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Needs Assessment:  
A Case Study  
within  
Canadian National Railway

Susan Evans-Seebeck

A Thesis in  
The Department of Education

Presented in Partial Fulfillment of the Requirements for  
the Degree of Master of Arts at  
Concordia University  
Montréal, Québec, Canada

March 1993

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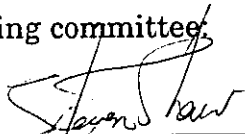
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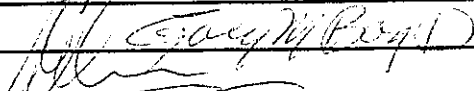
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## **Abstract**

### **Needs Assessment: A Case Study within Canadian National Railway**

**Susan Evans-Seebeck**

Needs assessment is considered by theorists and practitioners to be the first step in developing training and other performance improvement interventions. The reality is that many projects begin without a needs assessment or with an inadequate one. Even when an organization accepts in theory that this step is critical, the organization may not provide the necessary time, human resources, or budget to perform it. The purpose of this study was to observe a needs assessment in an organization in order to gain an in-depth understanding of the application of the process and to identify the problems encountered. The case study method used was participant observation by a member of the multi-functional team assigned to a needs assessment conducted in a US subsidiary of Canadian National Railway. This paper provides a review of literature on needs assessment, a description of the process observed in the case study, and observations on the process. The successes, difficulties, and flaws in the observed needs assessment process are discussed and recommendations for future applications are supplied.

For My Family

## Acknowledgements

I would like to thank my thesis advisor, Richard Schmid, for guiding me through to completion of this thesis. I would also like to thank my colleagues within the training community in CN North America, particularly those who participated in the needs assessment. Their quiet support and thoughtful discussions aided me tremendously.

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# Chapter 1

## Introduction and Background to the Problem

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### North American Railroads

During the 1980's North American railways faced major shifts in the market place and in the freight transportation industry. The most significant single event was the deregulation of freight transportation. The immediate result of deregulation was a surge in the number of trucking companies. In the 1990's railways continue to see a relentless erosion of the freight transportation market to the trucking industry.

Significant shifts in the domestic and international markets have created a changed marketplace for freight transportation. The demand for bulk commodities has leveled off, while the demand for consumer goods has risen. Globalization of the market place has forced North American producers to become low cost producers. The producers have consolidated facilities, implemented just-in-time inventories, and expanded their use of new technologies. They have also moved to a customer first position, emphasizing service for their customers and demanding service from their suppliers.

North American railways can no longer wait for the customer to come to them while they run a railroad. They have been forced to examine the business they are in and how they manage it. To survive North American railways have reduced costs, consolidated, and expanded the use of technologies, including the use of information systems. Information technologies have allowed railroads to increase productivity and to provide customer information services at the level demanded by their customers. Strategic alliances or partnerships with other carriers have been reached and are being sought in an effort to expand their capabilities to provide door-to-door service across geographic distances and carrier modes.

### *Canadian National*

Canadian National is a major transportation distribution company wholly owned by the Canadian government that services eight of the ten

provinces and the Northwest Territories with approximately 32,000 miles of track. Since the mid 1980's, faced with the changing market place and deregulation of the freight transportation industry, CN has sold off several operations to pare down to a railway transportation core. Rail operations now generate over 90% of the company's income. At the same time heavy cost cutting measures have been taken through consolidation of facilities, major personnel reductions, strict control of operating expenses, and cutbacks on capital expenses.

To become more competitive, the company must continue to reduce costs and to improve the quality and reliability of its service. The market will not accept price hikes; therefore increased revenues must come from any volume increases that result from improved customer service. Several initiatives to improve customer services have taken place, including customer on-line information services, improved equipment, expansion of train services targeted for traffic such as intermodal and paper, alliances with other railroads, and the integration of CN and its US subsidiary, the Grand Trunk Corporation.

#### *Grand Trunk Corporation*

Grand Trunk Corporation (GTC) is a Detroit-based holding company for three US railways with approximately 3,000 employees. It was formed in 1971 to embrace the Grand Trunk Western (GTW), Duluth, Winnipeg and Pacific (DWP), and Central Vermont (CV). Since that date GTC has expanded with the acquisition of smaller railroads and it now has approximately 1200 miles of track. The GTC provides three border links; Detroit/Windsor, Duluth/Fort Francis, and Montreal into New York and Vermont. The GTC is a vital adjunct to Canadian National, providing access to the US market and therefore increasing its competitive advantage.

#### *Integration of CN and GTC*

In January 1992, GTC and CN announced the integration of their operating and marketing functions to become a fully integrated cross-border rail carrier. The driving force was the need to expand capability in the north-south traffic pattern that had been strengthened by the Free

Trade Agreement. Currently one quarter of CN's revenue comes from Canada/US trade. The integration would provide seamless cross-border traffic and one-stop shopping for international customers. This would improve customer service, making CN Rail an attractive carrier for north/south traffic with a rail link to Chicago, the center of US rail connections. In addition CN would become more attractive to US carriers as a potential strategic alliance. This new entity was to be CN North America.

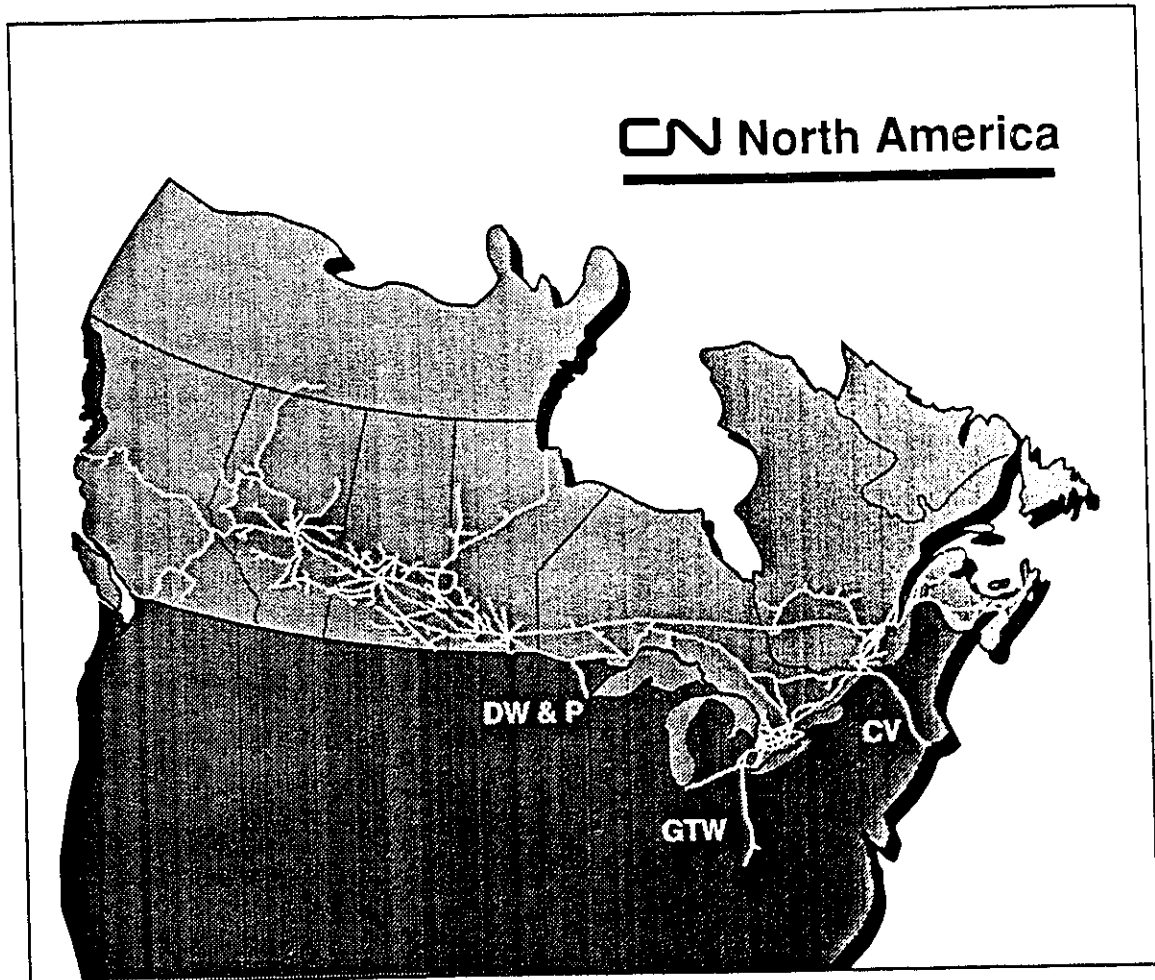


Figure 1 *Map of rail lines for CN North America*

### **Needs Assessment Project**

Early in the first quarter of 1992 a request was made by the Vice-president of Operations to the System Director - Operations Training for a report on how training would be handled in the Grand Trunk Corporation

(GTC). The request for a report was based on the anticipated need for training to facilitate the integration of GTC's operating and marketing functions with those of CN. Operations is the function within Canadian National responsible for running the trains. This department has over 20,000 employees involved in the running of trains, inspection and maintenance of locomotives and freight cars, and inspection and maintenance of the road bed. Operations Training is responsible for the technical training for these employees.

Coincidentally Information Technology Training, another major training group, had received a request to look at the computer training needs for GTC Marketing. With the integration CN computer systems were going to be brought into GTC, creating an immediate need for training on CN computer systems. Information Technology Training is responsible for all computer systems training within CN.

The managers of these two training groups decided that a needs assessment was needed and that a joint effort would be to their benefit. They contacted System Training in Human Resources to see if that group wanted to participate in a joint needs assessment. The director of System Training (HR) was interested and as this effort fell within her mandate to "ensure the coordination of all training initiatives and activities in CN" she assumed a driving role in setting up the needs assessment.

In the discussions that followed the three managers agreed that the project could not go ahead without GTC approval and commitment and that the project leader should be someone from within GTC. If the project leader was from GTC, GTC would have greater ownership in the process and the results. In addition the implementation would be smoother because there would be visible support from GTC management and easier access to the GTC organization. The project leader would be supported by a CN team with the requisite skills for conducting a needs assessment.

The director of System Training (HR) telephoned the director of Human Resources in GTC to outline the proposed needs assessment project. The director of Human Resources took the proposal to the GTC executive for approval of the project. Within days, the GTC executive had approved the project and appointed their Corporate Secretary as project leader. A needs assessment team was formed with representation from five training



groups in CN. The agreed target date for the needs assessment results was June 1992; the date established by the Senior Vice-president of Operations.

This thesis examines the application of a needs assessment process as it was conducted from March 1992 to July 1992 in GTC, a US subsidiary of Canadian National Railway.

### **Case Study Methodology**

The method of analysis will be a case study of the needs assessment, for which the author was a member of the needs assessment team. The case study method is appropriate because it focuses on gaining an in-depth understanding of one phenomenon, either an entity or process. It assumes that any process, in this instance a needs assessment, is strongly influenced by the beliefs and values of the multiple individuals involved in it, and by the context or setting. The boundaries of the case study are a selected context or site, a time frame, and the activities within the time frame and context (McMillan and Schumacher, 1989). Given this framework the case study setting is Canadian National Railway, a large transportation distribution service, the time frame is March 1992 to July of 1992, and the activity is the application of a needs assessment in this setting. The primary purpose of the case study is to analyze the process used in the needs assessment. The secondary purpose is to analyze the influence of the organizational context and constraints on the process.

#### *Qualitative Research*

The case study method is a form of qualitative research (Borg and Gall, 1983; McMillan and Schumacher, 1989). Qualitative research is distinguished by its narrative data presentation, its emergent/exploratory design, the subjectivity of the researcher, and its aim to understand a social phenomenon from the perspectives of the participants. Qualitative approaches establish context-bound interpretations that extend understanding. Quantitative research is distinguished by its presentation of statistical results, its use of a pre-established research design to reduce error, bias, and extraneous variables, and its aim to explain by establishing relationships and causes of change. The quantitative approach uses a

rigorous methodology to establish context-free generalizations (McMillan and Schumacher, 1989).

In the past there has been much debate about the qualitative and quantitative approach. Educational researchers rejected the qualitative approach, and therefore the case study method, because of its subjectivity and lack of research controls. There is, now, an increased acceptance of qualitative research. Educational researchers acknowledge that there are benefits from both approaches (Borg and Gall, 1983). In fact, researchers may combine both approaches in a single study to investigate several aspects of a particular research problem (McMillan and Schumacker, 1989).

#### *Uses of the Case Study Method*

In a case study the aim is not a generalization of results, but an understanding of a particular process or entity. In fact, "the case study researcher sacrifices generalizability - one of the hallmarks of positivistic science - for an in-depth understanding of a single instance of the phenomenon under investigation" (Borg and Gall, 1983, p. 27). It is hazardous to draw general conclusions from a single case study and extend them to all similar situations because it is difficult to determine how typical the original case study was and because the subjectivity of the researcher is a strong factor in the observations and interpretations. However the case study observations and conclusions can be helpful to others in understanding similar situations (Borg and Gall, 1983).

Case studies can further understanding of the objective results gained from scientific research. Case studies are also useful exploratory research (Borg and Gall, 1983). They can generate observations and questions in an area where scientific methods are not available to the researcher. These observations can lead to further research, either qualitative or quantitative.

An important technique for qualitative research is the development of grounded theory; theory that emerges from examination of the particulars of participant perceptions. In grounded theory, the researcher builds the theory, or working hypothesis, as he or she examines the particulars of a situation. Limited generalizations are slowly induced. Case studies can contribute to the development of grounded theory. The observations of participants in case studies can lead to a working hypothesis, which can be

extended in subsequent research with additional case studies or more structured designs (McMillan and Schumacher, 1989).

As a final point, a critical outcome of the case study method is an increase in the researcher's own knowledge level. In fact, the researcher's desire to understand a phenomenon better is a driving factor for establishing a case study.

### *Role of the Researcher*

The role of the researcher in a case study is a significant element as it affects data collection and can affect the social system under study. There are four possible roles based on the researcher's level of participation: observer, observer-participant, participant-observer, and participant (McMillan and Schumacher, 1989).

The observer and participant roles are not interactive roles for the researcher. In both of these roles the researcher does not discuss his or her observations with the participants in the study. The observer-participant and participant-observer roles are more interactive roles, allowing discussion with the participants in the study for the purpose of gaining greater understanding. In the observer-participant role the role is established for the sake of the study. The primary role is that of observer, with participation held to a level necessary to gain rapport. The participant-observer role is a person who has a role at the site that she intends to study. The role exists whether or not the study is conducted. In this role, the primary role is that of participant. Observations are as unobtrusive as possible in order to avoid modifying the phenomenon under study. For either of these roles, it is important to gain consent from the principles in the study to establish the study. To not do so, could have serious consequences because of the ethical question of deception (Borg and Gall, 1983).

### **Thesis Application of Case Study Methodology**

The participant-observer role was used in this thesis. The author was a full participating member of the multi-functional team established for the needs assessment project. To the team, the author functioned primarily as a participant. Observations were unobtrusive, consisting primarily of an

extensive daily log of events, supplemented by observatory notes. In addition the author maintained a complete file of electronic memos, minutes of meetings, and documentation associated with the data collection phase. Appendix F describes the case study method that was followed.

The team members had been individually advised of the author's additional interest in the project and expressed no concern with this. The four major sponsors of the project were also approached to determine if there would be objections or constraints. They also had no objections, nor imposed any constraints.

The intent of the case study was to gain a greater understanding of the needs assessment process and its application in industry. The case study was an in-depth look at what happened from the original request for a needs assessment to the presentation of the needs assessment findings to management and the final outcome. The focus was on the process and on the influence of the organizational context and constraints on the application.

