illustration of different alternatives within the organization's context.
- Multiple scenarios can also be used to contrast positive and pessimistic views, thus providing a balanced perspective.

Disadvantages

- Developing realistic scenarios can be time-consuming, and there is no guarantee of what results will actually be yielded as the situation in the scenario is implemented.
- Scenarios can (but should not) limit decision makers to examine only the combinations of activities or solutions included in the presented scenarios.

Process Overview

1. Complete the identification of needs (gaps in results) and the associated analysis of causal factors.
2. Identify sets of potential activities or solutions that will assist in accomplishing desired results while also addressing the potential causes of problems with the current performance.
3. For each set of potential activities, create a scenario based on the results your program or organization could realistically expect to accomplish and the risks associated with the implementation of each set (including economic, time, and opportunity costs). Each scenario should use the same concrete time frame (for example, 1 year, 18 months, 3 years) and should apply similar constraints that could affect implementation.

4. In each scenario, describe the factors that are internal and external to the organization and that are likely to increase or decrease the successful achievement of desired results. Here are some ideas to consider when developing the substance of a scenario:
    a. Build uncertainties and unexpected events into each scenario.
    b. Use information on trends and on the character of the organization to write each scenario.
    c. Write each scenario so that it seems plausible. Choose names used in the scenario carefully; they can communicate a great deal to the reader.
    d. It is generally a good idea to make each scenario about one page long.
    e. Give each scenario a short and meaningful title.
5. Develop two or three scenarios for each of the sets of potential activities (or solutions) that meet the requirements dictated by the performance pyramid tool (see page 236) by Wedman (2010). Scenarios can be written from several perspectives (for example, yours, the agency management's, a community member's). Therefore, it is important that you describe each scenario from a similar perspective (thus ensuring that you are comparing "apples to apples").
6. After a solid draft of each scenario has been developed, validate the scenarios with experts and others who are familiar with the situation. Make any changes recommended by the scenario reviewers before sharing the scenarios with decision makers.
7. Schedule time with the groups or individuals who will be making decisions about which activities to implement.
8. Provide at least two or three scenarios to the groups or individuals selected for participation. Often, it is helpful to provide varying perspectives in different scenarios, including both positive and pessimistic views. If your scenarios are longer than a page or two, provide the scenarios to the decision makers before the meeting.
9. Discuss each scenario with the participants, highlighting the strengths and weaknesses exhibited in the context described in each. (Scenarios are best estimates of how the interventions would be implemented and how the results would be accomplished; thus, decision makers must

take into account that later implementation may or may not mirror the scenario's description).

10. Ask group members to rank each scenario and to provide alternative combinations of the activities that could be used for a second round of scenarios (if desired).
11. After you have finished administering the scenarios, you may be asked to write a report discussing the results. If so, it is generally a good idea to include summaries of the scenarios, as well as an overview of how scenarios were shared with participants. Keep your report short, highlighting key data without overburdening the readers with too much detail. Include observations and conclusions, and provide some suggestions for next steps.

Tips for Success

- Create multiple scenarios, with each scenario having a unique balance of risk and benefits that are based on multiple perspectives within the organization.
- Don't paint too rosy a picture within each scenario. The scenarios should be realistic and should show no preference for one set of activities or solutions over another.
- Inform decision makers that they don't have to select a scenario but that other combinations can also be developed, depending on the balance of rewards and risks that the organization is looking for in the program or project.

References and Resources

Watkins, Ryan. 2007. *Performance by Design: The Systematic Selection, Design, and Development of Performance Technologies That Produce Useful Results*. Amherst, MA: HRD Press, and Silver Spring, MD: International Society for Performance Improvement.

Wedman, John F. 2010. "Performance Pyramid Model." In *Handbook of Improving Performance in the Workplace*. Vol. 2: *Selecting and Implementing Performance Interventions*, edited by Ryan Watkins and Doug Leigh, 51–80. San Francisco: Wiley/Pfeiffer, and Silver Spring, MD: International Society for Performance Improvement.

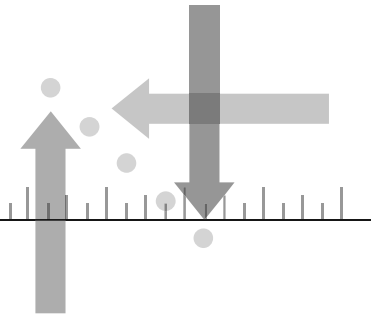
Witkin, Belle Ruth, and James W. Altschuld. 1995. *Planning and Conducting Needs Assessments: A Practical Guide*. Thousand Oaks, CA: Sage Publications.

Websites

Examples of scenarios (from Arizona State University) are available at http://cals.arizona.edu/futures/sce/scemain.html.

Scenarios: An explorer's guide is available at http://www-static.shell.com/static/aboutshell/downloads/our_strategy/shell_global_scenarios/scenario_explorersguide.pdf. (This document from the Shell Corporation is written for people who want to build scenarios and for those who want to help develop scenario-thinking skills.)

Scenarios Toolkit developed for The European Centre for the Development of Vocational Training is available at http://www.cedefop.europa.eu/EN/Files/6009_en.pdf.



ROOT CAUSE ANALYSIS

Purpose

The goal of a root cause analysis (RCA) is to identify the contributing causal factors that have led to a performance problem.

Needs Assessment Applications

Identifying gaps between current and desired performance is the primary goal of a needs assessment, yet alone this information is not adequate for making decisions about what to do to improve performance. An RCA is, therefore, a useful tool for examining the contributing factors that are preventing current achievements from matching your desired accomplishments (see box 3B.1). An RCA offers a systematic process that can help you determine which processes, procedures, tools, or policies (or combination of the three) are limiting performance and leading to the needs found in your assessment.

Identified root causes can then be targeted by the solution recommendations coming out of the needs assessment. Later, the results of the RCA can

Box 3B.1 Sample Uses of Root Cause Analysis

- Separate problems from symptoms when conceptualizing new projects with clients or partners.
- Identify factors causing a project to be at high risk of failure.
- Determine why a policy reform did not accomplish desired results.
- Resolve questions about how corruption entered a project.

also be monitored to ensure that organizational changes are having the desired effect and to avoid suboptimization (where improvements in one area lead to new problems in other areas). The ability of the RCA to provide this valuable information makes it an integral component to most needs assessments.

Advantages and Disadvantages

Advantages

- An RCA provides a systematic process for examining performance problems for their root causes rather than relying on unverified assumptions or stakeholder perceptions about causes.
- An RCA ensures that you inspect a performance issue from multiple perspectives to determine the range of causes leading to the less-than-desired performance (as opposed to assuming that the causes of the issues are well known and agreed upon by everyone involved).
- Many times an RCA will identify both the components of the system that are blocking desired performance (for instance, out-of-date-procedures or misunderstood expectations) and the parts of the system that are working well at promoting desired performance (for instance, quality managerial feedback). In the end, improving performance routinely requires both fixing the problems and expanding on the things that are being done right.

Disadvantages

- An RCA will frequently identify more causal factors than you have anticipated or are likely to have the budget to address individually. Therefore, it is important to determine the relative effect of each factor and to address as priorities the effects that are the most critical to success.
- As with other systematic processes, an RCA can include procedures that are not familiar to your organization and thus can require that you build a business case for taking additional time and resources to accurately identify the causal factors leading to the performance issue.
- An RCA focuses on causes and does not tell you which interventions or activities will best address each causal factor. However, possible activities are frequently identified during the process. Only after causes are

identified is it beneficial to turn to possible interventions or activities to address the causes.

Process Overview

1. Identify a discrepancy in performance (or need) from the information you have collected thus far in the needs assessment. Frequently, you will only want to complete an RCA for the highest-priority needs so that you can save resources.