During the case study, the author discovered that a needs assessment process is not easily applied in an organization with its constraints and fluid forces. Literature reviews revealed many models, which supplied a framework and some heuristics, but little direct guidance. The needs assessment process seemed to depend on many variables, including the organizational context, as well as factors associated directly with the needs analyst; factors such as experience in needs assessment and values and judgments about the needs assessment process. In the literature, the dearth of research on the relative efficacy of the different models, and on the expert methods of performing a needs assessment has been noted (Burton and Merrill, 1991; Rossett, 1990; Lewis and Bjorkquist, 1992). A recent article by Lewis and Bjorkquist (1992) calls for the development of grounded theory on needs assessment. They state that practice-based knowledge is missing in needs assessment literature and that there is a need for more discussion on how needs assessments are conducted in the field. From these discussions explanations about the practice of need assessment can be developed to aid the practitioner.

This study attempts to provide a description of how a needs assessment was conducted in an actual setting. From this description, observations are

made leading to recommendations for the training practitioner on conducting needs assessments.

In Chapter 2 the literature on needs assessment is reviewed in order to examine the different perspectives on needs assessment. The chapter discusses the terminology used, examines and compares three needs assessment models, and discusses key factors to consider when applying the needs assessment process.

Chapter 3 reports the process as it happened in the organization. It starts with the formation of the needs assessment team, describes the planning phase, data collection phase, the analysis phase, and finishes with the needs assessment results.

Chapter 4 discusses the needs assessment application, focusing both on the process and on the organizational context. It concludes with an epilogue that discusses the worth of the needs assessment effort.

## **Chapter 2**

### **Needs Assessment - A Literature Review**

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A great number of models exist for instructional development and for that broader perspective, performance technology. These models have been used in a variety of contexts, e.g., education, technical training, management development, and performance improvement. Not surprisingly, in literature and in practice there are considerable differences in the focus, process, and terminology. Despite this, the various models have a great commonality. They all have an analysis phase in which the desired outcomes are specified, a development phase in which the intervention is planned and produced, and an evaluation phase in which the impact of the intervention is assessed (Okey, 1990).

Theorists and practitioners emphasize the importance of analyzing or assessing the needs of an organization before implementing training and other performance improvement solutions. Careful analysis is the first step in developing interventions that are relevant to the needs of an organization or to the individuals within the organization. In this era of rapid change, constant pressures to produce more with less, and fierce competition, organizations are realizing that the performance of their people can provide the competitive edge (NSPI, 1992). Improving performance through training, performance support systems, and other interventions is an important investment. Given the cost of developing these interventions, and the criticality of success, training professionals have turned to needs assessment as a way of identifying and analyzing an organization's needs. Although it is easy to gain agreement that needs assessment is the critical first step, it is far less easy to reach agreement on the terminology or, even on the starting place and process to follow when performing a needs assessment (Rossett, 1989; Sleezer, 1992). Sometimes this can lead to problems, as when the perspectives and resultant expectations of the partners in the needs assessment process are not clarified. For those practitioners who are about to embark on their first needs assessment, the differences in literature can generate uncertainty about the process and the rightness of what they are doing.

Understanding the terminology of needs assessment and the different perspectives described in the literature will help define the needs assessment process in all its different forms. It will also help to define and to understand the needs assessment application described in the next chapter.

The purpose of this chapter is to examine the different perspectives for needs assessment. There are three parts. The first part discusses the terminology used. The second examines three different needs assessment models: Kaufman, Rossett, and Robinson and Robinson. The last part discusses key factors to consider when applying the needs assessment process.

## **Terminology**

Literature and professionals in performance technology, training and human resource development use many terms, such as needs assessment, needs analysis, front-end analysis, and performance analysis, to describe the process of identifying a gap between desired and actual performance. Unfortunately these commonly used terms do not have common meanings in literature or among professionals.

### *Need*

The term 'need' is fundamental to the concept of needs assessment. A commonly used definition is that a need is a discrepancy or gap between a desired and actual performance (Sleezer, 1992). Kaufman (1982) uses a narrower definition of need. In his writings a need is a discrepancy or gap between desired and actual organizational results. He discriminates between organizational results and organizational efforts. Organizational results are products (the output of a unit within the organization), outputs (what the organization delivers to society) and outcomes (the result of the organization's outcome on society). Organizational efforts are the inputs and processes used by the organization to produce organizational results. Kaufman defines gaps in organizational effort, or performance, as quasi-needs.

Rosenberg (1991) adds the concept that a gap or discrepancy between the desired and actual state may be a problem or an opportunity. A problem exists where the actual state is less than the desired state. An opportunity exists when an organization determines to raise the desired state by taking advantage of a technological advance, competitive repositioning, or market changes.

The common element in these definitions is that a need is a gap between an actual and desired state. Implied in this is that there is an end-state to be achieved. However, the term - need - does not provide a sense of what the actual and desired states are. The term could refer to, for example, a want, a dissatisfaction with the present state, a drive to achieve a vision, a lack of a necessity, a discrepancy, or an opportunity. Understanding the meaning of the term is dependent on understanding the state of affairs to which the term has been applied. This includes understanding the context, who or what identified the need, and how that need was identified. In an organization, understanding the organizational context, who in the organization identified the need, and how they identified the need adds considerable clarification to the need (Sleezer, 1992). For example, a need for training may be identified by a vice-president who has recently attended a executive conference on leadership; by a district manager concerned with accident statistics higher than industry norm; by a project team planning the implementation of a new technology; by a government inquiry into a critical incident; or through an analysis of a performance problem.

Briggs (1977) identifies five types of needs to consider when conducting a needs assessment: normative need - when an organization compares itself to an industry standard; felt need - when employees state what they want; expressed or demand need - when there is demand for a particular course; comparative need - when one organizational unit is performing at a lower level than similar units; and anticipated needs - when resources are projected in order to achieve maximum performance. From a different perspective, Scriven states that needs can be seen as short-term, long-term, or maintenance needs (cited in Hannum and Hansen, 1989). These differences in the concept of need are very real in an organizational environment. Many needs are short-term needs, created for example, by the introduction of a new technology, or maintenance needs, driven by government regulations. Above all, needs are rarely static, but are



influenced by factors both internal and external to the organization. In real terms this can mean changes to needs based on a key individual within an organization or within an organizational unit. The gatekeepers and decision makers within an organization can have considerable influence on the vision of a need and the means to meet the need.

The term need implies values and judgment (Burton and Merrill, 1991; Sleezer, 1992). A need expresses an end-state that is valued by the organization or individual expressing the need. If it did not have a value, it would not be a desired state. Judgment is implied because someone has determined that there is a need, and can judge when that need is satisfied. In the same manner an organization will value a certain end-state and will judge when that end-state is achieved. An interesting side to this is that the training professional (human resource development professional, instructional technologist, performance technologist) who is assigned by the organization to determine the extent of the gap also will have values and judgement and these will influence the needs assessment process. His or her values and judgement will influence the model used, the data collection methodology, and the interpretation of the data. If the training professional has values different from those of the organization, the needs assessment effort may produce results that do not meet the expectations of the organization.

In summary, the term need generally refers to a gap, a discrepancy between the actual and desired state. The desired state is a goal to be achieved. Reaching that goal may end a problem, satisfy a want, or realize an opportunity. Understanding the context of the need is critical to understanding the meaning of the term for the user.

### *Needs Assessment, Needs Analysis, and Other Analysis Terms*

The process of determining the gap or need has many names in the literature; needs assessment, needs analysis, performance analysis, front-end analysis are the more common. Many articles in this area start with a definition of the terms used in the article. Some do not, perhaps because the writer assumes that there is no ambiguity in the term, or because the meaning behind the term can be inferred from the article. In response to the confusion over the terms, there are some articles devoted to defining the

terms, what they are, and what they are not (Okey, 1990; Sleezer, 1992). Sleezer provides an excellent perspective on the conceptualizations for these terms. She compares the conceptualizations of needs assessment and needs analysis and those of front-end analysis and performance analysis.

Needs assessment and needs analysis are the most commonly used terms. They have been used interchangeably, yet some authors in the field have clearly differentiated between them (Sleezer, 1992).

Kaufman (1989) defines needs assessment as the process of identifying gaps in results, placing the gaps in priority order, and selecting the most important for closure. According to Kaufman, needs analysis is the step after needs assessment; it is the step in which the bases and causes of the gaps are identified. Okey (1990) defines needs assessment as the process of determining gaps in performance or productivity. The process of selecting among the identified needs to determine which needs have priority is called needs analysis. The process of determining the causes of performance problems is called front-end analysis. Mills, Pace, and Peterson (1988) use the term analysis to include the identification of need and the identification of the causes of need. Benjamin (1989) argues that needs assessment and needs analysis should not be separate, albeit linked, processes. He considers this an arbitrary, unnatural break in the whole process of improving human and organizational performance; and he considers it counter to a holistic systems approach. Moreover, he argues that one cannot identify and rank needs without considering the causes, solutions, resource requirements, and organizational constraints.

Rossett (1987) uses the term training needs assessment as an umbrella term for analysis activities and includes finding causes as part of the process. Training needs assessment is the systematic study of a problem or innovation in order to make recommendations. Kaufman (1989) examines the term training needs assessment and finds it lacking.

"While the term *training needs assessment* is popular in the field, it seems as if the term is - as Stolovitch observes - an oxymoron: it is internally inconsistent. If one know that training is the solution, why do a needs assessment?" (p. 14)

However, Rossett (1987) is not recommending training as the only possible solution.

"TNA is the systematic study of a problem or innovation, incorporating data and opinions from varied sources, in order to make effective decisions or recommendations about what should happen next. Sometimes that recommendation involves training; sometimes not" (p. 3).

Rossett's use of the term training needs assessment seems based on her perception that a needs assessment is most generally initiated after a request for training. Training professionals are far more likely to receive training requests than to receive a request to scan organizational outputs to determine gaps. Rossett's statement is that before automatically agreeing to commit training resources and provide training, training professionals should stop and take a careful look. She calls this careful look a training needs assessment.

To add to the terminology confusion, authors such as Rossett and Mills, Pace, and Peterson have used the terms needs analysis and needs assessment for techniques within the overall process. Mills, Pace, and Peterson use the term analysis for the overall process and needs analysis for the specific procedures involved in documenting employee concern about a need through interviews and questionnaires. Rossett uses the term training needs assessment for the overall process and needs assessment for a specific analysis technique. The needs assessment technique, one of four techniques described by Rossett, is the systematic effort to gather opinions from a variety of sources about performance problems or new systems and technologies.

Front-end analysis and performance analysis are other terms used in literature. Front-end analysis is similar to Kaufman's needs analysis. In fact he considers problem analysis and front-end analysis to be "kissing cousins" (Kaufman, 1986). Front-end analysis has the distinction of focusing on determining the causes of performance problems. Performance deficiencies may result from a lack of knowledge or skill, from environmental factors that restrict or inhibit performance, or from a lack of motivation or incentive to exhibit the performance (Mager and Pipe, 1984).

Performance analysis is similar to needs assessment. Rosenberg (1991) defines performance analysis as the process of identifying actual and desired workplace performance, determining the discrepancy between the

two, and setting performance standards. The discrepancy between the two states can be a current performance problem, an anticipated performance problem, or a performance improvement opportunity. This process includes the concepts of opportunity and of forecasting. A significant feature of performance analysis is that performance is seen as a system. Performance analysis involves identifying the actuals and optimal in three arenas - the work, the worker, and the workplace. Improving performance requires a strategy that is comprehensive and an integrated response that acts on the entire performance system (NSPI, 1992).

In summary, the process of determining needs has many names, but there are common features in the meanings. First, the process precedes the implementation of a solution. It prevents a common problem for action-oriented organizations and the individuals within the organization; the Ready, Fire, Aim mentality. Second, the process is similar to problem solving. There is investigation, cause determination, and decision making. Third, the process connects to the organization's performance. Fourth, there is a distinction between problems that can be addressed effectively by training, and problems that should be addressed through other means (Sleezer, 1992). Finally, the process of determining needs is based on a discrepancy model. It determines gaps between an actual and desired state (Lewis and Bjorkquist, 1992).

It is generally easy for an organization or group of people to agree that some form of needs assessment is necessary (Regalbutto, 1992; Rossett, 1990; Sleezer, 1992). However confusion can set in when it comes to determining what process to follow because of the different values, the different understandings of the term, and the different perspectives. The sponsor of the needs assessment and the individuals performing the assessment, must have a common understanding of the terms and agree on the organizational level, the scope, and the output of the process before starting the process.

### **Needs Assessment Models**

A literature search reveals numerous models for needs assessment. Some models are presented as stand-alone models; others are actually part of a larger process. Each model presents a process that is based on the

assumptions or view point of the creator of the model. This next section presents three models: Kaufman, Rossett, and Robinson and Robinson. The intent is to explore the different models and not to compare the models for their effectiveness. As Burton and Merrill (1991) have stated, there is no research that provides a comparison of the different models based on the effectiveness of the approach.

*Kaufman's OEM*

Kaufman's needs assessment model is based on the Organizational Elements Model (OEM) presented in his different writings (1979, 1982, 1986, 1989). Kaufman identifies three over-arching categories for the organizational elements: organizational efforts, organizational results, and organizational outcomes. Organizational efforts bring results, which are delivered to society as outcomes.

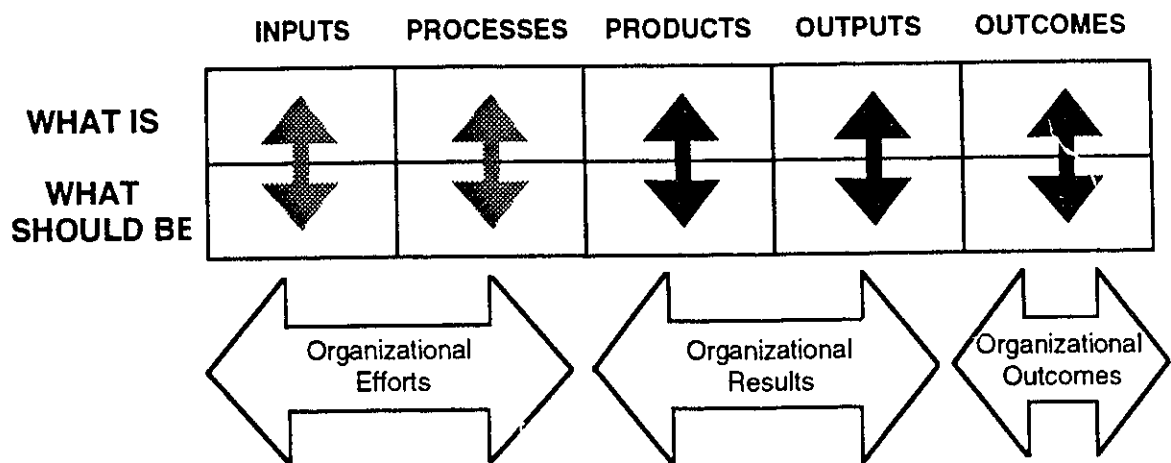


Figure 2 *Organizational Elements Model (Kaufman, 1982)*

Organizational efforts are the inputs and processes that bring results within the organization. Inputs are the human, capital, and financial resources available within the organization. Processes are the procedures, methods, and means used by the organization to accomplish its purposes. Examples would be training, manufacturing, and management techniques.

Organizational results can be internal or external. The first two types of results are internal to the organization. Products are the en-route,

intermediate results achieved by the organization. They are the outputs of sub-units within the organization. For example, trained employees, negotiated worker agreement, and marshalled trains would be products within a railroad. Outputs are the total results of the organization. The output is what the organization delivers to society. Using the same example of a railroad, the output would be a safe, responsive transportation and distribution service to society. Outcomes are external to the organization. They are the impacts of the organization on society. The outcome of an organization could be many things including the self-sufficiency of businesses that use the transportation service, a reduction in accidents causing environmental damages, or fewer people employed. Outcomes are not always positive.