2. Create a plan for analyzing the identified need (gap in results). In many ways, the steps of the analysis will often look like a miniature needs assessment within the broader needs assessment. For instance, use a variety of techniques—interviews, focus groups, and document or record reviews—to collect information on the causal factors leading to the performance problem. That information will then be used to identify and prioritize the causal factors and their relative attribution to the performance gap.

3. Remember that your analysis may take from a couple of hours to a week or more, depending on the performance issue. Consequently, as you develop your plan, be sure that you take the scope of the analysis into account when developing a budget and schedule.

4. Know that sometimes your RCA will be driven by a need that is directly related to a specific situation or incident (for instance, you find out that a staff member is using your organization's procurement procedures to make fraudulent transactions or to cover up bribes to a local official). In those cases, it is especially important to start by determining exactly what happened and where the processes, procedures, training, policies, or regulations failed to prevent the incident in the first place.

5. Observe that in other cases, however, the need will not be generated by any single event (such as when an agency fails to meet its annual performance targets for two years in a row). In those situations, it is more challenging to determine which events, policies, procedures, or other activities led to the gap in performance. The RCA processes work effectively in both situations, though the tools and techniques for collecting information may differ.

6. Understand that the analogy of peeling an onion is often associated with RCA because causal factors are frequently many layers deep. At the beginning of the analysis, the causes of the need may seem easily identified.

For example, you may initially find through interviews with managers that a procurement problem is caused by younger staff officers who do not have the experience or training to manage procurement matters. But that is only the first layer. Later, when you talk to staff members you might learn that because of time constraints and inadequate staffing, training is offered only twice a year and contains outdated information. Again, however, as you peel away the next layer and talk to the training department about why the course is offered only twice a year, you may discover that the training department only has a budget to offer training twice a year. Additionally, the training department staff members say that they are waiting for the department that sets procurement policies to update the procurement training manual.

7. As is often recommended, ask the question "Why?" at least five times so you can peel away the layers of causal factors. (See the questions and table 3B.8.)

   Problem Statement: In rural areas of the country, the number of female students completing primary school education is significantly below the desired results.

   1. **Why** are female students in the area not completing primary school?
      – *Because very few of them ever start primary school.*

Table 3B.8 Root Cause Summary Table

Problem: Low education rates for girls in rural areas

Causal factor #1	Path through root cause map	Recommendations
Costs to rural families to send girls to school	• School fees • Girls provide labor in the home (child care, food preparation, water gathering)	• Eliminate or reduce fees • Subsidize parents who send girls to school
Causal factor #2	**Path through root cause map**	**Recommendations**
Cultural norms about girls' education	• Boys regularly favored over girls • Religious or other cultural restrictions	• Advocacy programs • Awareness-raising about longer-term household economic benefits of girls attending school
Causal factor #3	**Path through root cause map**	**Recommendations**
School access	• Schools are not available in all villages	• Education reform to reach rural schools • Visiting seasonal tutors

Source: Adapted from Rooney and Vanden Heuvel (2004).

2. **Why** do they not start primary school?
   - *Because it is a great burden on their family to have them go to school.*
3. **Why** is it a great burden?
   - *Because it is expensive to send a child to school.*
4. **Why** is it so expensive?
   - *Because school fees must be paid for each child.*
5. **Why** are there additional fees for attending school?
   - *Because to get a teacher to come to a rural school, the village must supplement the teacher's salary.*[1]

With each need having many layers of closely related causal factors, plan to analyze at least four or five layers for each causal factor and its root causes. Use fault tree analysis (see page 214), fishbone diagrams (see page 197), concept mapping (see page 220), performance pyramids (see page 236), and many other tools and techniques described in this book to assist you in peeling away the layers of causal factors.

8. Review the information you have collected at each layer of the RCA to identify and prioritize the causal relationships. For instance, using that information, you might determine that the primary causes leading to the performance issue are related to motivation and incentives, with lesser causes being knowledge, skills, and available time to complete required procedures. In the end, you want to have a prioritized list of all the causal factors you identified during your analysis.

   In most circumstances, you will not be able to quantify the contribution of each causal factor to the performance gap—that is, you will not be able to attribute 45 percent of the performance gap to cause A, 30 percent to cause B, and 25 percent to cause C—though it is usually beneficial to prioritize causes from major to minor contributors. You can use a number of collaborative decision-making techniques included in this book to assist in setting the priorities. Often, it is also valuable to create a visual representation of the relationships among causal factors.

   For example, ask several of the participants who provided you with information during your analysis (through interviews, surveys, focus groups, reports that they authored, and so on) to review the prioritized list of causal factors. Each participant should review the list to determine whether (a) all of the causal factors are identified, (b) all of the relationships between the causal factors are taken into account, and (c) the highest-priority factors are those that contribute most significantly to the need.

9. For each high-priority causal factor that is identified (and verified through participant review), find at least two potential interventions or activities that address the causal factor, and ensure that it doesn't continue to negatively affect performance. The activities can then be assessed and compared as possible recommendations coming from the needs assessment.

Tips for Success

- Don't assume that the first causal factor that people tell you about is the root cause of the performance problem. Take time and ask lots of questions as you peel away the layers of causal factors to identify all of the factors leading to less-than-desirable results.
- Focus on what components of the performance system (activities, processes, procedures, equipment, rules, policies, interpersonal relationships, and so on) are limiting the achievement of desired performance.
- Avoid shifting the focus to any solution, intervention, or activity that might be recommended during the analysis. Make note of the recommendation, and maintain your focus on the causal factors. Later, all of the recommended activities for improving performance can be compared and assessed for their potential value (both singularly and in various combinations).

Note

1. Based in part on an example from http://www.isixsigma.com/library/content/c020610a.asp (July 23, 2008).

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Website

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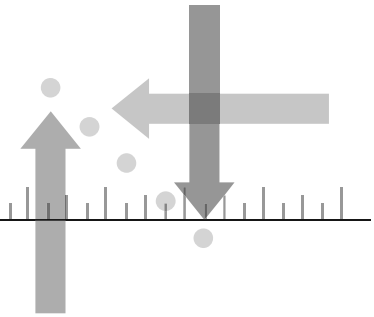


FAULT TREE ANALYSIS

Purpose

A fault tree analysis (FTA) is a step-by-step procedure that is used to logically identify, evaluate, and quantify potential problem causes for a performance gap (failure) in a system and to determine strategies for preventing these causes.

Needs Assessment Applications

In a needs assessment, the typical function of a fault tree analysis is to identify the *causes* of performance gaps in a system (for example, your organization, a division within your organization, or a government unit). FTA is especially useful when specific failures within the system lead to performance gaps. The FTA provides a systematic process for analyzing situations and determining the relevant causes.

An FTA can help you to recognize the interrelationships among causes in the system and to evaluate the potential effects of causes in terms of the failure of the system. By addressing multiple causes, the FTA can also help you identify strategies that can be used to reduce the probability of future problems in the system.

The analysis procedures in an FTA are based on creating a visual representation (a fault tree) that identifies each of the potential causes, the relationships (failure sequences) between the causes, and the prioritized prevention strategies. Fault tree analysis is used widely in many engineering disciplines, but it can also be used in needs assessment as a root cause analysis technique. It can be an effective tool for increasing the chances of success for a specific system. The technical nature of the technique does, however,

likely require additional preparation beyond the process overview we provide here.

Advantages and Disadvantages

Advantages

- An FTA can be used with both a large and a small numbers of participants.
- The FTA displays information in a structured, graphic way that makes it easy to interpret and communicate.
- The FTA technique solicits input and insight from a wide number of experts.
- The focus in the FTA technique is on the system being analyzed, rather than on the individual people in the system. Thus, it may be easier to get a buy-in because people are less likely to feel threatened.[1]
- Agreements and diverging views on system inputs are represented in the FTA.[2]
- An FTA can be used effectively for analysis of recurrent and persistent problems, because such problems are likely to have common causes and contributory factors.

Disadvantages

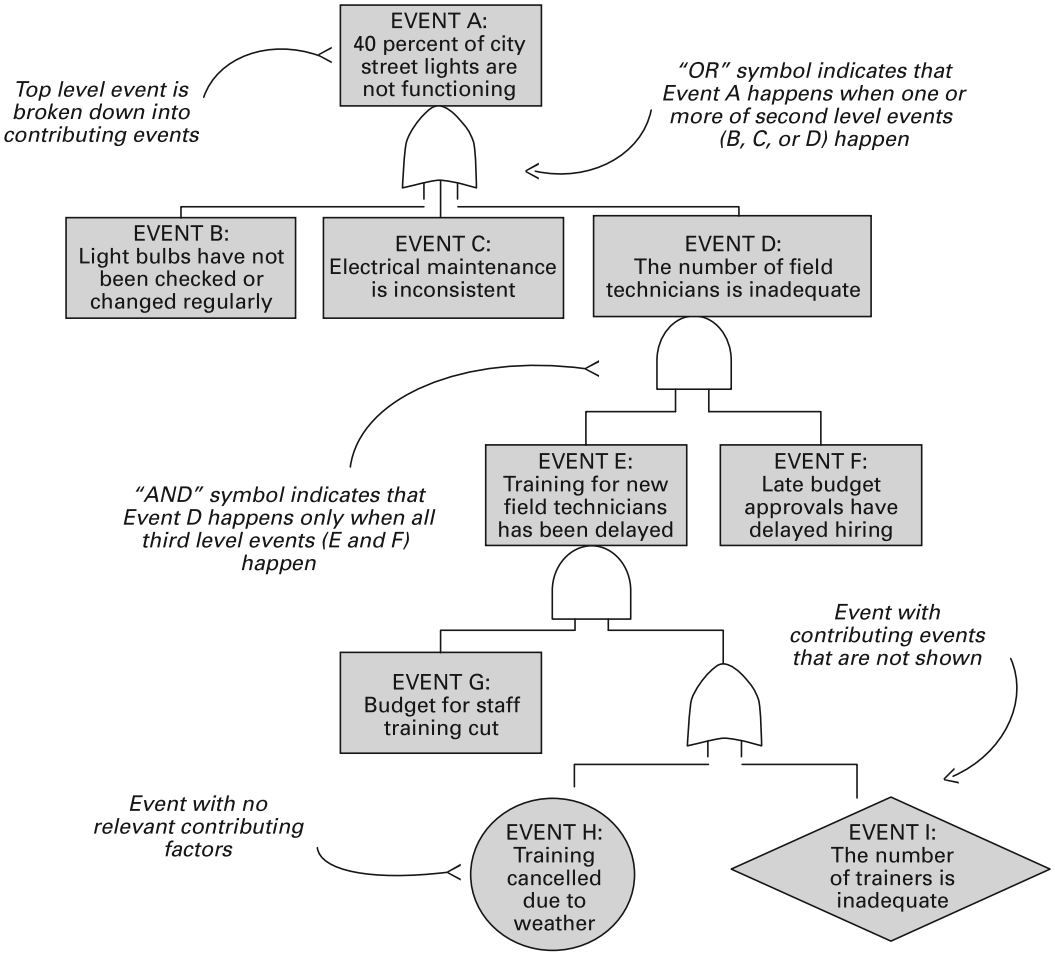
- Because this technique is highly reliant on judgment and insight that are based on subjective opinions, there is a risk of inaccurate information, which compromises the accuracy of the results.
- If the wrong failure sources are identified in an FTA, the subsequent results yielded may experience a ripple effect of this error. Results may, therefore, not be valid or accurate.
- FTAs may fail if the technique is not implemented in a disciplined fashion or if the system problem is so complex that multiple levels of potential causes exist for each problem type.[3]
- When the system of focus for the FTA is very large, quantitative analysis software may be required to analyze the results.

- FTA can be a relatively time-intensive and complex technique; in this book, we provide an overview of the process although additional readings are likely required for a successful application.

Process Overview

1. If the technique is being applied in a formal, scheduled session, take the necessary steps to prepare for conducting the FTA.
    a. If technological methods will be used, acquire concept mapping software, a computer, a projection device (for example, a video projector), and a projection surface or screen.
    b. If nontechnological methods will be used, ensure that you have access to a large surface area (that is, a whiteboard or chalkboard) on which you can create the concept map, as well as thick markers in various colors, tape, and so on.
    c. If you are doing the concept mapping session with a large number of participants, consider identifying a colleague or assistant who is able to create the actual concept map while the facilitator mediates the session.
    d. Identify and invite participants who are experts on the system that will be the focus of the FTA.
    e. Schedule the FTA activity session.
2. Using your list of information required for the needs assessment, define the system that will be the focus of the FTA.
3. Identify the "what should be" for the system either by identifying the system's mission, purpose, or goals, or by defining the criteria for what the "ideal situation" would look like.
4. Working with an expert on the system of focus, begin the process of building the fault tree (see figure 3B.3). Determine, in specific terms, "the top undesired event" for which you want to identify the underlying causes. Write the top undesired event at the top of the tree.
    a. This undesired event will be the foundation on which the FTA will be constructed, so it is important that it be identified in clear terms.
5. Identify the factors (conditions) that are in the immediate vicinity of the top undesired event and that could be causing it. Write those key factors immediately below the top of the tree.

Figure 3B.3 Example of a Basic Fault Tree Analysis



Source: Based on examples from http://syque.com/quality_tools/toolbook/FTA/example.htm and http://syque.com/quality_tools/toolbook/FTA/how.htm.

6. Look at each of the key factors you have identified in the previous step. What subfactors could be causing the key factors? Identify the subfactors, and place them underneath the appropriate factor on the tree.
   a. Do not move on to the next level of analysis until there is consensus that all factors at the current level have been identified.
7. Continue this procedure—building the tree-like graphic—until there is a general consensus that the tree is finished.

8. After the fault tree has been completed, work with experts to carefully and systematically analyze it for accuracy. Compare the fault tree's factors and structure against the actual system being analyzed.
9. Analyze the fault tree. This analysis can be done either statistically or through informal nonstatistical methods (such as brainstorming). To analyze quantitatively, use statistical analysis to determine the probability of all the contributing factors you have listed in the tree.[4] This analysis can be complex, and we recommend doing additional readings before completing the analysis.
10. By drawing on your analysis, you should be able to identify the potential factors, as well as the sequences of factors, that may account for the performance problem that you identified as the top undesired event.
11. Focus particularly on the factors that appear lowest in the tree, because remedying or preventing these root causes is the most effective and efficient way to obstruct or eliminate the critical paths leading to the top undesired event.

Tips for Success

- The FTA technique works best for problems that have a medium level of complexity. For very complex problems, this technique can be difficult to manage or overwhelming for people to interpret.
- Remember that the expert insight that is used to construct the fault tree is generally of a very subjective nature. Take steps to consult as many experts as possible and to externally validate the fault tree and its outcomes. Both of these steps will reduce the subjectivity to some extent.

Notes

1. Based on Jonassen, Hannum, and Tessmer (1989).
2. Ibid.
3. Based on http://www.greatsystems.com/rootcause.htm#FTA.
4. Based on Jonassen, Hannum, and Tessmer (1989).

References and Resources

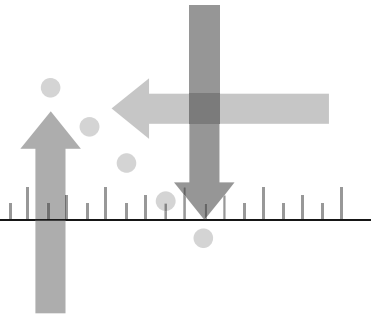
Jonassen, David H., Wallace H. Hannum, and Martin Tessmer. 1989. *Handbook of Task Analysis Procedures*. Westport, CT: Praeger.