A need or discrepancy between what is and what ought to be may exist in any of the organizational elements: inputs, processes, products, outputs, and outcomes. For example, a training function may not have sufficient budget (input gap). The classroom instruction may be poor (process gap). Trained employees may only be able to successfully troubleshoot an electrical system 50% of the time (gap in products). The transportation service may have accident costs that exceed the industry average (gap in outputs). Environmental damage due to accidents involving the transportation service could be unacceptable to society (gap in outcomes). Each of these gaps are needs, discrepancies between the way things are and the way things ought to be. Needs assessments can be conducted for each of the organizational elements, but should be conducted at the product, output, and outcome levels.

Kaufman argues that needs assessment are best conducted at the highest level, the outcome level. By examining the impact of the organization's outputs on society, the organization can better align its efforts, products, and outputs to ensure positive societal consequences. This level of needs assessment shifts the organization focus from improving efficiency (doing it right) to defining goals and objectives that meet society's needs (doing the right thing). Needs assessments at the product level assume that all is well with the organizational output and outcomes.

A major difference between needs assessments conducted at the broad, holistic level and those conducted at the product level is the specificity of the goal. Organizational goals tend to be broad and difficult to operationalize.

Needs assessments conducted at this level require more time and more resources (Burton and Merrill, 1991). Most training professionals are limited in the available time and resources and are confined to short term goals. In larger organizations they may not be at a level where they can influence organizational decision makers. Frequently management wants a quick solution, and not an in-depth look at their organization (Rummler, 1987).

Kaufman offers two how-to-do-it methods for conducting a needs assessment. The most frequently offered method is a basic six-step problem solving process. This process can be applied to perform any needs assessment regardless of the level.

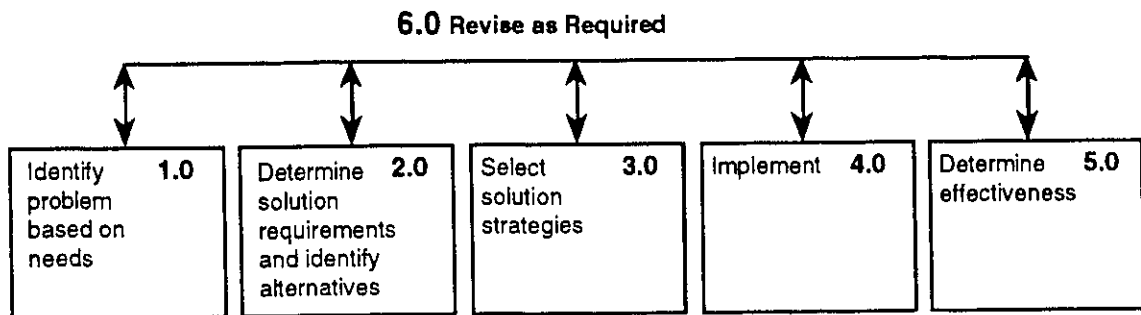


Figure 3 *Six-step problem solving process (Kaufman, 1982)*

Kaufman (1987) provides a second method to help "even beginners with this necessary, yet often dreaded task." This ten-step method is listed below.

1. Decide to plan using data from a needs assessment
2. Select the needs assessment and planning level
3. Identify the needs assessment and planning partners
4. Obtain the planning partners' participation
5. Obtain acceptance of the needs assessment and planning level
6. Collect both internal and external needs data
7. List identified and documented needs
8. Place needs in priority order
9. Reconcile disagreements
10. List problems to be resolved and obtain agreement of partners

This ten-step method makes it clear that needs assessment requires planning, and the commitment and participation of partners within the organization. Steps three, four, and five require that the training professional must identify partners in the organization who will guide the process and own it when it is complete. A good plan can fail simply because uninvolved, uncommitted people may see no reason for conducting the needs assessment or for implementing a proposed change. Steps nine and ten again address the need to have commitment from organizational partners. In these steps any differences among the partners must be resolved before continuing. Frequently the issue can be resolved by gathering additional data to confirm or clarify issues. It may be that the partners have lost sight of, or may need to revisit, the "what should be" that they established.

In summary, Kaufman's model is based on the definition of a needs assessment as the process of identifying a gap in organizational results, placing them in priority order, and selecting the most important for closure. The process ends at this point. The determination of causes and possible solutions is done through needs analysis. Critical to performing an effective needs assessment process is the Organizational Elements Model. Needs assessments are most effective when performed at a holistic level, where you challenge organizational outcomes. Establishing the correct partners for the needs assessment is vital for the success of the effort,

### *Rossett's TNA*

Rossett (1987) uses training needs assessment as an umbrella term for the analysis activities trainers use to examine and understand problems in the organization. These analysis activities can be initiated by performance problems, the proposed implementation of new systems and technologies, or an automatic or habitual request for training. Management's initial contact with a training professional is most often a request to train employees so that the problem (unacceptable performance, new system implementation) will go away. The challenge that the training professional faces is to take a careful look at the issue before committing training resources as the answer to the problem.



Rossett uses the term "purposes" as a label for the types of information that must be gathered in a training needs assessment to make informed decisions and recommendations. The purposes are to seek information about,

- optimal performance or knowledge
- actual or current performance or knowledge
- feelings of trainees and significant others
- causes of the problem from many perspectives
- solutions to the problem from many perspectives

To gather this information Rossett provides descriptions of four techniques and four tools. The tools are familiar to trainers; they are interviewing, observing, facilitating groups, and surveying. The techniques also seem familiar at first blush; they are extant data analysis, needs assessment, subject matter analysis, and task analysis.

Purposes	Techniques			
	Extant Data Analysis	Needs Assessment	Subject Matter Analysis	Task Analysis
Optimals		X	X	X
Actuals	X	X		
Feelings		X		
Causes		X		
Solutions		X		

Figure 4 Analysis techniques and purposes (Rossett, p.22)

Although familiar, the techniques have meanings somewhat unique to Rossett. Extant data analysis is the examination of existing records to determine actual performance. This is the gathering of hard data. Needs assessment is gathering feelings about optimals, actuals, feeling, causes, and solutions. This is the gathering of soft data, sensed needs. Subject

matter analysis is the effort to determine cognitive components for optimal performance. Task analysis is the analysis effort that identifies the activities required for optimal performance. Which technique to use is influenced by the purposes. For example, if you need information about optimal, you can use needs assessment to gather opinions, and subject matter analysis and task analysis to determine the desired skills and knowledge for an employee.

The context for the training needs assessment will influence the tools to be used. A TNA is conducted in a real organization with very real constraints and politics. As Rossett points out, the TNA must be conducted in the light of how much money is available, how much time is available, the politics surrounding the situation, and who wants the problem solved. For example, the interview is excellent flexible tool for gathering information and also for enlisting support and assistance. However it is time-consuming and must be well structured to get the needed information. In addition, the training professional may be limited by time and money to interviewing in person those within immediate reach, and using telephone interviews for those at a distance.

Rossett provides clear descriptions of the techniques and tools. She also provides a step-by-step approach to planning a training needs assessment.

1. Assess the context
2. Determine purposes
3. Select techniques and tools
4. Develop a TNA plan
5. Develop stage planners
6. Communicate results

The focus of these steps is on planning, not on conducting, the TNA. Assessing the context is the critical first step. In this step the training professional stops and takes stock of the situation before moving ahead. Rossett recommends that the training professional find the answers to questions such as: Who wants the problem solved or the new innovation implemented? Who does not? Who and what are the sources of information? Are they accessible to you? How much support does the TNA have? How much money? How much time? Who must be kept informed? Once the

context is assessed, then the purposes are determined, and the techniques and tools selected. In step 4 the training professional develops a broad, general plan. As the TNA progresses, a stage planner (a more detailed planning document) is prepared for each stage to figure out what must be done and how (step 5).

The final planning step is to communicate results both during and at the conclusion of the training needs assessment. Rossett devotes an entire chapter to this step, emphasizing that it must be well thought-out. Communication provides information about the effort and the results to management, derives support for the findings and recommendations, solicits information or checks out a finding, and creates a record of the TNA effort. A record of the stages and findings helps the training professional keep track of what has been done, encourages introspection, and helps maintain perspective. It can also be a valuable aid when confronted with nasty questions about why something was done, or not done, or where a conclusion came from.

In summary, Rossett's training needs assessment is the systematic study of a problem or innovation in order to make effective decisions or recommendations about what should happen next. The TNA process gathers data about optimals, actuals, feelings, causes, and solutions. In contrast to Kaufman, Rossett's training needs assessment process includes identifying causes and solutions. The context of the problem and the need for communication weighs far more heavily in Rossett's model than in Kaufman's. There is seemingly no concern about the level of the needs assessment, indicating perhaps a more pragmatic approach.

### *Robinson and Robinson's Training for Impact*

D. G. Robinson and J. C. Robinson (1989) provide a larger model, which they call Training for Impact, for the training process in an organization. In this process training is viewed as a means to an end, rather than an end in itself. The end result is not employees trained or increased skills. The end result is the business results that will occur because of increased skills or knowledge. Training is one of the means to achieve this end.

In the Training for Impact model (see figure 5), the Human Resource Development (HRD) professional forms a partnership with the key

managers associated with the project. With these key managers, called clients, the HRD professional identifies the business need that is driving a request for training and then conducts an assessment (steps 4, 5 and 6 in figure 5) to determine the performance gaps as well as the relationship between performance and business results. Performance gaps are identified both in terms of the needed skills and knowledge, and in terms of the work environment changes needed to support performance.

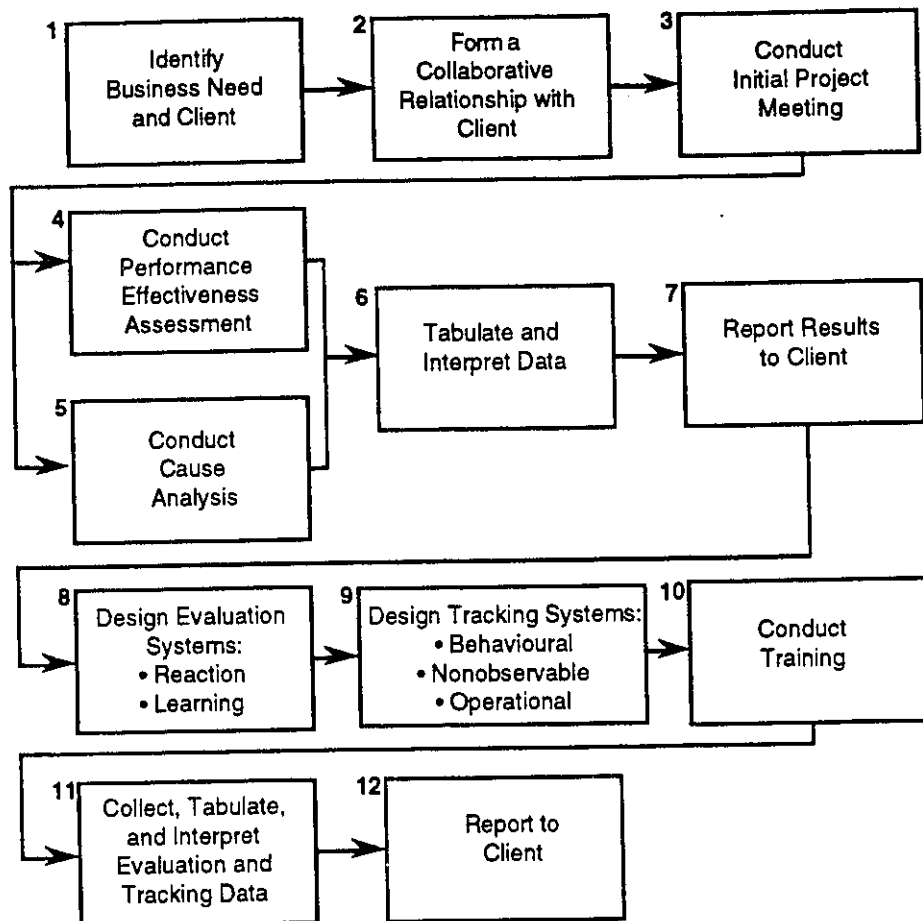


Figure 5 *Training for Impact (Robinson and Robinson, 1989)*

A fundamental concept in the model is summarized with this formula: Learning Experience X Work Environment = Business Results. For learning to occur, organizations must provide a well-designed and delivered training program in which learners learn. What must also be present is a work environment that reinforces and supports the learned skills. If either the learning side or work environment side are less than 100%, then the business results will be less than 100%. Training that does

not provide the right skills, or a work environment that does not support the learning, can mean minimal results. In the Training for Impact model both the learning experience and the work environment must be addressed for improved business results. Through a collaborative relationship with management, the model ensures that both the learning experience and the work environment side of the equation will be controlled. The HRD professional will influence and control the learning experience. The line manager will influence and control the work environment.

Robinson and Robinson compare the Training for Impact model against the common approach for training; the approach they term Training for Activity. In the Training for Activity model, the training process begins with a symptom or request for training. From the start, needs assessment is an optional item. The person requesting the training often wants it "next week." The HRD professional, wanting to be responsive, moves quickly to meet the need. The demanding schedule and the perceptions of the role of the training professional, preclude any investigation to clarify or substantiate the need. In addition the work environment side of the equation may well be ignored.

Robinson and Robinson divide the investigation of a situation into two types of assessment. The first type is the performance effectiveness assessment (see figure 5, step 4). In this phase the HRD professional identifies desired and actual operational results, desired and actual skills and knowledge, and the links between organizational results and the skills and knowledge required to perform them. For example, a gap between the actual and desired customer interaction skills observed in customer service representatives would have impact on the number of customer complaints that are escalated up to the supervisor and would also have an impact on the number of successful customer transactions. This is the critical link to business results. The performance effectiveness assessment is similar to Kaufman's needs assessment at the results level, with the addition of a link to business results. The second type of assessment is a cause analysis (step 5). This determines the causes of the gap and is similar to Kaufman's needs analysis.

Robinson and Robinson's description of the performance effectiveness assessment focuses on planning. To ensure that the assessment plan will

gather valid and credible information, the HRD professional must make seven decisions.

1. What are the purposes of the assessment?
2. Who will review data and make related decisions?
3. What sources of information will be needed?
4. How will the data be compared?
5. How many people should be included in the assessment?
6. What is the preferred data-collection method for you and the client?
7. What skill and resource limitations are to be considered?

In step 1, the HRD professional determines the specific purposes of the assessment; what information is needed. This is critical because it focuses efforts and ensures that the assessment is done in an efficient manner. For example, the specific objectives of the assessment could be to determine how typical performers interact with customers, to determine what competencies are required to interact successfully, and to determine if the gap is unique to one office or to a certain set of circumstances. The HRD professional must write down the purposes, the information that is required, and gain the agreement of the client on these purposes. This step ensures that the HRD professional knows what information to collect and why, and what decisions are needed for data collection.

The HRD professional must consider who will be reviewing the information, what information they consider credible and meaningful, and what data sources they respect. Then the sources of information must be determined. They could be: the clients, the potential learners, managers of the learners, others such as observers or customers of the learners, and organizational records. The next decision is to consider how the data will be compared. Robinson and Robinson recommend that it be kept simple; to look for patterns and not immense details. A critical decision is how many people to include in the assessment. The decision on sample size is influenced by the size of the total group, whether the group is centralized or spread over a geographical area, who must be included for political reasons, and client support. A minimum of twelve people for each comparison group is recommended. The last two decision are to consider the preferred data collection methods and the resource limitations. Client

preferences and resource limitations can influence the selection. Almost all of the data collection methods require more or less skill to perform. Some, such as interviews and observations are labour intensive. Robinson and Robinson list the factors to consider for each tool when deciding on data collection methods.