Vesely, William E., F. F. Goldberg, Norman H. Roberts, and David F. Haasi. 1981 *Fault Tree Handbook (NUREG-0492)*. 1981. Washington, DC: U.S. Nuclear Regulatory Commission. http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr0492/.

Websites

Detailed discussion with description of the meaning of each figure in an FTA graphic is available at http://www.weibull.com/basics/fault-tree/index.htm.

Discussion of fault tree analysis with examples and how-to procedures is available at http://syque.com/quality_tools/toolbook/FTA/how.htm.



CONCEPT MAPPING

Purpose

Concept mapping is a method used to make a visual representation (that is, a picture or a map) of concepts or ideas and to illustrate their relationships. Terms such as *mind map*, and *idea map* are essentially synonymous with the term *concept map*. A similar method, *cluster mapping,* additionally uses statistics to define clusters of similar items.

Needs Assessment Applications

In the context of needs assessment, concept mapping can be used for various purposes, including data collection, consensus building, and decision making. Specifically, they can be used for the following:

- Facilitate discussion and data collection during interviews or focus groups.
- Support decision making between potential solutions for a given gap.
- Engage in pattern matching for the purpose of consensus building in relation to need identification.
- Identify organizational priorities.

Concept maps can be created by either a single person or a group of people. In the case of a single person creating a concept map, the purpose might be to identify the key ideas relative to a given problem. When concept mapping is used in a group setting, its purpose can be to identify and show the relationship between units within an organization, to brainstorm ideas or solutions, or to systematically identify priorities or plan new approaches.

The key purpose of a concept map is to visually represent key elements and their relationships. This visual representation can be especially useful when complex relationships exist between elements. Concept maps generate qualitative data, but the data can be interpreted using both qualitative and quantitative data analysis.

Advantages and Disadvantages

Advantages

- Concept mapping represents ideas or views from a large group of participants or stakeholders in an easy-to-interpret format.
- It generates data that can be interpreted qualitatively or quantitatively.
- It identifies complex relationships between issues, factors, and so on in a tangible, graphic format.
- Because it is participant focused, everybody can have his or her ideas represented.
- It shows at a glance specific performance areas, their interrelationship, and their strategic priority.
- It is simple to implement and understand for both you and the participant(s).
- Concept mapping uses a structured process that can be replicated easily and reliably.
- It enables the organization to create a shared vision of performance areas and goals.
- It promotes active participation and, therefore, ensures that participant(s) stay on task.
- It can be done using computer software or using paper.

Disadvantages

- In the absence of a structured approach for creating concept maps, this approach can become messy and hard to read.
- Concept mapping includes only a high level representation of the performance area that is the subject of the concept. This method does not easily allow for the inclusion of detailed information.

- In concept mapping, it may be hard to identify all the relationships between the concepts or ideas.
- Interpretation of the concept map data can be involved.
- The use of this method may require an experienced facilitator.

Process Overview

The three main phases of the concept mapping technique are planning, gathering information, and analyzing and interpreting.

Planning

1. Determine the focus of the concept map by using the list of information required for the needs assessment.
2. Identify the data analysis methods to be used after the concept map has been completed.
3. Identify and invite participant(s) to build the concept map.
4. Establish the schedule for the concept mapping session(s).
5. Acquire resources required to conduct the concept mapping session.
    a. If technological methods will be used, acquire concept mapping software, a computer, and a projection device (for example, a video projector) along with a projection surface or screen.
    b. If nontechnological methods will be used, ensure that you have access to a large surface area on which you can create the concept map, as well as thick markers in various colors, tape, and so on.
    c. If you are doing the concept mapping session with a large number of participants, consider identifying a colleague or assistant who is able to create the actual concept map while you (or a hired facilitator) mediate the session.

Gathering Information

1. Start the concept mapping session by introducing the purpose and focus of the concept map to the participant(s).

a. If the concept mapping session is being conducted with a large number of participants, then identify "rules of play" and other information related to the group process.

2. Begin the brainstorming process, encouraging participants to identify as many performance areas as possible related to the focus topic. Emphasize that this is the brainstorming phase of the process and, therefore, that all reasonable contributions are of value.

3. After brainstorming is completed, invite participants to identify redundant information in the list (for example, two contributions that refer to essentially the same thing). Merge and synthesize those instances to create a final list.

4. Begin the structuring process. The process can be started individually, at first, or as a group from the start.

   a. Ask participants to work individually to sort (group or cluster) these performance areas into clusters of their choosing (or use an individual card sorting technique). Beginning the structuring process individually offers individuals a chance to identify relationships among the performance areas before collaborating with the group to come up with a shared sorting of the listed items.

   b. Ask participants to work together to sort (group or cluster) the performance areas into clusters (or use a group card sorting technique). Beginning the structuring process as a group promotes a mediated process of consensus building to identify relationships between performance areas.

5. Items from the list are placed on a "map" (for example, drawn on a big piece of paper, or written on sticky notes that are placed on the wall) to illustrate their relationships. Clusters can be maintained from the previous list, or new clusters may be formed in keeping with the visual map that is developing. More complex maps can be created using statistical techniques and software; in those instances, you should consult the resources that follow.

6. Ask participants to work either collectively or individually to restructure the concept map by hierarchically laying out the concepts or clusters on the basis of one or more dimensions relevant to the focus statement. For example, arrange the items within each cluster by their feasibility within the organizational context. Work to build consensus among the group members on a final map that represents their shared perspectives.

Analyzing and Interpreting

There are different points at which the information captured in the concept map can be analyzed and interpreted. It can be interpreted during the actual concept mapping session (through the active involvement of the participants), after the completion of the concept mapping session (by you or by an external data analysis expert), or at both points. The timing of the analysis and interpretation of the concept map information depends on the purpose and nature of the concept map.

You can interpret data from a concept map in innumerable ways, ranging from "eyeballing" the concept map to determine key trends or priorities, to performing thorough statistical analysis to assess construct validity. For this reason, restrict yourselves to identifying just a few ways you can go about using your concept map data for needs assessment purposes.

Interpreting in-session data

When the concept maps are interpreted during the concept mapping session, consider actively involving the participants in the decision-making process. However, the extent to which in-depth statistical analysis can be done during the concept mapping session is very restricted. Most of the analysis you would do in session will fall into categories such as the following:

- ***Coding:*** Participants work with the facilitator to set up a simple coding scheme that is related to the focus area of the concept map. The group then works together to code concepts or clusters on the concept map according to the coding scheme. Trends in the concept map data can be analyzed by doing frequency counts on the prevalence of each of the code categories.
- ***Rank ordering:*** If participants have been asked to use a predetermined scale to rate concepts or clusters of concepts, then you may consider using rank ordering. In this case, you would ask all participants to report the rating they assigned for each cluster or concept. Add up the total rating values per cluster or concept (depending on the unit of analysis), and place the values in rank order according to a dimension relevant to the focus statement for the concept map.

Interpreting post-session data

Multidimensional scaling and hierarchical cluster analysis are two statistical analysis methods that are often used when a thorough understanding of the information in the concept map is required. In addition to those

approaches, however, several simple analysis approaches can be used after the concept mapping session has wrapped up.

Here are two examples:

- For decision making between alternate approaches for addressing a performance gap, you might ask participants to rate the cluster on the basis of feasibility or desirability. Then set up your own system—after the concept mapping session—to rate the clusters while using your expertise in the area of need (see figure 3B.4). By comparing the ratings you have given with those given by participants (that is, patterning), you can rank order the various approach clusters to determine the solutions that are most likely to succeed and to match the organization's preferences.
- To compare the views or insights of two different groups of stakeholders, again use an approach to identify patterns. In this case, you would ask the stakeholder groups to separately rate the clusters related to the concept map focus area. You would then analyze the concept maps by comparing how different stakeholder groups rated each of the clusters (see figure 3B.5). Clusters that are generally rated at the same level by each of the cluster groups would indicate a high degree of consensus between stakeholder groups. Clusters where ratings are very different would indicate divergence between stakeholder groups.

Examples

Figure 3B.4 Example of Basic Concept Map to Illustrate Relationships

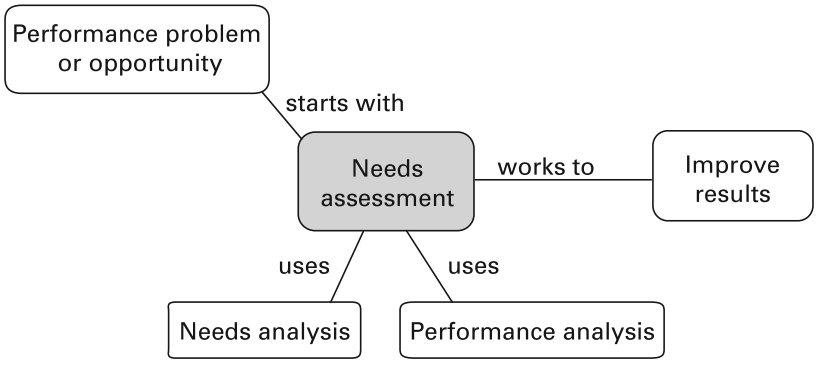
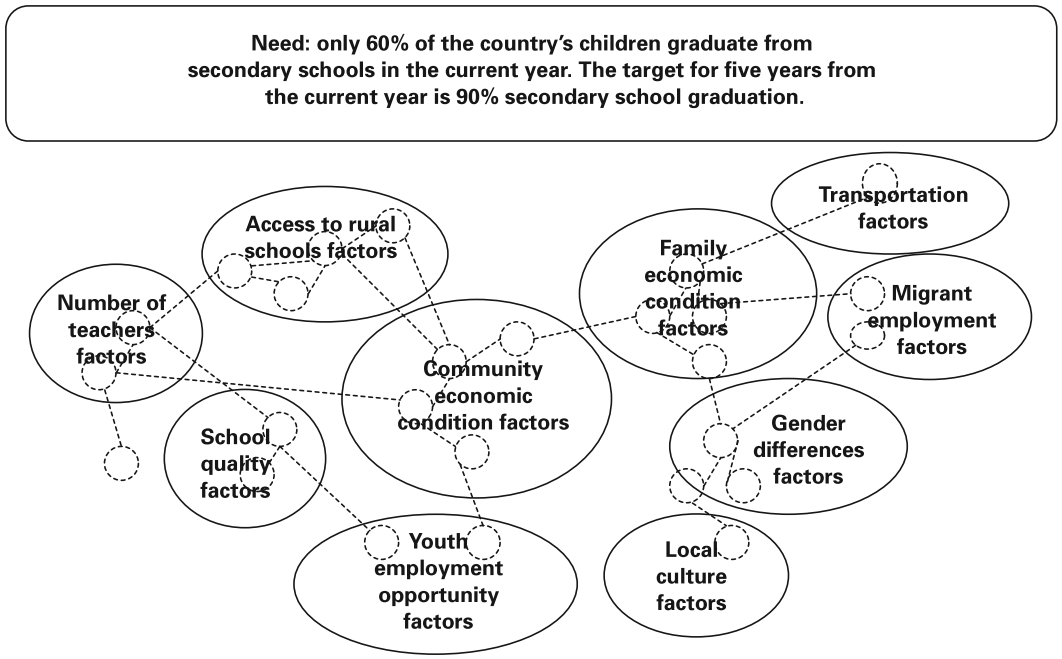


Figure 3B.5 Example of Basic Concept Map with Clusters Overlaid on Individual Statements



Tips for Success

- Be sure that you have clearly spelled out the focus area for the concept map prior to the concept mapping session.
- To increase the comfort level of the participants,
  - Explain the concept mapping process to them.
  - Reiterate that their names will not be directly tied to their contributions to the concept map (if applicable).
  - If the participant(s) in the concept mapping session have never worked with concept maps before, consider illustrating the process with a simple example.
- During the initial brainstorming session, include all contributions in the concept map.
- Do not worry about the look or structure of the concept map until the "structuring" phases of the concept map come around.

- Verbally repeat participants' contributions to the concept map as they express them. Doing so will ensure that the concept map is the most accurate reflection possible of the participants' contributions.
- If all participants will collectively work on clustering concepts, use simple strategies to make it visually easy to identify which concepts are being assigned to which clusters. For example, use the same color for all concepts assigned to the same cluster.

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Websites

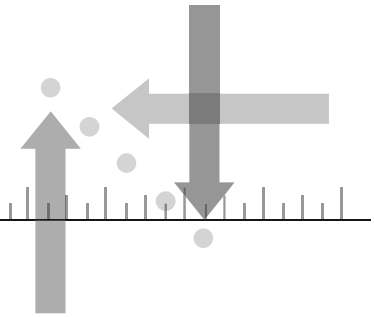
"The Complexity of Concept Mapping for Policy Analysis" by Trochim and Cabrera is available at http://www.isce.edu/ISCE_Group_Site/web-content/ISCE_Events/Cork_2005/Papers/Trochim.pdf.

"Using Concept Mapping to design an indicator framework for addiction treatment centres" is available at http://intqhc.oxfordjournals.org/cgi/content/full/17/3/193.

Additional Tools

Information on statistical analysis of concept maps can also be found in the following sources:

- Free software for creating concept maps is available at http://cmap.ihmc.us/.
- "Q & A: What Is Concept Mapping?" is available at http://www.socialresearchmethods.net/tutorial/Katsumot/conmap.htm.



FUTURE WHEEL

Purpose

The future wheel is a future-oriented technique. Future wheel activities are conducted to help participants analyze and explore effects of a trend, event, circumstance, or issue. As such, this technique can be a useful tool for conducting structured brainstorming, determining needs, planning strategically, and building consensus.

Future wheels are laid out as graphic depictions with the future event in a circle in the center, the first-order effects in the first circle out from the event, the second-order effects in the second circle out from the event, and so on. Future wheel activities can potentially be used to explore effects of many different things (issues, trends, and events), so they can be used in virtually any setting (organization, community meeting, school, and so on).

Needs Assessment Applications

The future wheel has a variety of different needs assessment applications, as follows:

- Forecast potential future scenarios.
- Project future trends.
- Systematically explore the possible effects from a current situation or trend.
- Analyze the possible pattern of effects for a potential future event or trend.
- Forecast implications for a variety of alternative circumstances.

- Determine the potential effects of a variety of potential performance solutions.
- Collect data on a group's perspectives on current and future situations and trends.

Advantages and Disadvantages

Advantages

- The future wheel is easy to use and does not require extensive training for the facilitator.
- It is resource lean and, therefore, can be done anywhere, anytime.
- It supports structured brainstorming.
- It is intuitive to the participants.
- It is not time-intensive and can be conducted in one, relatively brief, group session.
- The future wheel can be used at any time in the needs assessment or strategic planning process.
- It can be adapted for use in virtually any context: business and industry, community, personal.
- It promotes systematic thinking about complex relationships between causes and consequences.
- Through the use of concentric circles, it clearly identifies the common bond that all identified effects have to the topic at the center of the future wheel.

Disadvantages

- Because future wheels are laid out in a sequential structure around a central topic, they may be too superficial to identify the complexities of a series of contributing factors that may all have differing levels of influence on the effects identified.
- They may not clarify whether effects are related to each other by causality or by correlation. Indeed, because of the use of the concentric circles, a future wheel may lead individuals to incorrectly believe there

is a causal relationship between two effects, when those effects are, in fact, linked only by correlation.

- Future wheels present the potential risk that one or more individuals will believe that effects identified through a future wheel will, in fact, happen when in actuality they are merely "hypotheses" or "best guesses."
- The relatively rudimentary nature of future wheels makes it hard to represent projected time lines associated with the effects added to the future wheel. Such time lines can be an essential ingredient for problem and solution analysis.
- Because participants engage in subjective and projective thinking to create it, a future wheel should be used only as one of many sources of information for more systematic and empirical analysis. It cannot, by itself, be used for coming to conclusive decisions.