In summary, Robinson and Robinson use the term performance effectiveness assessment for their needs assessment process. The assessment gathers information about performance gaps and the linkage between the performance gaps and business results. In this way, their assessment is similar to Kaufman's concern that a needs assessment must address organizational results. However, as with Rossett there is little concern about the level of the assessment. Planning and communication with the clients for the project are two key concepts in the model. As a final point their model is embedded in a larger model that starts with a training request and ends with a report on the effectiveness of the solution.

### *Comparisons*

Only three of the many needs assessment models have been described in this paper. The approaches use different terminology, and are based on different perspectives. Exploring the different models and approaches lead to the understanding that there are a variety of ways to approach a needs assessment. Sleezer (1992) has examined needs assessment models and approaches. She describes the similarities and differences by where the models start, where they end, and what results are produced by the needs assessment process.

#### *Starting Point*

Models can be separated into two categories based on where they start the analytical process. One category assumes that a training need has not yet been identified; the other that a training or performance need has been identified. Models in the first category would include Kaufman's model and that of Zemke and Kramlinger. In both approaches, the preference is to start at a holistic level. These models are proactive.

Robinson and Robinson (1989) are not a clean fit into the first category. They acknowledge that needs are frequently identified reactively, when

managers approach with a training request. However they advocate a proactive approach. They feel that HRD professionals should be constantly performing environmental scans of the organization to determine how the organization is doing, what the organization vision and strategies are, what business challenges are being faced, and what the training implications are.

Models in the second category presume that the performance or training need has already been identified, generally through a training request. Rossett's Training Needs Assessment model fits into this category, as does Mager and Pipe's (1970) and Hannum and Hansen (1989). Even though the starting point is a management request for training, none of these approaches assumes that training is the only solution. Training is one of the possible solutions to a problem.

Rossett (1987) provides three initiators for a needs assessment: a performance problem, introduction of new system or technology, and an automatic or habitual training request. All are training requests. A needs assessment may be initiated by managers who feel that employees are not performing as they ought. The needs assessment in this case is an "effort to reveal the gaps between what people do at work and what their employers would like them to do" (Lampe, 1986). A needs assessment may be initiated by the introduction of a new system, procedure, or technology. The needs assessment in this case focuses on how this new system will be used, and how the employees will receive it. The third initiator is the automatic training request. In these situations there is no particular performance problem or new technology. Rather training is being requested because it is required by law, or management believes training is needed. Robinson and Robinson state that business needs come in two "flavours": business opportunities to be maximized and business problems to be solved.

### *Scope or Level*

The reason for initiating the process can frequently determine the scope and level of a needs assessment effort. Kaufman has always promoted levels of needs assessment. In his earlier book *Needs Assessment: Concept and Application* (1979) Kaufman provides a taxonomy of needs assessment consisting of six levels. The levels are determined by the starting point of the needs assessment effort. Each level downward accepts more and more



organizational givens as being valid. The highest level is Alpha, which assumes few or no 'givens'. The second level, Beta, assumes the validity and utility of the goals of the organization. Both of these levels focus on determining gaps between current and desired organizational outputs. The Alpha level looks beyond the organization, and the Beta level operates within the context of the organization. The Gamma, Delta, Epsilon, and Zeta needs assessments operate within the context of the organization. With each level downward more and more is assumed as 'given'. Kaufman's position was then, and still is, that the rational starting place for a needs assessment is with an external needs assessment, an Alpha level.

In later writings Kaufman collapses the six levels into three levels; strategic, comprehensive and middle (Kaufman, 1987). In more recent articles he has renamed the levels; mega, macro, and micro. (Kaufman, 1991).

<b>Level of planning and doing</b>	<b>Primary client and beneficiary</b>	<b>Principal activity</b>
<b>Micro</b>	Individual or small group	Training, IT, ISD quality, tactical planning
<b>Macro</b>	Entire organization	OD, total quality management excellence, strategic planning.
<b>Mega</b>	Society plus organization plus individuals	Strategic planning plus.

Figure 6 *Needs assessment levels (Kaufman, 1991)*

In Kaufman's model mega planning incorporates macro and micro planning. The level of the needs assessment is determined by the level of the primary client and beneficiary of the needs assessment (see figure 6). These levels correspond to the product, output, and outcome levels of his Organizational Elements Model. Note that training is a micro, or product level, activity.

Rossett does not refer directly to levels in her Training Needs Assessment model. However in later writings (1989) she refers to micro and

macro levels. Her levels are determined by the scope of the topic and remain within the organization. The macro level seeks answers to broad questions on what are the gaps and what are the priorities. In a micro needs assessment the topic has been narrowed to a specific priority (see figure 7).

<b>Level of needs assessment</b>	<b>Topic size</b>	<b>Focus of needs assessment</b>
<b>Micro</b>	Narrow topic, e.g. implementation of a new system  Domain of endeavour determined	Determine what is and what should be for the narrow topic and identify solution.
<b>Macro</b>	Broad topic, e.g. HR development  Domain of endeavour not determined	Determine what is and what should be at an organizational level and prioritize discrepancies based on organizational goals and information about skill proficiency, criticality, and frequency.

Figure 7 Needs assessment levels (Rossett, 1989)

### *Ending Point*

The ending point of a needs assessment is extremely varied depending both on the definition of needs assessment used and whether the needs assessment process is part of a larger model. For Kaufman (1989) the needs assessment process ends with a list of prioritized needs. For others the process ends only after a report has been made to management. In Rossett's Training Needs Assessment model the report is the final step and includes causes and recommendations for action. Robinson and Robinson's Training for Impact larger model has two steps where reports are made to management. The first report is made after the performance effectiveness assessment and the cause analysis, and includes the results of the assessments and recommendations for action. The second report is made on evaluation data after the implementation of the recommendations (training).

### *Results*

Based on the ending point then, the output of a needs assessment can be a list of priorities for action, or recommendations to management. One of the key outputs is information (Lampe, 1986; Sleezer, 1992) that can be used for decision making. The output is fed into the next phase or step of a process. The process could be training or human performance management.

An important secondary result is that management is drawn into the process. In most models it is recommended strongly that a participative approach be used to ensure management support and buy-in on the intervention that will follow (Georgenson and Del Gaizo, 1984; Sleezer, 1992). If well done, the needs assessment effort will also educate management in the need to look at the larger picture when problem solving. Over time, a more effective partnership relationship can be formed between management and the training professional (Rummler, 1987).

### **Applying Needs Assessment**

Needs assessment is the systematic process for determining gaps between actuals and optimal and prioritizing them for resolution. It is the first critical step in developing interventions that are relevant to the needs of the organization. When adequate needs assessments are not conducted, then the interventions, training and others, will be off target. Money, time, and effort will have been wasted, and the problem will still be there.

Theorists and practitioners agree that needs assessments should be performed, but they do not agree on the approach. As Rossett (1989) wrote, "If you were to gather 100 HRD professionals and give them one of the challenges..., they would suggest 100 different ways of launching that effort." (p 59). The approach is determined by the nature of the request, the organizational context, and the perceived role of the training function within the organization. In addition, although practitioners agree that a needs assessment is the first step, the unvarnished truth is that they frequently do not perform them (Georgenson & Del Gaizo, 1984; Lewis & Bjorkquist, 1992; Regalbuto, 1992; Rossett, 1990). They admit it, and indeed a recent survey of Canadian organizations drives this home. A survey on management training in Canadian organizations reports that 61 per cent of

the respondents use needs assessments to identify management training needs. The most frequently used means of identifying management training, 75 per cent of the respondents, was employee request (Loo, 1991). A similar study in the United States indicated that only 27% of the companies surveyed followed needs assessment practices for determining the training and education needs of their managers (Saari, Johnson, McLaughlin, and Simmerle, 1988). The reasons why needs assessments are not performed more often are based on several factors; organizational support, the training function mandate, and the training function expertise in needs assessment.

This part of Chapter 2 looks at applying the needs assessment process; the key components of needs assessments, the importance of the organizational context, and obstacles to needs assessment.

### *Key Components*

The key components of a needs assessment are planning, tool selection, data collection procedures, and communication.

Successful needs assessments are based on careful planning. Planning keeps the purpose of the needs assessment up front, while at the same time recognizing the constraints and possibilities of the organizational context. The first step in the planning is to assess the context (Hannum and Hansen, 1989; Kaufman, 1989; Robinson and Robinson, 1989; Rossett, 1987). This is critical to determine the key players, the possible data sources, the resource and political constraints. Once the context is assessed then you can determine the data sources, the data collection techniques, and the phases of the needs assessment.

Planning is essential for data collection to decrease the risk of invalid findings and to ensure the most efficient, and effective use of time, personnel, and money. Hannum and Hansen (1989) offer five key principles to guide data collection:

- ensure that problems are examined from a number of perspectives by employing a combination of data sources and collection methods
- build in redundancy to increase trust in the data
- gather data in a consistent way to reduce the influence of evaluator biases on collected data

- allow for a broad as well as in-depth look at the problem
- solicit organizational input in conducting the study to ensure collection of relevant information in a reliable and cost-effective manner.

The tools available to a needs assessment are varied: interviews, surveys, observations, focus groups, and document examination. They all have pros and cons. Which tools you select will be determined by the nature of the request and the organizational factors. The literature on needs assessment, especially that written at the more basic, how-to-do-it level describes the advantages and disadvantages of each tool (Hannum and Hansen, 1989; Robinson and Robinson, 1989; Rossett, 1987, 1990). It is critical that tools be appropriate for the organization and the data collection need. In addition, using more than one tool allows different types of data, such as hard data and soft data, to be collected.

When collecting data you will be looking at both soft and hard data. Soft data refers to opinions, felt needs, expert insight, etc.. Hard data generally refers to available documentation on performance results. Conduct your data collection in stages. Needs assessment is not a one-shot deal. It is several successive stages (Rossett, 1987). Each step is based on the findings of previous steps and zeroes in on the performance discrepancy.

In conducting the needs assessment it is important to establish systematic approaches to data collection, documentation, debriefing, and analysis. This is especially critical, if the data collection is being done by a team. The time frame or the size of the project may dictate that data collection be performed by a team of people. The data must be collected in a consistent manner to eliminate bias and ensure that nothing is forgotten. Standardized data collection procedures need to be established. For example, a interview must have a standard set of questions to ask. In addition documentation of the interview must be consistent throughout the teams. Routine debriefings should occur to ensure that information is shared with all team members (Hannum and Hansen, 1989).

At the end and through out the data collection phase you must communicate your results to the clients. Do not wait until you have completed all the stages of the needs assessment. In informal and formal ways, keep management informed of what you are doing and learning, as

you proceed through the assessment stages (Robinson and Robinson, 1989; Rossett, 1989).

### *Organizational Context*

The needs assessment process is heavily affected by the nature of the request and the organizational context. Seeing the training function as a subsystem in a larger system is very helpful in understanding how the training function and the organization interact. Rummler (1987) provides an excellent view of the training function as a system. Figure 8 shows Rummler's view of the training function as a subsystem. It is fairly simple. In reality the system could be more complex with the training function hiring from outside, or sending employees to outside courses. However it is adequate for the purposes of explaining how the training function fits into the organizational system.

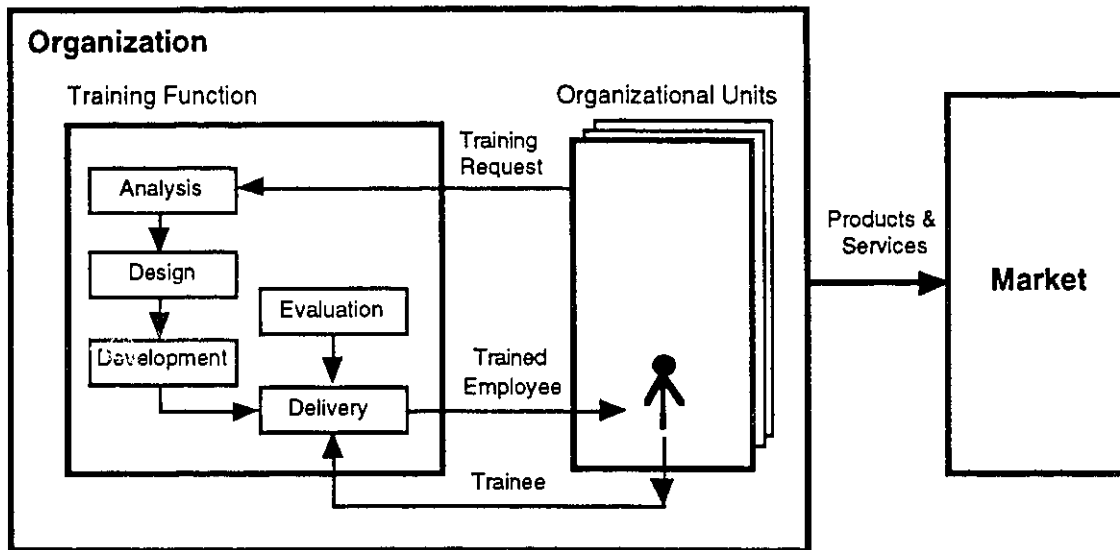


Figure 8 *The training function as a subsystem in the organization (Rummler, 1987)*

The key features of the subsystem are:

1. The training system is a processing system. It converts untrained employees into trained employees for the organizational units. The organizational units are the receiving units for the training unit outputs.

2. The inputs are training requests, needs assessment data, budget, resources, instructional design technology, untrained employees, etc..
3. The training function has two primary feedback sources. The first feedback source is a self-evaluation against internal criteria established by the training function. It may be numbers of employees trained, ratings on course evaluation sheets, course test results, evaluation results, improved on the job performance, etc.. The second source of feedback is an evaluation by the receiving systems. This frequently includes response time, technical accuracy of the material, and trainee performance on the job.

As a processing system, the training system must be responsive to its receiving systems or it will either die or be replaced. It has a function to perform for the receiving units. If it does not output what the receiving units expect, the units will be dissatisfied. The training function can either influence the criteria that the other functions measure it against, or can match its output to the criteria. Regalbuto (1992) examined the results from the ASTD's October 1991 National HRD Executive Survey and determined that the results show that the roles of the HRD organizations in the surveyed companies do not extend beyond the applications of classroom training interventions. Regalbuto writes:

"Conclusion: We do just what we are asked to do - deliver training. Corollary: We do not do what we are not asked to do - improve human performance in the workplace" (p 31).

As a processing system, the training system output will only be as good as its inputs allow. Therefore if the needs assessment data are not available, or off target, then the output is affected. If the inputs of budget and skilled resources are inadequate for the demands, then the outputs will be less than desired. This system view of the training function has implications for the performance of needs assessments. It also has implications for the management of the training function.

Now put this system view into a real setting. The training function has a workload, a more or less defined process, resources with certain skills, and a budget. It also has a mandate or role, generally established mutually by

the organization and the training function. It is measured and measures itself against this mandate. Applying Robinson and Robinson's model, the mandate could be based on the Training for Activity or Training for Impact model. Into this setting a request for training arrives from an organizational unit. The organizational context, the nature of the request, and the training function's mandate will determine how this request is handled.

### *Obstacles and Deficiencies*

Needs assessment is a fundamental concept for the instructional design process and for the broader perspective, human performance technology. In the literature the needs assessment discrepancy model is the dominant paradigm and has served as an important heuristic in conducting needs assessments (Lewis & Bjorkquist, 1992). However, it is accepted largely on faith, as empirical support for its effectiveness is lacking (Burton & Merrill, 1991; Lewis & Bjorkquist, 1992; Rossett, 1990).