Process Overview

The procedure for conducting a future wheel activity is fairly simple and easy to implement. It consists of two key phases: preparation and implementation.

Preparation

1. From the list of information required for the needs assessment, identify a trend, event, or question for the future wheel activity. This trend, event, or question will be the future wheel's main topic. A question might be "What is the result if you continue doing as you are doing?" and an event might be "Effect of talent loss on organizational productivity." The topic should
   a. Focus on current or anticipated future events and their consequences.
   b. Be suited to exploration through a small group interactive session.
2. Invite a small group of people (preferably between 8 and 12 individuals) to participate in the activity. If you intend to use this exercise with more than a dozen or so people, it is recommended that you run the activity multiple times.
3. Determine whether the topic of the future wheel merits the use of outside resources during the actual activity. If so, search for resources that provide key information on the theme or question that you have identi-

fied as being the subject for the future wheel activity. Those resources will be shared with the group of participants during the actual activity. For example, you may want to gather the following:

   a. Descriptions of future events or trends from the professional literature
   b. Results from future or projection studies
   c. Results from other trend analysis or future scenarios
   d. Data that provide insight on current or alternative future scenarios

4. Gather the resources required for conducting the activity.
   a. Flip charts (or confirm that you will be in a room with a whiteboard)
   b. Markers in a variety of colors

Implementation

Preparing participants

1. Begin by warming up the group. Introduce participants to the concept of the future wheel, and explain the process for the activity. Emphasize that all participant contributions are considered valuable and that group members are encouraged to participate actively. Explain that the future wheel is laid out by order of consequences:
   a. Primary (or first-order) effects: The most immediate consequences of the future wheel's key topic.
   b. Secondary (or second-order) effects: The most immediate consequences following from the first-order consequences. Depending on the topic, you may also opt to include third- or fourth-order effects in the future wheel before continuing.
   c. Implications or opportunities: The final wheel of the activities focuses on the implications or opportunities that come from the identified effects.
2. Tell the participants the approach that will be used to add an effect to the future wheel. Some options include the following:
   a. Asking participants to brainstorm ideas for effects and adding those effects as they are being identified and without evaluating them first.
   b. Discussing each idea and evaluating the plausibility of the idea. If there is a general consensus that the potential effect is plausible, it is added to the concept map.

3. Introduce participants to the key topic for the future wheel activity. Discuss the relevance and importance of understanding the key event. If you are using supplementary resources, provide all the group members with copies of the background resources that you have prepared, and give them time to review the resources.

Creating the future wheel

1. Write the future wheel's key topic (for example, youth unemployment, aging populations) in the center of your drawing space, and place a circle around it.
2. Ask the group to identify the first-order effects. As first-order effects are identified, draw lines out from the center circle (the lines are referred to as "spokes"), and write the first-order effects at the end of the lines. After all key first-order effects have been identified, draw a circle that encloses all the first-order effects.
3. From here, tell participants to shift their focus away from the future wheel's key concept and to instead focus on the first-order effects that were identified. Ask participants to identify the key potential results from the first-order effects. Add those effects to the future wheel by drawing spokes from the circle around the first-order effects and by writing the second-order effects at the end of each of those spokes. After all key second-order effects have been identified, draw a circle around all of them.
4. Continue this process until there is a consensus that the sequence of implications for the key topic is evident.
5. Finally, identify implications or opportunities that emerge from the identified effects, which could include, for example, new programs or policies that will improve performance in relation to the identified issues. The key to this final step is to introduce activities (or solutions) into the discussion.

Discussing and interpreting the future wheel

1. After the future wheel has been completed, give the participants an opportunity to look it over and to synthesize the information in it.
2. Initiate a discussion on the key topic of the future wheel by asking questions targeted to the purpose of the needs assessment. Themes you may want to use to guide the discussion are the following:
    a. Evaluation of the implications of the future wheel's key topic

b. Desirable vs. undesirable primary, secondary, or tertiary effects

c. Effects of the present situation on potential future events

d. Approaches to avoiding negative outcomes

Examining alternative approaches to using future wheels

Future wheel activities can be used in many different ways. Here are some alternative approaches:

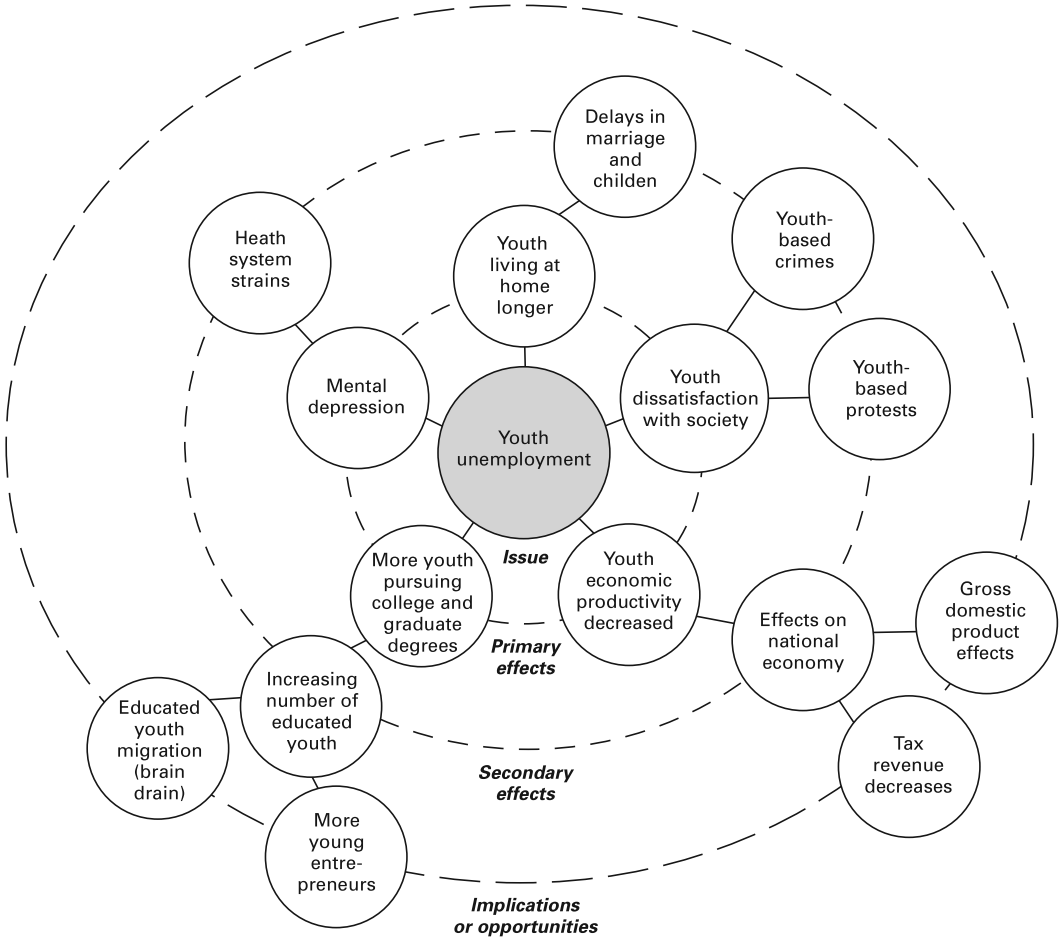
1. Invite a panel of experts to participate in the future wheel activity. After the key topic of the future wheel has been identified, the panel should discuss how the key event may affect a variety of themes (for example, recruitment, talent management, profit margins, and so on). Each panel member then should work individually to write down ideas related to the themes raised in the discussion. Use a round-robin approach to ask panel members to contribute their ideas. After a comprehensive list has been created, they should place their ideas in labeled categories. The future wheel can be created by adding the labeled categories as primary, secondary, or tertiary effects.[1]

2. The future wheel activity can also be used as an approach for forecasting the implications of alternative solution scenarios. To use this approach, generate a scenario (for example, the implementation of performance-supporting solutions to improve customer service), and select one aspect from that scenario to explore (for example, an electronic performance support system, or EPSS). Ask participants to identify the specifics of what the selected item can achieve (that is, what functions the EPSS can perform in light of the need), and add those participant contributions as primary effects. Next, ask participants to identify what is required for them to make the items in the "primary effects" section of the future wheel a reality (for example, what resources and applications are required to create and implement the functions of the EPSS). Add this information as the "secondary effects." The future wheel is then elaborated with additional effect levels.[2] (See the example in figure 3B.6.)

Tips for Success

- What key topic you select for the future wheel activity is a critical issue. Make sure that you thoroughly evaluate potential key topics (and how they are formulated) by looking at the information required from the

Figure 3B.6 Sample Future Wheel



Source: Based on http://www.knoke.org/lectures/futureswheel.htm.

needs assessment, analyzing those requirements, and potentially soliciting feedback from outside experts.

- Carefully select participants for the future wheel activity on the basis of the activity's goal. For example, the purpose of the activity is to gather expert insight about the potential implications of a current situation or trend; therefore, select participants who can knowledgably contribute to such an analysis.

- In a clear way, tell participants the approach that will be used for adding information to the future wheel. If the future wheel is being used for anything other than general brainstorming, it is essential to evaluate ideas carefully before they are added to the future wheel.
- Take the time to thoroughly discuss the future wheel after it has been created. At this point, you can stimulate a creative and informed discussion that will be based on a common source of information (the future wheel).

Notes

1. Based on Witkin and Atschuld (1995).
2. Adapted from http://abhijitkohli.googlepages.com/futureswheel.

Reference

Witkin, Belle Ruth, and James W. Altschuld. 1995. *Planning and Conducting Needs Assessments: A Practical Guide.* Thousand Oaks, CA: Sage Publications.

Websites

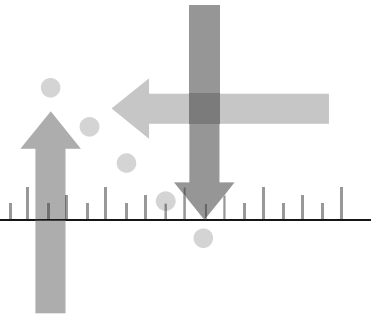
A four-step example of a future wheel is available at http://www.knoke.org/lectures/futureswheel.htm.

"Future Wheels: Interviews with 44 Global Experts on the Future of Fuel Cells for Transportation and Fuel Cell Infrastructure" is available at http://www.navc.org/Future_Wheels_I.pdf.

A short description and examples of future wheels are available at http://jcflowers1.iweb.bsu.edu/rlo/tarelevance.htm.

Additional Tools

A downloadable template of a future wheel is available at http://www.globaleducation.edna.edu.au/globaled/go/cache/offonce/pid/1835;jsessionid=050A14CB101EAF863AE979C80461FCB3.



PERFORMANCE PYRAMID

Purpose

The performance pyramid is a framework for ensuring that your needs assessment addresses each component's underlying performance.

Needs Assessment Applications

The performance pyramid (see figure 3B.7 in Process Overview) by John Wedman (2010) is a valuable tool that can be applied throughout a needs assessment to ensure that all aspects of the performance system are considered. Use the performance pyramid to provide structure when you are identifying needs, analyzing needs, and deciding what to do to improve performance.

During your analysis, for example, use the pyramid to determine how each element of the pyramid framework relates to the identified need. Some elements (such as rewards, recognitions, and incentives) may be hindering current performance, whereas others (such as knowledge and skills) may be concurrently supporting the achievement of desired results.

Likewise, use the performance pyramid again when deciding how to create a complete system for improving performance. For example, recommendations coming out of your assessment may include improvement activities related to three elements of the pyramid framework: (a) tools, environment, and processes; (b) rewards, recognition, and incentives; and (c) knowledge and skills. At the same time, you might recommend monitoring the other elements for possible suboptimization (that is, when improvements from your activities have unintended, negative consequences in relation to other elements of the performance system). (For helpful sample templates of improvement activities to use as job aids, see pages 242–244.)

Finally, the pyramid framework can be an effective tool for communicating the results of your assessment with partners and stakeholders. The framework, as a visual, illustrates the relationships among key components in accomplishing desired results; at the same time, it is flexible enough to apply in a variety of contexts.

Advantages and Disadvantages

Advantages

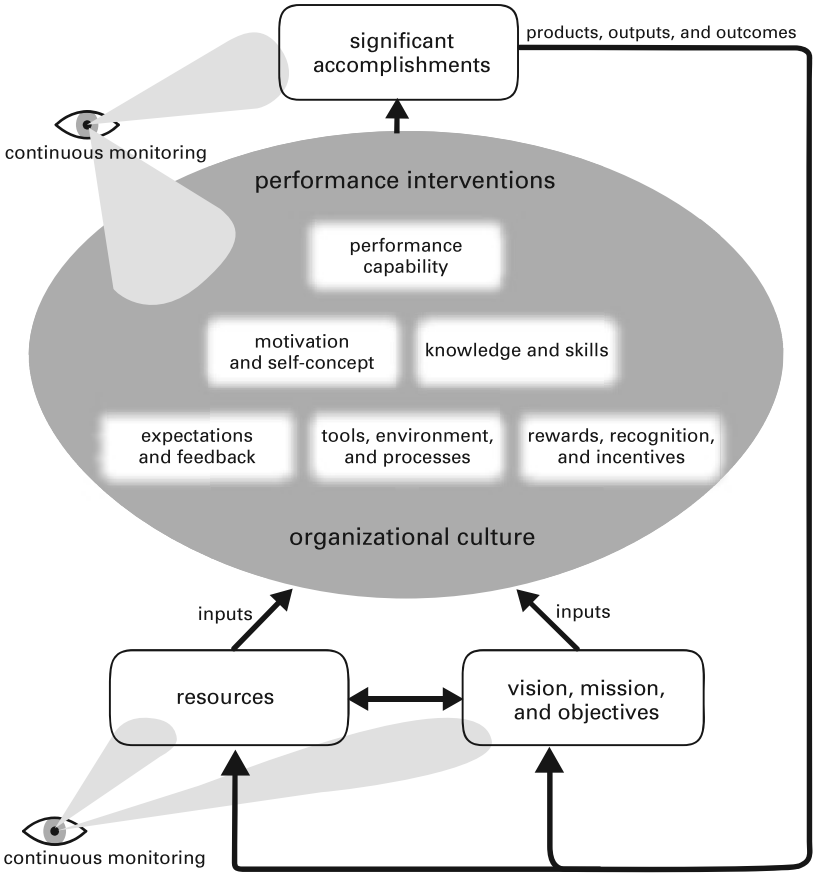
- The performance pyramid provides a valuable framework that ensures that each foundation component of a performance system is addressed in all phases of a needs assessment.
- The performance pyramid offers an easy tool for communicating the systemic characteristics of performance with assessment partners that are internal or external to the organization.
- Relationships between the elements of the pyramid framework (for example, the relationship between the organization's capacity to achieve desired results and the alignment of vision, mission, and objectives required to accomplish results) can provide necessary links for ensuring that improvements in one area don't lead to new performance challenges in others.

Disadvantages

- The pyramid, as a visual, can be misinterpreted as a hierarchy. The six blocks in the inner pyramid image are, in reality, interchangeable. For example, motivation and self-concept can be illustrated as the top component of the pyramid—as could any other elements depending on the context.
- The pyramid does not provide a process for conducting a needs assessment or for improving performance; rather it is just a framework for aligning the elements that support the achievement of results.

Process Overview

Figure 3B.7 Wedman's Performance Pyramid



Source: Adapted from Watkins and Leigh (2010). Wedman (2010) has granted permission for use herein.