Lewis and Bjorkquist (1992) provide a critique of the discrepancy model, arguing that the model, although appealing in its simplicity, is lacking because it does not successfully capture the fluid organizational factors encountered by the practitioner in a real application, and because it does not capture expert behaviour. They argue that the framework provided by the model is insufficient for practical purposes. The model does not explain the process sufficiently well for the pragmatic application of needs assessment in an organization. It is "instructive for novices, but is of limited concrete help to practitioners already in the field" (p.50). The model may provide novices with a way to think about needs assessment, but not a way to do it.

Although the model provides a general strategy, it cannot accommodate the complexities of the application. The needs assessment process is complex and real world factors, such as corporate policies, organizational limits and restrictions, and work demands, affect the application. Needs assessments are episodic. Each application demands that the process be tailored to fit the organization as well as the particular problem being addressed.



Obstacles to the successful application of needs assessment abound in organizations (Lewis and Bjorkquist, 1992; Rossett, 1990). Lewis and Bjorkquist (1992) highlight four categories of difficulties in their article:

- 1) The uncommon nature of the core needs assessment questions.
- 2) Employee fears and misconceptions about the process.
- 3) Logistical problems.
- 4) Change and uncertainty.

The basic questions of a needs assessment can be very difficult for an organization to answer. What is the desired state? What is the current state? When things are going well, these questions seem unnecessary, and when things are going poorly, these questions can create anguish and dissension. The questions can also create unreasonable expectations for the desired state, or for action to be taken (Westgaard, 1992).

The needs assessment process and questions can be threatening to employees. Managers and employees may question the purpose of the needs assessment, seeing it as part of a larger, unacceptable scheme. The process may challenge the egos of those whose organization is being assessed. On the other hand, some may see the needs assessment as the opportunity to promote a desired event or outcome. The opportunist and the threatened employee can hinder needs assessment efforts, and can twist the results.

The needs assessment process must account for the logistics of application. It must accommodate the schedules of those participating in the process. Even well-thought-out plans are hampered by the unexpected event. In addition there are limits and restrictions to information sources. A practitioner must constantly adapt to events and maximize the time spent with information sources.

The rapid state of change in organizations means that a desired and current state may never be fixed, but constantly evolving. Projecting a desired state with precision is difficult because a desired state always represents uncharted waters for an organization. The needs assessment effort must tolerate ambiguity.

To the four categories of difficulties presented by Lewis and Bjorkquist, Rossett (1990) adds three: flawed needs assessments, no organizational support for needs assessment, and inadequate expertise assigned to the

effort. A flawed needs assessment can be very damaging both immediately, because it is an unsuccessful application and in the longer term, because reaction in the organization could reflect on the future of needs assessments in the organization and on the credibility of the training professional. There is no organizational support for a needs assessment when an organization or manager who does not believe in the needs assessment process. The organization wants immediate response to their request, preferably training. The third category for Rossett is inadequate expertise in the knowledge area. Training professionals must have a knowledge base in the area that they are working, or access to that knowledge base through subject matter experts.

This last point, that the analyst requires domain-specific knowledge is a part of the argument presented by Lewis and Bjorkquist. Practitioners cannot be experts in all the fields for which needs assessments are desired. Practitioners are generalists. They generally do not have domain-specific knowledge but must work in tandem with subject matter experts. The logistics of working with a subject matter expert can make this a difficult process. Subject matter experts are busy, may not value the effort, or may be uncooperative. Of course the practitioner may have domain specific knowledge. In this case, argues Lewis and Bjorkquist, as experts in the area, the practitioner would employ a problem-solving technique that is not based on the needs assessment discrepancy model.

In the problem solving literature, the discrepancy model is termed means-end analysis, a novice strategy for diagnosing problems that employs a backward reasoning strategy. Experts employ forward reasoning, an intuitive approach that draws upon wide and varied knowledge of and experience in their field. HRD practitioners cannot possibly be experts in all the fields to which needs assessment is applied. The HRD practitioner is a generalist, who brings expertise in the needs assessment process. Over time an HRD practitioner may develop expertise in an area, but to compensate for a lack in domain specific knowledge, the practitioner must work with subject matter experts. What is critical is that the practitioner have expertise in needs assessment.

Lewis and Bjorkquist argue that the needs assessment model is a novice strategy and does not provide sufficient guidance for the practitioner in the field. In addition it does not transfer well to practice because of the real

world factors. Problems in organizations are not clear cut, and well defined. They are ambiguous. According to literature on problem solving, the means-end analysis strategy is useful when the initial and goal states of a problem are clear. It is best used to describe a process, but may not be actually used when problem solving (Gick as cited in Lewis and Bjorkquist, 1992). The means-end analysis is a convenient way to "frame what in practice may well be a fluid, elusive circumstance" (p. 38).

Lewis and Bjorkquist lament that literature is lacking discourse based on expert needs assessment practice. Practitioners need explanations based on empirical evidence, derived from actual practice. Discourse on needs assessment models need to be broadened, including discussion on how needs assessments are conducted in the field and the effectiveness of the effort.

In summary, the needs assessment discrepancy model appears to be the model of choice in literature, but it provides only a framework for needs assessments. Practitioners performing needs assessments require expertise in the process and domain specific knowledge. Domain specific knowledge may be present within the HRD practitioner or may be acquired through subject matter experts. The model does not provide sufficient guidance in the application of needs assessment, and there is little literature based on expert practice. Indeed every application of the needs assessment must be tailored to fit the organizational factors and the characteristics of the problem. Expertise in the needs assessment process must come, at present, from experience.

### *Summary*

In industry and business, most training professionals agree that any project must begin with a needs assessment. Ideally, say the theorists and practitioners, a needs assessment should be at the organizational level, with no assumptions or givens. If the organizational goals and objectives are valid, then these can be assumed and then the level of the needs assessment should be determined by the scope and criticality of the problem. However the reality is that many projects begin without a needs assessment or with an inadequate needs assessment.

Obstacles, rooted in the organization and in the training function itself, prevent and compromise the needs assessment process in industry and business. At the organizational level, it can be very difficult to sell needs assessments and to gain organizational support for the process. Organizations tend to view the training department just as that, a training department. They ask the training department to deliver training, and not to improve human performance (Regalbuto, 1992). The organization objects to the needs assessment as an unnecessary delay to the training project. The organization may accept, in theory, the need for a needs assessment. However the organization may not provide the necessary time, human resources, or budget to perform the needs assessment.

Within the training function there can be obstacles to needs assessments from training managers who feel that needs assessments are optional, not mandatory. A needs assessment is viewed as an unnecessary and time consuming delay in the process of providing training. These are training managers who see their mandate as providing training and their priority to be that of providing training on-time to meet organizational demands. They fit into the Training for Activity model described by Robinson and Robinson (1989).

Obstacles within the training function include a lack of expertise in needs assessment and a lack of agreement on how to conduct a needs assessment. The lack of expertise in performing a needs assessment leads to a reluctance to try the process. The lack of agreement on how to perform a needs assessment leads to internal conflicts within needs assessment team. This lack of agreement can extend to the client whose vision of a needs assessment may not match that of the training professional. The client may envision a training survey, and not a detailed look at performance gaps.

In conducting a needs assessment, obstacles must be overcome and compromises made because of organizational priorities, limited access to information sources, training professionals' inexperience in needs assessment, time restraints, and budgetary considerations. In industry the selected approach to a needs assessment is the one that provides the most accurate and valid needs assessment information given the constraints.

## **Chapter 3**

### **The Needs Assessment Project**

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The preceding chapter outlined the literature on needs assessment. This chapter describes the application of a needs assessment process in an organization. As the literature points out, a needs assessment process in an organization cannot follow a prescribed path, but is subject to the forces and constraints in the organization. The step-by-step approaches available in literature are generally unique to particular settings. Most models, such as that of Kaufman, Rossett, Robinson and Robinson, offer guidelines to follow and issues of concern. This chapter reports the process as it happened in the organization. A prescribed step-by-step process was not followed. Rather the needs assessment effort evolved over time, following in broad steps the general process of any needs assessment: planning, data collection, analysis, and reporting results.

The details in this chapter are based on an extensive daily log of needs assessment events, meeting minutes, and memos. The log was maintained by the author in her role as participant-observer in the needs assessment. Her primary role was that of a participant in the process. She was the team member from Operations Training. Her observer role was known by the group; however, observations were unobtrusive and did not intrude on the process itself.

#### **The Beginning**

Needs assessments do not spring out of the ground, but are initiated by an organization in response to some need. The need could be a normative, felt, demand, comparative, or anticipated need; or to quote Robinson and Robinson (1989), the need could be one of two "flavours," an opportunity or a problem. The need could have been identified when management makes a request for training from management or when a proactive training function scans the organizational environment.

## *The Request*

For this project, the need was identified primarily in a request by the Vice-president of Operations. He requested a report for May, 1992 on how training would be handled in the Grand Trunk Corporation (GTC), a United States subsidiary of Canadian National Railways (CN). The request was based on the anticipated need for training to facilitate the integration of GTC's operating and marketing functions with those of CN. Later, the May date was adjusted to June 1 for a preliminary report with the final report required for the end of June.

The request was made early in the first quarter of 1992 to the System Director - Operations Training. Operations Training is responsible for technical training for the over 20,000 employees who work in Operations. The System Director made a short trip to GTC to determine the extent of training in GTC. On his return he discussed his informal findings with the Manager of Information Technology Training. Coincidentally, Information Technology Training had received a request to look at the computer system training needs for GTC Marketing. Due to the integration, the GTC Marketing representatives and managers needed to learn the information systems used by CN Marketing. The manager had sent a two person team down to GTC on a brief trip to assess the needs and also the capabilities of GTC to provide systems training. He was concerned that there was little in-house training on systems and that with the integration CN computer systems were going to be brought into GTC, creating an immediate need for training on the CN systems. This represented a major training effort. Together, the two managers decided that a more thorough needs assessment effort was needed and that a joint effort was to their benefit as it would distribute the workload. They decided also to contact the director of System Training within Human Resources to see if she wanted to participate and in particular if she had resources to provide.

## *Description of the Training Functions*

Within Canadian National there are six training groups with system wide responsibility. Each training group reports independently within its own organizational function. Figure 9 shows the organizational

relationship of the five training groups involved in the needs assessment. The sixth training group, Language Training, was not involved in the needs assessment. The mandate for each training group is different. There is some overlap between the groups, but no conflict, as the management for the training groups meets regularly to ensure coordination of effort. Two of the groups have responsibilities that cross functional lines: System Training (HR) has responsibility for management development training; Information Technology Training (IS) has responsibility for all computer application training on PCs and main frames. The other three groups are responsible for training specific to their function.

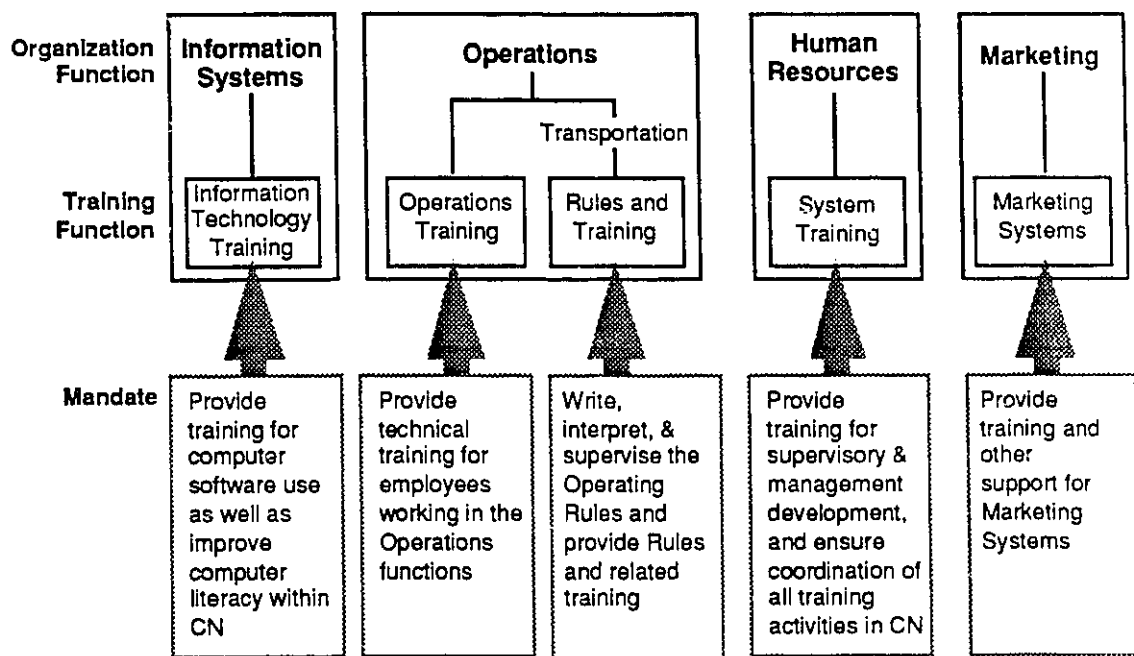


Figure 9 CN training functions involved in needs assessment

### Formation of Needs Assessment Team

When contacted, the director of System Training (HR) was interested in the project, but had no resources to provide. System Training had also received a request from GTC for training, in this case for supervisory and management training. The director of System Training felt that this multi-functional effort fell within her mandate to "ensure the coordination of all training initiatives and activities in CN." She assumed the driving role in setting up the needs assessment effort.

The possibility of hiring an outside consultant was discussed between the three training managers. None of the three training groups had anyone free to handle an assignment of this size. Budgetary concerns by System Training (HR) led the managers to decide that the project would be handled by sharing the workload among the three training groups. In addition there was strong feeling that CN had resources with the skills to conduct a needs assessment and, more importantly, knowledge of the railway. Railway knowledge would make the needs assessment effort more efficient and effective.

The managers agreed that the target date for the needs assessment results would be June, 1992; the target date established by the Senior Vice-president - Operations. Thus the needs assessment effort was driven by a date established by the Senior Vice-president in Operations, even though three of the training groups did not report there organizationally. The gain for Operations Training would be needs assessment results that were broader and included computer and management development training needs as well as technical training needs for employees within Operations.

There was consensus that the project could not go ahead without GTC approval and commitment to the project and that the project leader should be someone from GTC. If the project leader was from GTC, GTC would have greater ownership in the process and the results. In addition the implementation would be smoother because there would be visible support from GTC management and easier access to the GTC organization. The project leader would be supported by CN assigned resources who would support, assist, and guide the process.

#### *Project Leader Appointment*

The director of System Training (HR) contacted the Human Resource function in GTC to propose the project and to gain GTC approval of, and commitment to the needs assessment effort. In this telephone call, she suggested that the project leader be someone from GTC. The manager of Human Resources (GTC) took the proposal to the GTC executives who approved the needs assessment effort and appointed their Corporate Secretary as project manager. In CN the reaction to the appointment of the GTC Corporate Secretary as project leader was positive. It was felt that a



Corporate Secretary would have wide knowledge of GTC and the position and contacts to implement the data collection process in GTC.

### *Team Composition*

In CN, a multi-functional team was established with an assigned resource from each of the three training groups. Almost immediately, a resource from Marketing joined the team. Shortly afterwards, Rules and Training was approached by Operations Training and assigned a resource. After the first team meeting in March, the project leader brought in an additional resource from GTC. The final team composition was six team members from CN and GTC with the project manager being the Corporate Secretary of GTC. Figure 10 shows the make up of the team.

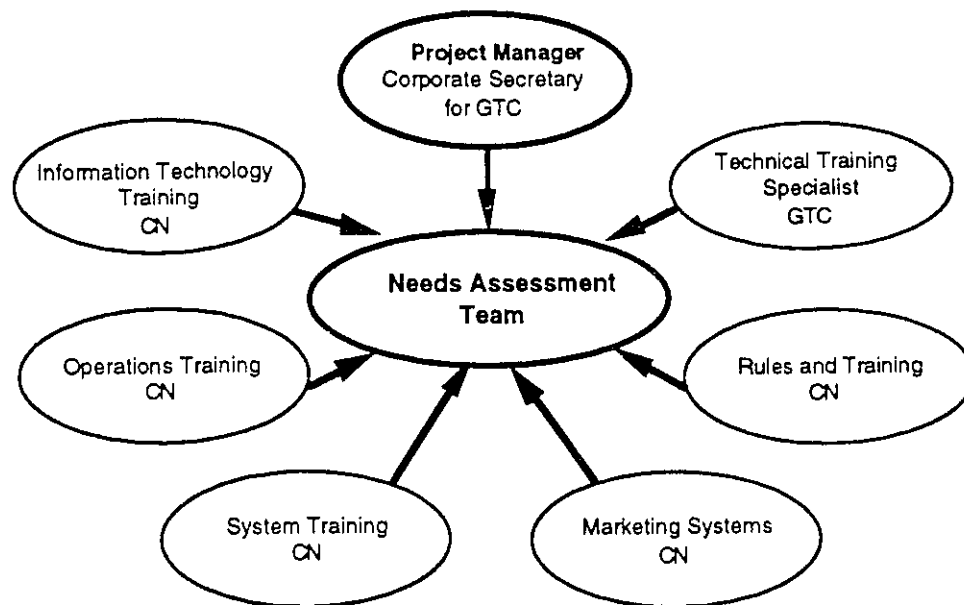


Figure 10 *Needs assessment team*

### *Team Background and Experience*

All CN team members were experienced trainers; some had experience in needs assessment. The team member from System Training (HR) had considerable experience in performing needs assessment, including macro level needs assessment for management development. The other team members had less experience in needs assessment. The author, the representative from the Operations Training group, had no experience in formal needs assessment. The GTC team member was the least

experienced of the team members. His experience was with training delivery.

The project leader had no training or needs assessment experience. However, he had considerable connections within the GTC and CN and a good knowledge of the operation of GTC. He was well positioned to lead a multi-functional needs assessment in that, as the Corporate Secretary of GTC, he was aligned with no particular function. Figure 11 shows the team members' training background and experience in performing a needs assessment.

<b>Team Member - Function -</b>	<b>Job Responsibility</b>	<b>Training Development Experience*</b>	<b>Needs Assessment Experience*</b>
GTC Corporate	Corporate Secretary for GTC	none	none
GTC Computer Training Center	Coordinator for a computer applications training center	little	none
System Training (HR)	System training officer responsible for coordination of the development and delivery of management development programs.	considerable	considerable
Information Technology Training (IS)	Coordinator of instructional technologist group responsible for development of computer systems training	some	moderate
Operations Training	Coordinator of instructional technologist group responsible for development of technical training	considerable	none
Rules and Training	Assistant manager of group responsible for Operating Rules, including related training.	moderate	none
Marketing Systems	Training officer responsible for providing training and other support for Marketing computer systems.	moderate	some

\* self-assessment of experience levels

Figure 11 *Experience and background of team*

### *Experience Working as a Team*

Many of the CN team members had worked with each other in the past on various projects and committees. Notably all of the members had worked, either briefly or extensively, on a multi-functional team responsible

for developing the CN Training Standards. This slim 35 page volume established the CN standards for training development and delivery. The section on needs assessment had been contributed by one of the team members. Thus the CN team knew each other, the working styles for each, and the training values for each.

Meeting techniques were well established. Meetings had an agenda, and an assigned timekeeper, facilitator, and scribe. Minutes were an assigned responsibility at the start of the meeting and were produced shortly after a meeting by one of the team members. Two team members were trained Quality facilitators and conducted facilitator training within CN.

An informal communication network already existed among the CN team members. The group did not have to wait for introductions to each other or for working directions from management. It was assumed that the team would work together and report back informally to their respective managers.

#### *Preliminary Meeting in CN*

The first meeting as a team was scheduled for March 19. However, the team member from Operations Training suggested that the team meet prior to that date to get the CN act together and ensure a common understanding of the purpose of the needs assessment. Four of the five CN team members were able to attend. The fifth team member was represented by written comments he had prepared and sent in with another team member. The meeting reviewed our understanding of the project and our roles, and established a proposed agenda for the official meeting.

In the meeting there was common understanding on the target date, and that GTC needed training right now and would need even more training when CN systems were implemented. All reported that their training function had received a request for training from GTC. Initial reviews by three training groups revealed that there was little formal training in GTC. All agreed that the first question being asked by CN was "What training does GTC really need?" This included questions such as; "What training do they need now; what are the gaps? What training do they need because of the operational changes brought on by the integration? What training do they need to manage the big changes happening in their

organization?" The second question being asked by CN was "What training does CN have that they can use?"

However, there was confusion over the scope of the project; both in the size of the organization that would be included in the needs assessment and in the level of the needs assessment effort. For example, would we focus on the largest and most concentrated part of GTC, the Grand Trunk Railroad, or would we also look at the two other, smaller railroads? Was the mandate of the needs assessment only to determine the present state of training and the desired state of training, and recommend how to close the gap? Should we have a wider scope and look at performance problems? Should we look for performance indices to measure the effectiveness of the training efforts we would implement? The different perspectives of the team members on what constituted a needs assessment and what we should be doing surfaced at this first meeting. In fact the diverging views on what type of needs assessment should be done, dogged the needs assessment effort.

A comparison of the viewpoints gives a perspective on the differences. The director of Operations Training had made it clear to the Operations Training team member that he needed a training plan. This meant he needed a plan on how training development and delivery was going to be handled in GTC. He envisioned a report that would indicate where the training facilities were, who the instructors were, and the most cost-effective way to provide technical training in GTC. The written comments from Marketing indicated a strong concern that the needs assessment uncover the future goals of the GTC organization and develop a plan that would aid them in attaining these goals. Rules and Training stated that they knew that they would be providing training in GTC. All that they needed to know was what training GTC already had and what they would need.

An agenda for the March 19 meeting was drawn up and faxed to the project leader, along with a list of the CN team members, their titles, telephone and fax numbers. The agenda was designed to introduce the project leader to the team members and to the needs assessment process, and to start project planning. The author prepared for the first meeting by reading needs assessment literature and producing a list of questions drawn from Rossett (1987) to be answered in the meeting. This list was distributed to the group in the meeting.

## **Planning Phase**

The initial planning phase for the needs assessment required two separate all day meetings in March. The first meeting covered introductions, a presentation on the needs assessment process, and development of a project goal and a preliminary project plan. The second meeting reviewed reaction to the project goal and continued with project planning.

In the first meeting the needs assessment process was described by the HR team member. She reviewed the needs assessment process, using the needs assessment process description in the CN Training Standards that she had written, and Rosenberg's (1990) "Performance Improvement System." The purpose was to clarify for all team members not only what a needs assessment is, but also that it can be approached in different ways. The presentation included a brief review of the various tools such as interviews, and documentation reviews. The steps in a needs assessment were described as:

- Step 1 - Assess the context and determine the purpose of the needs assessment
- Step 2 - Determine what tools and techniques to use to gather the data
- Step 3 - Identify the problems and causes based on the data gathered and analyzed.
- Step 4 - Identify possible solutions and select the most appropriate for recommendation.

### *Roles of Team Members*

The roles of the team members were discussed to ensure understanding. In particular the CN team members needed to understand the role of the project leader. The project leader described his role as that of project manager. He saw himself as the process owner who would interface with the Detroit executives, identify GTC sites and people, pull in resources from the training community and from other areas within GTC, coordinate CN interface with GTC, and make final decisions after committee

discussion. The CN committee members would provide the process knowledge and skills, provide guidance in developing and implementing the plan, assist in tool design and development, and support the interview and focus group process. Looking back on the project, the consulting role of the CN committee members was established at this point and could be defined using Block's (1981) categories of consulting styles as the expert style.

### *Communication to Management*

It was agreed that each CN team member would keep their respective training managers informed. The project leader would keep the three vice-presidents within GTC informed. A report would be issued to management upon completion of the project. Later, the value of producing a report was questioned, in light of time constraints.

### *Discussions and Considerations of the Context*

In the first planning meeting there was a lengthy discussion and consideration of the project constraints and needs assessment levels. The questions that were discussed follow.

#### *Who wants this needs assessment and why?*

GTC supported the needs assessment based on the preliminary findings by Marketing, Information Technology Training (IS), and Operations Training. GTC recognized that they did not have a comprehensive training plan. The executive felt that someone should be planning and coordinating training. The CN training groups supported the needs assessment because they perceived a need for training based on their preliminary analysis and the requests already received from GTC. In addition Operations Training was driven by the request from the Senior Vice-president of Operations to present a plan for handling training in GTC. The deadline for the plan was June.

*What are the initiators of the needs assessment?*

The initiators for the needs assessment were a) the knowledge that CN procedures and computer systems would be introduced in GTC due to the integration and b) the perception that GTC was training poor. There was a concern that training should not be provided just because GTC did not have it and that GTC and CN should be certain that the training would cause improvements in the bottom-line before implementing it.

*What are the time, monetary and human resource constraints?*

Both CN and GTC had limited time and human resources to devote to the project. No one on the team was assigned to the project full time. They were expected to carry their normal workload in addition to this project. Two members were up front in the first meeting, saying that they did not have any time for this project. Additional resources could be tapped perhaps, but they would not be full time participants in the project.

Neither CN or GTC had money for this unscheduled project. The possible use of an outside consultant was addressed and dismissed as being outside of the various budgets. The management viewpoint that CN had the needs assessment skills and railroad knowledge necessary for this project was brought forward.

The deadline imposed by the Senior Vice-president of Operations was June. This time frame was considered tight given the time available and the workloads of the team members.

*What level of needs assessment should be performed?*

Discussion of performing a needs assessment at the micro versus macro level was discussed. The macro level would involve an examination of GTC starting with the organization's goals and mission. There was considerable discussion of this point with strong points made for a macro needs assessment and equally strong support for a moderate needs assessment effort. In the end, the group acknowledged that although a macro needs assessment would be the right way to do it, we did not have the time and resources to accomplish a macro level needs assessment. Also, management's perspective was that a 'training needs assessment' was required.

*What is the physical scope of the needs assessment?*

The physical scope was set to be the three railroads: GTC, CV and DWP. This would encompass about 3300 employees: 2,954 union employees and 340 management employees.

*Project Goal*

Taking the proposed scope, the resource and time constraints into consideration, the project goal was defined in the first meeting as:

To determine:

- what training is needed to facilitate the introduction of new technology and procedures due to the integration of CN and GTC; and,
- what training is required when compared to CN and other transportation and distribution companies;

in order to recommend and prioritize training and other performance improvement actions.

After the first meeting the Operations Training team member met with the director of Operations Training to brief him on the progress. His reaction to the goal was favourable. He also stated that he would not have supported a macros needs assessment effort. He emphasized the deadline, and that it had been the Senior Vice-president's request for a training plan that had triggered the entire process. Later, informal conversations with two of the team members revealed that reaction by management had caused them to reassess the project's priority downward. The feeling was that the project was aimed too deep, and that its scope should be scaled down to what training can we give GTC.

At the second planning session, knowing that clarity of the project goal and project planning is critical to the success of a needs assessment effort, the author suggested that the meeting start with a poll on the reaction to the project goal. Reaction varied from acceptance (HR, ITT, and GTC), to "a quick and dirty would be better" (Rules and Training), to questioning why this was being done (Marketing). In summary there was some concern that the needs assessment scope was too large; that all that was needed was



a quick look at the training in GTC and what CN had available to fit the needs. It was agreed by the group that they would stay with the defined goal rather than going for a "quick fix."

### *Project Plan*

A project plan consisting of four phases was developed over the two meetings. It included suggested tools and data sources. The selection of tools was based on data sources and context considerations. Tool selection and development were based on the questions, what data do we need, who/what is a source of the data, and how can we get the data. The four phases are detailed on the following pages.

#### *Phase 1 - Determine Current State*

The first phase had two purposes. One was to determine what training existed in GTC. The second was to determine the effectiveness of the training.

Purpose: To determine what training exists in GTC; internal and external courses, facilities, and training resources.

Data Source: Trainers

Tool: Survey form

Considerations: The survey would:

- be a comprehensive, yet easy-to-complete check-off type of form
- be designed for easy entry into a data base for compilation and analysis. The report would be by training function, i.e. Rules, Operations, Human Resources training.
- capture training done in the last 24 months including internally and externally delivered training.
- capture planned training
- ask the trainers to evaluate the state of the training material. Did it need revision to update it or to improve its instructional effectiveness?

- be positioned as non-threatening when implemented. This would be done in the covering letter and also personally in a follow up as there were only eight known full or part time trainers in GTC.

The GTC team member suggested that dBase IV was the appropriate database and volunteered to input all the data. He did not know how to use it, but did not feel it would be difficult to learn.

The items for inclusion on the survey form were developed very extensively in the second planning meeting and included description of course goal and content, duration, numbers of sessions and trainees in last 24 months, course facility and personnel requirements, existence of test, costs if externally delivered, assessment of effectiveness.

CN team members were to draft the survey form. GTC was to finalize it and test it.

Purpose: To determine the effectiveness of current training.

Data Source: Trainers, trainees, and trainee supervisors

Tool: Survey form for trainees. Structured interviews for the trainers and supervisors.

Considerations:

- This phase would focus on courses selected from the spectrum of courses identified in the first survey.
- The trainers would handle the survey.
- The structured interviews would not be arduous for the interview team because of the small size of the trainer population (8).

The items for inclusion in the survey and structured interviews were developed very extensively in the second meeting. They addressed the relevance of the training to the job, whether the training caused improvement in on-job performance, if there were defined objectives, if there was a test, whether the delivery method was appropriate, and whether the facilities were adequate.

The CN team members were to draft the survey form and structured interviews. GTC was to finalize and test it.

*Phase 2 - Determine Desired State*

Phase 2 had three purposes. The first was to determine what training gaps existed in the current operation. The second was to determine what training was needed to prepare employees for job change. The third purpose was to determine what training would be needed for integration.

Purpose: To determine what training is needed for current job and to prepare for the future.

Data source: GTC employees

Tool: Focus groups

Considerations:

- This phase was to be connected to GTC and departmental goals.
- Questions should include what training does the employee, his/her staff, his/her manager require.
- The sample had to be representative of the employee population.

The items (questions) for the focus group effort were developed, albeit not extensively. The determination of the sample size was tabled for a later meeting.

Purpose: To determine what retraining is needed to prepare people for job change.

This section was discussed, but not resolved in the two meetings.

Purpose: To determine what training will be required due to integration.

Data source: Vice-presidents in GTC, GTC functional managers, the CN/GTC integration team, and CN vice-presidents or functional heads.

Tool: Structured interviews for GTC executive management and CN functional management. Focus groups with the GTC direct reports

Considerations:

- Questions must ask what changes will happen due to integration and why training is needed.
- Structured interview process and focus groups would involve two person teams with CN and GTC composition. Two person teams were recommended to allow a questioner and scribe during the sessions and a sharing of observations and interpretations after the sessions.
- The focus groups were to ask the same questions, with some modification.

The plan was that this part of the needs assessment would have to be later in the process as the integration was continually evolving.

#### *Phase 3 - Comparison to CN*

Purpose: To compare the identified training needs to CN to determine what training matches to CN and what does not.

This phase was not discussed in detail in the two planning sessions, but was tabled for later meetings.