Needs Analysis Applications

For each identified need, complete an analysis of the need to identify the contributing factors that are leading to the discrepancy between current and desired performance (results). Use the performance pyramid as a framework for planning your analysis, collecting information, and then analyzing the findings so you can make recommendations.

1. Begin by clearly stating the need in terms of what desired results are not currently being accomplished. Use this precise definition of the need to drive your needs analysis; otherwise, you will typically drift from the performance gap into symptoms of the problem or preferred fixes. Remember, a needs analysis is a systematic process to break apart a need and to determine what components are leading to the performance gap.
2. For each element of the performance pyramid framework, collect information regarding its potential relationship with the identified need. It doesn't matter which element you start with (culture, capacity, feedback, and so on), but by the end of the analysis, you should examine each element for its potential role in relation to the need. Here are some sample questions for each element of the pyramid framework:
    - ***Motivation and Self-Concept***
        - Are people motivated to achieve the desired results as specified by the need?
        - Are people motivated to accomplish the goals of the organization and its partners?
        - What factors may be reducing motivation?
    - ***Performance Capability***
        - Are the "right" people available to do the work?
        - Do the best performers stay with the organization or leave?
        - Does the organization have adequate capacity to take on new projects?
    - ***Expectations and Feedback***
        - Do people know what results are expected?
        - After people have completed a task, are they told what they did well and what they can improve in the future?
    - ***Rewards, Recognition, and Incentives***
        - Are there incentives for people to accomplish desired results?
        - Are there disincentives for performing well?
        - Are people recognized or rewarded for their performance?
    - ***Tools, Environment, and Processes***
        - Do people have access to the resources (equipment, time, software, and so on) that are required to meet performance goals?

- Does the organizational environment (or culture) support the achievement of desired results?
- Are there systematic processes in place to guide performance?

- ***Knowledge and Skills***
  - Do people know how to do what is asked of them?
  - Are people given (or do they come with) the necessary skills to achieve desired results?

- ***Organizational Culture***
  - Does the organization's culture support the achievement of desired results?
  - Are there norms within the culture of the organization that hinder any other component of the pyramid framework?

- ***Resources***
  - Do people have the necessary resources (time, money, and so on) to achieve desired results?
  - Have the resources required for achieving desired results been identified?

- ***Vision, Mission, and Objectives***
  - Are people aware of how their work contributes to the team, organization, clients, and larger society?
  - Is there a clear strategic plan that can be used to guide decisions at all levels of the organization?
  - Are people able to be "proactive" because they know where they want to go, or do they always have to be "reactive" to changing events?

- ***Significant Accomplishments***
  - Are the desired results aligned with the vision, mission, and objectives of the organization?
  - What is the return on investment for accomplishing desired results?

- ***Continuous Monitoring***
  - Are there monitoring (or evaluation) systems in place within the organization that can measure performance in relation to each component of the pyramid framework?

- Are performances routinely monitored across the organization?
- Are monitoring results and reports used to improve performance?

3. Ask questions related to each element of the pyramid to both internal and external partners in the needs assessment. Often, external clients and partners can identify contributing factors to performance problems more easily than those on the inside of the organization.
4. Analyze responses to your analysis questions so you identify which elements (or sub-elements) are most closely related to the need; those elements will typically include causal factors contributing to the need as well as other factors that are leading to current successes. You can also use fault tree analysis (see page 214), root cause analysis (see page 207), concept mapping (see page 220), and other tools to support your analysis within the pyramid framework.
5. Move the elements of your pyramid around to illustrate the relationship you have found during your needs analysis. For instance, for the need, you might determine that the expectations and feedback element of the pyramid should really be placed at the top to illustrate its critical role in relation to the need within the organizational context. Then the supporting elements—such as motivation and self-concept or incentives, rewards, and recognition—can be used to illustrate the foundations that must be built to ensure the success of the entire performance system. After all, no single element of the pyramid is more important than the others; for successful performance, you must have all elements working together.

Solution Identification Applications

1. Remember that your needs analysis identifies factors contributing to the performance gap for many of the pyramid's components (for instance, motivation and self-concept or capacity or skills and knowledge). Likewise, you will frequently find several causal factors within a single element of the pyramid (for example, two or three factors with the element of expectations and feedback may be contributing to less-than-desirable performance.
2. Working with your needs assessment's internal and external partners, establish a rough priority of the factors leading to identified needs on the basis of their relationship—positive or negative—with the accomplishment of desired results. Precision is not required, but a rough prioritization can help you focus time, effort, and other resources.

3. For each identified causal factor, pinpoint at least two potential solutions that could help improve the achievement of desired results (for examples, see the Job Aids section that follows). Having choices is important to quality decision making; therefore, it is important to identify at least two options for each factor. One option might seem to be clearly the better choice at first, but that decision is best left until after you have identified a variety of alternatives.
4. Before selecting any of the identified solutions, determine what criteria will be used to weigh your options, thus ensuring that each alternative gets a fair appraisal of its potential.
5. Judge each potential solution for each causal factor on the basis of the criteria established in the prior step. It is frequently useful to apply a systematic process, such as multicriteria analysis (see page 171), to assess each option.
6. When you have selected a variety of activities to address the factors leading to the need (performance gap), use the performance pyramid again to verify that you are addressing all components that (a) support performance and (b) ensure that the complete performance system will benefit from the improvements.

Job Aids: A Sample of Improvement Activities to Consider

Expectation Feedback

Possible improvement activities include clear performance guidelines, reference manuals for processes and procedures, realistic job previews, managerial coaching, quality assurance programs, quality on-boarding or orientation programs, benchmarking, performance appraisals, upward and peer evaluations, identification and documentation of performance indicators, goal setting, routine one-on-ones, and individual improvement plans.

Tools, Environment, and Processes

Possible improvement activities include electronic performance support, job aids, performance aids, process reengineering, knowledge management, process improvement, ergonomics, workstation design, warning systems, labeling and color coding, safety planning, social networking, quality management, team colocation, and six sigma.

Rewards, Incentives, and Recognition

Possible improvement activities include bonus systems, commission systems, profit sharing, merit award systems, annual awards ceremony, employee of the month, job sharing, flex hours, job enrichment, telecommuting, education benefits, personnel in the spotlight, empowerment, and delegation.

Organizational Capacity

Possible improvement activities include recruitment programs, retention programs, early retirement, phased retirement, interviewing, job rotation, mergers, acquisitions, crowd-sourcing, outsourcing, succession planning, affirmative action programs, outplacement centers, cross training, internal recruitment programs, interview standards, and competency models.

Knowledge and Skills

Possible improvement activities include classroom training, e-learning, team learning, mentoring, coaching, quality on-boarding or orientation programs, on-the-job training, brown-bag lunch sessions, webinars, podcasts or vodcasts, and tuition reimbursement.

Motivation and Self-Concept

Possible improvement activities include job crafting, job sharing, flex hours, education benefits, career mentoring, career ladders, job rotation systems, and motivational communications.

Resources

Possible improvement activities include restructuring, supply chain management, cash flow analysis, budgeting and accounting systems, career management programs, career ladders, outplacement, and cost reductions.

Continuous Monitoring

Possible improvement activities include performance monitoring, quality management, six sigma, program evaluations, training evaluations, goal/question/metric programs, financial analysis, client surveys, balanced scorecard, key performance indicators, managerial dashboards, and needs assessments.

Vision, Mission, and Objectives

Possible improvement activities include mega planning, strategic planning, future search, SWOT analysis (see page 127), appreciative inquiry, scenario planning, workforce planning, job forecasting, tabletop analysis (see page 180), values identification, and risk management.

References and Resources

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Websites

Many resources (including podcast interviews) on how to use the performance pyramid in a needs assessment are available at http://www.needsassessment.org.

Website and manual for using the performance pyramid are available at http://needsassessment.missouri.edu/.