#### *Phase 4 - Write and submit report*

Purpose: To report the results to the management.

This phase was not discussed in detail at the two planning sessions, but was tabled for later meeting.

During the second meeting, concern again rose that the June deadline was not realistic given the amount of work to be performed and the continually evolving nature of the integration. As all the team members were experienced, they knew that sometimes deadlines were not fixed, but

could be moved when management was made aware of the issues. They questioned if the three month target had been picked out of the air, or was based on a specific reason. The Operations Training team member agreed to approach the director of Operations Training and "try to negotiate a July or August date." If the date was fixed, an alternate approach would be to provide sufficient broad data for the June deadline and go back at the needs assessment effort in a second more in-depth pass.

Two further meetings were scheduled. The first was for the CN team members to meet and prepare the survey forms for Phase 1. The second meeting was to review the survey form, discuss the data base and finalize planning.

### *Team Dynamics in Planning Phase*

Team dynamics in the second planning session had not been as positive as they had been in the first meeting. Tension existed because, although the goal had been agreed to, there was disagreement on the process of determining the needs. One team member was not convinced that a needs assessment process was necessary, but agreed to follow the group. Some in the group seemed to fall into the camp of "let's be practical" and others were striving for "doing it right." One team member had to join late in the session due to previous commitments. Another was pressured towards the end because she had to leave for another meeting. Towards the end of the session, the tension became obvious. The project leader projected patience and pragmatism, but did not direct the process, possibly because he was unsure of the needs assessment process.

Due perhaps to some of the straining in opposing directions, progress was not as advanced as the Operations Training team member anticipated. As a novice at needs assessment she felt that the scope was broader than we could handle in the time available, and that many issues, such as how we could arrange to conduct all the planned structured interviews in Phases 1 and 2, and how we planned to accomplish Phase 3 were still unresolved. In addition the team dynamics with the stresses between the team members and the absence of clear leadership were a concern.

## *Adjustments to the Project Plan*

Within the space of a week, reaction to the project plan and reaffirmation that the June date was critical led to modifications to the needs assessment plan.

One of the training managers reviewed the minutes of the second planning session and commented that due to the short time frame for the project we should ensure we had a realistic scope. He suggested that the second part of Phase 1 (evaluating the effectiveness of the training) could be cut out as it was questionable how reliable that information would be. In addition he recommended that Phase 2 be clearly defined and limited.

These comments were passed along to the group through email and fax. In a telephone call, the project leader from GTC remarked that he had reviewed the comments and felt that the concern was not necessary. He stated that the project framework on paper sounded more academic than it really would be, and that the execution would be easier than outlined on paper. He explained that "GTC is a compact universe." The steps would compress because of the size of the organization. He added that the project would cause less trouble in GTC, because fewer people had training close to their hearts. In CN there were more opinions, pushes and pulls than in GTC.

The progress of the needs assessment was reviewed with the director of Operations Training shortly after the second meeting. In this progress update, the need for an extension of the deadline was raised. The reasons for the request were outlined; the continual evolving nature of the integration, the size of the project, the limited time available, the workload of the team members, and the need to get reliable data. The director responded that the end of June date could not be adjusted; the Senior Vice-president required the results for inclusion in a report on the integration effort to the Board of Directors. The Operations Training team member asked for clarification on what the director expected from the needs assessment because there seemed to be a misunderstanding about what the needs assessment was to accomplish. He stated that he wanted a complete status report on the state of technical training in GTC and a plan of action that would detail how technical training would be provided by Operations Training. The plan of action would address issues such as would it be

better to build a training facility in GTC, or bring the trainees to Toronto and Winnipeg facilities? Did GTC need all their instructors. With integration, certain economies could be attained. The team member explained that needs assessment Phase 1 would give a clear picture of the current state of training and that Phase 2 would produce a good picture of the training needs. However, an exact training plan was not probable given the time available, and the multi-functional nature of the needs assessment effort. This misunderstanding over what the needs assessment could accomplish continued until the end. The director consistently asked for an action plan; though towards the end he realized that an exact training plan was not possible.

The criticality of the June date was emailed and faxed to the team members. The reason for the criticality was outlined, and a suggestion made that the first pass at the needs assessment should be limited, with a second pass to be considered for greater detail on items such as training effectiveness, and job retraining needs. The reaction from the team members was that they could make this adjustment. They would do "the quick and dirty" part first as management seemed to want, and the more in depth study would follow.

On the Monday following the second planning session, the team members from Operations Training, Information Technology Training (IS), and Marketing worked out a reduction of Phases 1, 2, and 3. The reduced project plan was faxed to the project leader and reviewed over the telephone. It was then emailed to the rest of the team for their consideration. A response was requested for the meeting at the end of the week. The new project plan was:

*Phase 1: What is the current state of training in GTC?*

A survey would be used to determine training courses, facilities, equipment, and instructors in GTC. The effort to evaluate the effectiveness of the training would be reduced to questions on the survey form.

### *Phase 2: What are today's training needs and issues in GTC?*

This phase would focus on the known integration plans and the current training gaps.

To determine known integration issues, structured interviews would be conducted with the three GTC vice-presidents, the CN/GTC integration team and any CN functional heads that these people directed us to. In the original plan, approximately eight or nine CN functional heads would have been approached.

To determine the training needs for the daily operation of GTC, selected people would be met in GTC. The project leader would direct the team to the critical people.

### *Phase 3: Comparison to CN*

The comparison to CN was to identify what CN had that GTC did not. There would be no attempt to compare to other transportation companies as originally discussed. This phase would lead to the recommendations on what training was needed in GTC and how the training needs could be met.

### *Phase 4: Write and submit report*

This project plan was accepted in email responses and in the following meeting on April 10. However from this plan a misunderstanding arose whether focus groups would be run in Phase 2 or dropped. This misunderstanding did not appear until a month later.

## **Data Collection Phase**

### *Project Management for Data Collection Phase*

In early April, at the first planning session for the data collection phases, it became clear that there was insufficient time to accomplish the



planned data collection and prepare a report for the end of June. The project leader took charge. First, with his first hand knowledge of the executive level workings in the CN, he knew that there may be more time based on the dates for the board meetings. He phoned the executive office and confirmed that the first board meeting after the end of June was in fact July 28. This gave the team some room to manoeuver, about two weeks. In addition the project leader questioned if a report was necessary for the end of June or whether a presentation of findings and recommendations would be sufficient. When asked, the director of Operations Training agreed that a presentation would be all that he required. Again more time had been bought.

It was clear that other work priorities and a series of previously scheduled trips were conflicting with the data collection phase. For example, one team member was scheduled to attend one training conference in April and present at another in May. Three other members of the team were scheduled for the ASTD international training conference in June. Work related trips occupied two members for another week. All but one of the team members was scheduled for the CN training conference in June. This last conference required the direct input of two of the team members. In addition the project leader and the GTC team member were attending it. This would halt any data collection in that week. The conference was critical to the project leader as it was his opportunity to meet with many members of the CN training community and also to learn more about training development and delivery.

In addition to scheduled trips other critical work activities were on-going. The project leader required two weeks in May to coordinate and run the last annual report meeting for GTC. The team member from System Training (HR) had critical dates for a rework of a flagship management course. The two team members involved in the Quality program had critical assignments as facilitators in Quality meetings. The team member from Rules and Training had Rules conferences and cabinet meetings that kept him out of town for one out of every two weeks.

In that early meeting, a basic time-line was developed. It was not sophisticated, but merely listed the weeks with the critical project activities and significant "black holes" for the different team members. Black holes was the term used to describe when a person's other priorities made him or

her unavailable to the needs assessment project. These priorities were those that could not be re-scheduled. It was significant that the team member from Rules and Training was not listed on this form as he was absent at this meeting. His availability was so limited that the attitude adopted by him and the group was that he would attend if he was in town and available.

The critical data collection dates as they were planned to be:

Phase 1 - Survey

Implement surveys	April 13
Responses returned	April 28
Data entry complete	May 25
Reports ready	June 8

Phase 2 - Interviews and Focus Groups

GTC interviews	April 20 to May 11
CN interviews	May 25
Focus Groups	after interviews completed

The planned time-line was generally not used for the rest of the project. Time was critical, people hard to gather, and the needs assessment effort was evolving. People kept up-to-date, through the electronic mail system, telephone, and fax. In fact several meetings used conference calls to link Detroit with Montreal.

The actual data collection continued until the planned analysis week in Detroit in June. One reason for this seemed to be a later start on the structured interviews, which then continued into June. The project leader conducted several interviews with the GTC team member, but did not delegate the activity to someone else as had been discussed. His critical time constraints and the availability of GTC management for interviews lengthened the process. Another reason was the decision to push ahead with focus groups. The only feasible time for this became the week that had been set aside for analysis. This week became the major data collection phase. Left-over interviews, ad hoc interviews and all the focus groups were conducted in an intensive five day period. Little time was left for analysis in this week.

## *Surveys*

The first phase of the needs assessment was to collect data on the current state of training. To do this the plan was to develop an easy-to-complete survey form and distribute it to the existing trainers in GTC. The responses were to be entered into a database being prepared by the GTC team member. The preparation of the survey forms was to be the responsibility of the CN team. Due to time constraints, only two CN team members were consistently available to work on the survey forms: the Operations Training team member and the Information Technology team member. There was also a feeling that too-many-cooks would slow the process and that only two or three people were necessary to draft up the survey forms. The draft survey forms would then be reviewed and polished in a full team meeting.

### *Development of Survey Forms*

The survey forms were drafted up in an intensive 12 hour effort that spanned two days. The Operations Training team member had done some preparatory work prior to the working session and had produced on a whiteboard a suggested survey goal, data items, and some suggested questions. This work was reviewed by three team members at the start of the session, resulting in refinement and clarification. After an hour the third member left for another meeting and the other two team members continued. From this preliminary outline, four survey forms were developed with the criteria of being easy to complete and easy to enter into a data base. The four survey forms, which are available in appendix A, were

- Training facilities and equipment
- Instructor information
- Survey of current courses delivered by internal resources
- Survey of current courses delivered by external resources

The survey form for training facilities and equipment was two pages. It asked for the facility's primary use: training, conference room, other. This was to distinguish between permanent training facilities and rooms that

were primarily conference rooms or used for other work activities. The facility was then identified as a training center with a number of rooms, a training room, or a mobile facility. To determine which organizational function used the facility, the form asked which courses were delivered at the facility and if instructors were permanently assigned to the facility. Finally the form asked that the trainer check off what equipment was assigned to the facility and what significant features were offered at the facility. Significant features were items such as access to a rail yard, or cabling for mainframe systems / LAN connections.

The survey form for instructor information was also two pages long. Each instructor was asked to complete this form. Its purpose was to get an inventory of the instructors in GTC; a good sense of how many and what type of instructors there were in GTC. The form asked the instructors to identify their functional area, and percentage of time devoted to training delivery or development. The instructor qualifications were captured with questions on any technical certification, instructor years of experience, instructor training, and courses taught.

The survey of current courses was broken into two six page forms; one for courses delivered by internal GTC resources and the second for courses delivered by external resources. Initial feedback from GTC indicated that a lot of courses were externally delivered; i.e., by suppliers on GTC sites, or by external instructors in college settings. As external courses were not directly controlled by GTC and would be a visible cost to the organization, different questions were asked on this form.

The survey form for internally delivered courses had seven sections: course description, target population, course frequency, course requirements, assessment of course state and effectiveness, category of training, and reason for training. The course description included course goal, content, duration, instructional methods, and whether there was a final test and certificate. The last two questions in this section asked if the course was internally or externally developed and if it was delivered on- or off-site. The target population section asked for the target population and trainee prerequisites. The course requirements section asked the instructor to specify the human resource, facility, and equipment requirements for one session of the course. To assess the course state and effectiveness, there were four questions with a four point likert scale. The questions asked:

1. Does the technical information in the course need updating?  
none / minor / moderate / extensive
2. Does this course need to be restructured to improve its effectiveness?  
none / minor / moderate / extensive
3. How effective is this course in achieving its goal?  
very effective / moderately effective / somewhat effective / ineffective
4. How effective is this course in enhancing trainee performance on the job?  
very effective / moderately effective / somewhat effective / ineffective

The last page of the survey asked that the course category and reason for training be identified. The CN training database and training plan used these categories and it was argued that the GTC courses should also be identified using these categories in the event that the data was entered into the CN training data base.

The survey of current courses delivered by external resources had the same seven sections. However some of the questions became optional, for example the course facility and equipment requirements section was to be completed only if the courses was delivered in a GTC facility. Course costs were asked for in more detail in the second survey form because costs for outside courses are more easily tracked through the budget. The importance of capturing training costs was discussed in an early meeting and revisited in a later meeting. The feeling was that we should capture costs, but that it would add tremendously to the complexity of the data collection and that it would only provide guestimates. When CN had done a corporate review of training two years earlier, capturing the training costs proved very difficult and the results had been a guestimate of \$47 million dollars per year for the corporation.

The two critical course surveys received a rough formative evaluation during development. Three training development officers within Operations Training were asked to look over the forms and try to complete them. Training development officers are people with a strong field

background and frequently instructor background. Of the three, one had come very recently from the field, and another one had been an instructor until recently. One of the training development officers also faxed the form out to two field instructors for their comments. The feedback from these sources, three training development officers and two instructors, resulted in some changes and enhancements to the survey form.

In the next team working session on April 10, a computer and liquid crystal display unit were set up in the conference room so that the forms could be instantly revised and approved as they were reviewed. When the GTC project leader and the GTC team member left that night for Detroit, they took with them master copies of the four survey forms. In this manner implementation of the survey was not delayed. Part of the pressure was that three of the CN team members were scheduled for week long trips the next week.

#### *Implementation of Survey*

The forms were completed late on a Friday, and sent out the next Thursday with a covering letter prepared by the GTC team member to twenty-two trainers in GTC (available in appendix A). The cut-off date was set to be April 28, 1992 to allow time for data entry. This allowed only 12 days for the forms to come back, however with the small size of GTC and follow-up phone calls to delinquents, we were assured that this was adequate. In feedback to the needs assessment team, the GTC team member said that he had identified thirty-three instructors, with a possible total of fifty to sixty. The group was amazed that there were this many heretofore unidentified trainers. The explanation was that many were associated with one specific training effort, and were very part time instructors. The team discussed this, and agreed that we wanted to identify instructors and not one-time-only presenters. The scope of the surveys had been extended to collect courses from January 1990, to April 1992, instead of January 1990 to January 1992. Using these dates allowed the inclusion of any recent training.

The survey database was set up in DBase IV for entry by the GTC team member. There was some concern by the CN team members that he had over extended himself as he did not know dBase, and that it would be an arduous task. However, he reassured the group that it was not problem. By

this time the CN group had assessed this individual as a workaholic, and yet also inexperienced in training despite his title "Technical Training Specialist" and his position as coordinator of a computer training center. As the project leader did not appear unduly concerned, the CN team accepted his reassurances. Later, during analysis, our concerns would come back to haunt us.

The response for the survey form for externally delivered courses was extremely low. Only one or two forms had been returned by the first week of May, yet in the few structured interviews that had been conducted there were several references to external courses. There was a realization that an error had been made in sending this survey form to the trainers. Management determined when to send employees on external courses and made the arrangements. These courses were ad-hoc. The decision to send employees to these courses was made by management based on the urgency of the need and their budget limitations. A new very short form was made up and sent to managers with a covering letter. The form asked them to identify externally delivered courses, the course content and duration, number of trainees, and costs if available. The form was designed to be very short and easy to complete. After discussion of what was the critical information we needed, it turned out to be less than a half a page. This form (available in appendix A) got a greater response.

### *Structured Interviews*

As the survey forms were finalized, discussion started on the structured interviews. This area was more difficult to resolve than the survey forms which had a very definite population. The Operations Training team member had prepared notes on the interview process, who should be interviewed in Phase 2, and suggested questions. These notes served as a discussion document.

Two basic questions needed to be answered for Phase 2 - What are today's training needs and issues in GTC. The questions were:

1. What integration issues would require training as a critical step in successful implementation and what were the priorities?
2. What training gaps existed now and what were the priorities for those gaps?

### *Interview Groups*

There were four groups of managers considered for interviews (see Figure 12).

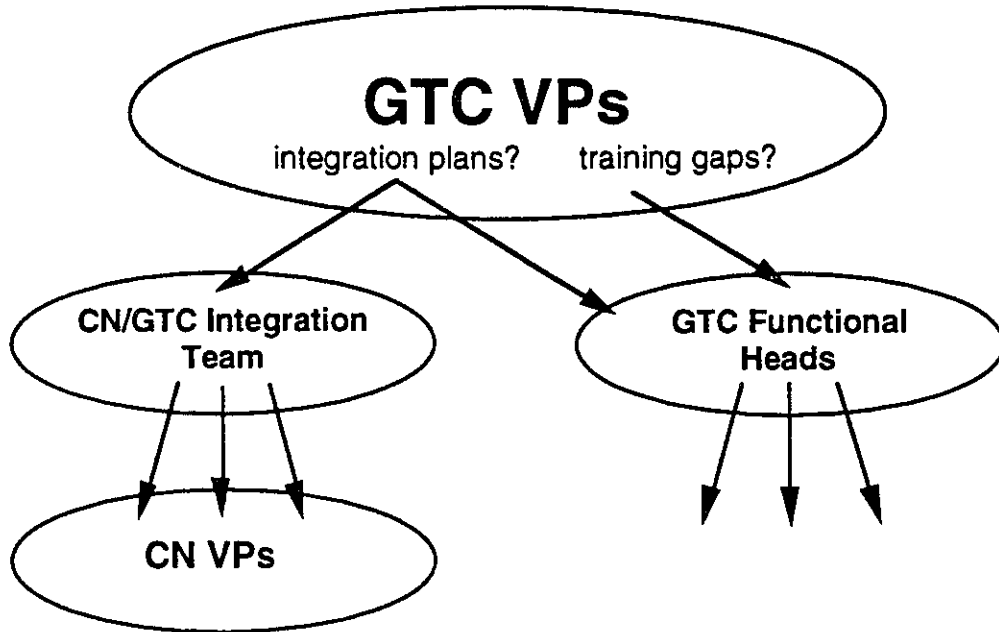


Figure 12 *Levels for structured interviews. Material used in meeting.*

It was agreed that the three GTC vice-presidents would be suitable sources for both basic questions. These people would then recommend which GTC functional heads should be interviewed. In the same way the three member CN / GTC integration team would direct us to critical CN vice-presidents or functional heads on integration issues. If we went farther down into the GTC organization, it was agreed that focus groups would be used.

### *Interview Questions*

The suggested questions were reviewed. After considerable discussion it was agreed to use the same questions in the structured interviews for both levels of GTC management. Question 1 was only asked of the GTC functional heads. The questions were:



- 1) What on-going training is needed by your function? What is the training? (apprenticeship training? re-certification training? mandatory / regulatory training?) Who is it for? How frequently is it given? What is its importance to the operation of the function now and in 2 to 5 years?
- 2) Is current training adequate? Are there areas for improvement?
- 3) What are the most pressing training needs in your department? Who needs training and why? What is the skill or knowledge lack? What indicates that there is a lack? What is the estimated urgency?
- 4) What training do you see required for **new technology**? Who needs training and why? What is the skill or knowledge lack? What indicates that there is a lack? What is the estimated urgency?
- 5) What training do you see required for **computers**? Who needs training and why? What is the skill or knowledge lack? What indicates that there is a lack? What is the estimated urgency?
- 6) What training do you see required for **technical skills**? Who needs training and why? What is the skill or knowledge lack? What indicates that there is a lack? What is the estimated urgency?
- 7) What training do you see required for **soft skills**? Who needs training and why? What is the skill or knowledge lack? What indicates that there is a lack? What is the estimated urgency?
- 8) What training do you see required for **supervisor/manager**? Who needs training and why? What is the skill or knowledge lack? What indicates that there is a lack? What is the estimated urgency?
- 9) What integration plans do you see which would impact on training? Who needs what training and why?
- 10) Ask for priorities.

The CN/ GTC integration team and the CN function heads would be asked only questions 9 and 10. Forms were prepared with these questions to be used in the interviews. The interview forms are available in appendix B.

#### *Interview Process Considerations*

The interview process was discussed including the components of the interview: introduction, questions, and conclusion. Techniques to avoid bias were reviewed; be very consistent in the interview process, do not bias the interviewee with your comments, use a scribe and interviewer, and debrief immediately afterwards. The use of tape recorders was discussed and rejected as it was time consuming to review the material afterwards, and there was concern that some interviewees would object. The use of additional interviewers was raised. It was agreed that additional interviewers could be used if properly instructed.

#### *Interview Analysis Considerations*

Analyzing the material was discussed. One recommendation was that the team use a data base application tool that allowed you to capture ideas, create categories, and develop relationships. This possibility was discussed at three meetings and finally let go because it was another application to learn. Part of the concern was that the GTC team member was the one person willing to input the data and he was already overloaded. In addition the group had set aside one entire week in June to do analysis. Later, there was a separate meeting between the team members from Operations Training and System Training to update the System Training team member who had been unable to attend the April 10 meeting and to gain her input on the interview and focus group process. This team member had the greatest experience in large needs assessment efforts. Out of this meeting came the concept of a summary sheet to be used after the interview in the debriefing session between the interviewers. This would greatly facilitate the analysis stage. This form was drawn up and sent out to the team members for review. It was accepted and became a very useful document for the debriefing sessions after an interview and for the analysis stage. This form is available in appendix B.

### *Implementation of Interview Phase*

The structured interview phase for GTC was scheduled for the rest of April and in May. The CN interviews would be later in May after the hoped for meeting with the CN / GTC integration team. This three person executive level team had been very active in the planning of the integration. It was hoped that they could be reconvened for their input. If not, then one critical member could be approached for his opinion on integration and related training issues.

What actually happened was an example of how difficult it can be to arrange structured interviews. The group tried to schedule time for the interviews so that both a GTC and a CN person would be present at the meeting. This proved to be very difficult. In the end only two team members went to Detroit to participate in the interviews during the originally scheduled interview phase. Both the Operations Training team member and the Information Technology team member flew to Detroit. Each attended four interviews that were related to their functional area. The interview stage lengthened out until mid-June when several left-over interviews and some ad-hoc interviews were performed by the the needs assessment team in Detroit. The reasons for the delays were limited availability of the project leader to conduct the interviews, of the GTC team member to attend the interviews, and of the interviewee. In the end twenty-two interviews were conducted in GTC from May 1 to June 23. The majority of the interviews happened in late May and June.

The hoped for interview with one of the members of the CN / GTC integration team never took place due to his unavailability. In fact, no one ever managed to directly talk the person, although messages were left and returned.

Several CN interviews took place early in June. Two team members prepared a list of CN functional heads who could have integration plans, and a set of interview questions (see appendix B). They conducted as many interviews as they could arrange in the time available. In total, seven interviews out of eleven planned interviews were conducted in CN in a two week period.

Through out the interview phase, an interview sheet with prepared questions and space for comments was used. An interview summary sheet was completed during the debriefing that took place immediately or shortly

after the interview. A two person team, with few exceptions, was used to conduct the interview. One interviewed, and the second scribed. If the scribe had relevant questions that clarified a point or expanded on a point, he or she was able ask. In the post-interview debriefing sessions, the interview team reviewed their notes, filled holes, and confirmed understanding of the notes. They then completed the summary sheet, making decisions on what issues to follow up and if a call back was necessary. This last section was somewhat ignored as people knew that critical follow up questions would be addressed in later interviews. Time also ran out for following up on every detail. Critical issues were addressed and the rest fell by the wayside.

### *Focus Groups*

Focus groups were planned for the cascade down into lower management. They were geared for Phase 2, determining the training needs for the daily operation of GTC. The purpose of the focus groups was to confirm training needs specified by their management and uncover any other training needs that had not been identified by higher level management. The focus groups became an important source of data in the needs assessment, gathering rich and detailed information about training needs and non-training issues. The frightening thing is that they almost did not happen. In the end they did happen and four unplanned focus groups were added to the effort.

The advantages and possible use of focus groups were discussed early in the data collection meetings. This was the tool planned for middle to first line management as it was an effective way to meet with more people. It also allowed consensus building and synergy to occur. It seemed to be a more difficult area to resolve as no one was sure in these early meetings who should be in the focus groups, how many should be run, how far down into the organization should we go. People agreed it would happen later in the process, after the interviews. There was also concern how much time there would be to perform the focus groups, given the short and tight schedule. The focus group issue was dropped as people concentrated on building the survey and structured interview tools. Later when the team was reminded that focus groups had been planned, the reaction was

confusion and irritation from various team members. Some felt that the focus groups had been dropped from the schedule due to timing. This confusion was created when people missed meetings where the focus groups were discussed. In the end, the team agreed that the focus groups should go ahead. They were planned for the mid-June week in Detroit that had originally been set aside for analysis. No other time was available.

When planning the focus groups, considerations were made of who should attend the focus groups, what would the organizational composition of the focus groups be, how many should be run, what process would be followed, and what questions would be asked.

#### *Focus Group Composition*

The focus groups were intended for low-middle to the first line supervisor. There was some discussion whether to include foremen because they are unionized employees in GTC. This was not a problem according to the project leader. In CN union and non-union employees are not generally mixed. The perception is that neither side is comfortable when they are mixed together. Brief consideration was given to going into the union employee ranks, but this would have required more time and resources than was available.

Long consideration was given to the appropriate number of focus groups and ensuring a representative sample of the GTC employees. At first the thinking was to composing focus groups based on process. There would be a focus group for "selling our services," which would include people from Marketing, and the Customer Service Centers. The other groups would be "delivering the goods," composed of employees from Transportation, Equipment, and Engineering; and "administering the business," composed of people from Human Resources, Labour Relations, Finance, and Accounting. This was ultimately rejected because of the difficulty in gathering groups together with this composition, and concern that the responses would be very general and not sufficiently specific to make recommendations for the Senior vice-president of Operations.

The team decided to use the organization's functional breakdown. Using an employee distribution count supplied by the GTC team member, the team found that the greatest number of employees were operating

employees, approximately eighty percent. Based on this, they determined that they would run six to seven focus groups.

- 3 to 4 groups for Operations employees
- 1 group for the Customer Service Center employees
- 1 group for the Marketing employees
- 1 group for the administration employees

The Customer Service Center employees were a significant subgroup in the Operations function. Each group would have six to eight employees. We felt we would see between 36 and 56 employees, roughly ten to fifteen percent of the total management population.

#### *Focus Group Process Considerations*

One and one-half hours was allowed for each focus group; with the acknowledgement that they would probably run over as people started to talk. A two person team of scribe and facilitator was required to run each session. There would be a prepared introduction and scripted questions. Summarization and debriefing would follow the focus groups. The issue of using a computer application database to record the focus groups was again raised and discarded. There would be no time to enter the material into the database as the focus groups were now scheduled into the analysis phase.

The CN team, anxious to minimize the amount of time devoted that week to the focus groups, arranged a very tight two day schedule. This schedule was discarded after running it by the project leader. Our intent had been to do all the focus groups in Detroit. The reality was that this could not be done. The Operations employees were spread in a wide radius around Detroit and could not be brought into Detroit without causing serious disruptions to field operations. The focus groups had to be performed where the employees were: Detroit for Marketing, Administration and the Customer Service Center employees; Battle Creek, Pontiac, Flat Rock and Port Huron for Operations. These last four sites were between 30 minutes and 2 hours 30 minutes from Detroit (see figure 13). The focus groups would have to be spread over three days. The lesson learned was that planning must consider reality.

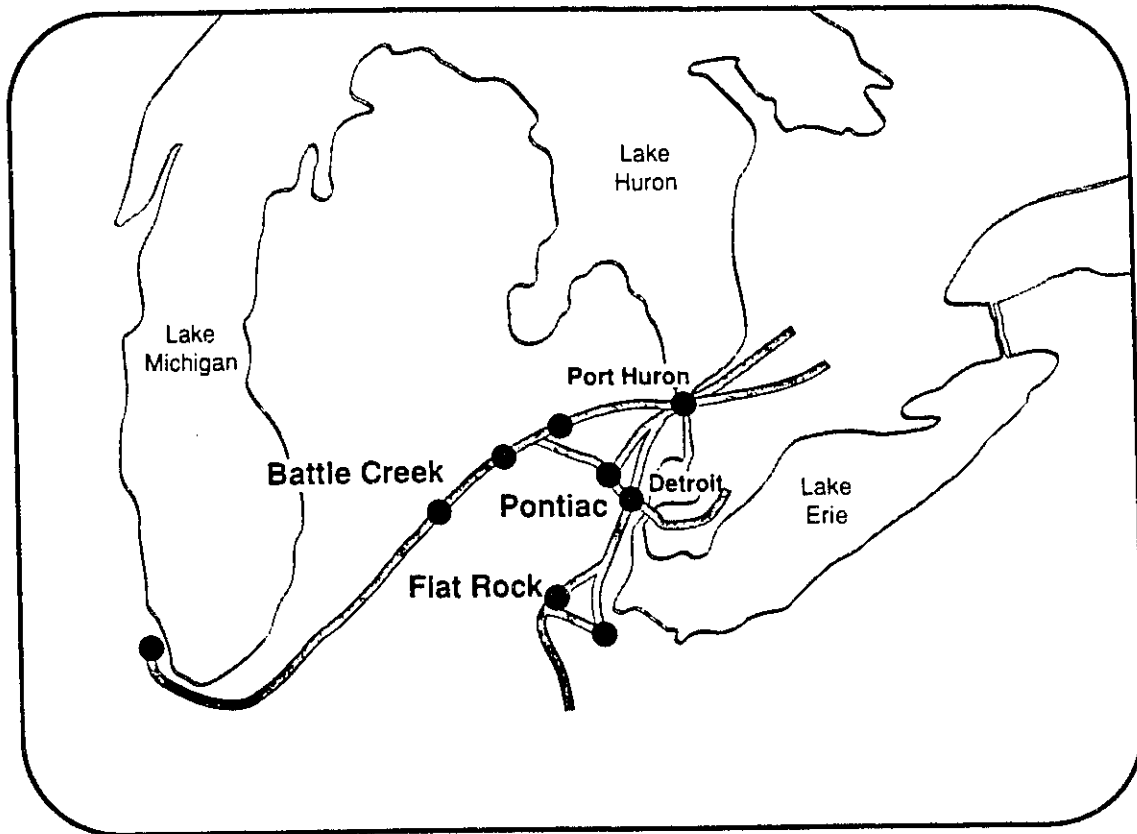


Figure 13 *Primary rail centers for Grand Trunk Western*

*Focus Group Questions*

The questions evolved over the planning sessions. In the end the questions were simple (see appendix C):

1. What are the main issues that GTC faces today?
2. What are the areas where training would improve the performance of your employees?
3. How about you? What are the areas where training would improve your performance?
4. What about management? What are the areas where training would improve their performance?

The first question was designed to be a warm-up question. It directed their attention to the organization, and asked them to think about the performance issues that the organization was confronting. The intent was to focus their attention on what the organization needed to do. It was non-threatening in that they were speaking generally about the organization and not about themselves. The next three questions asked them to identify training needs for their employees, themselves, and their management. For these questions the facilitator was to probe for technical skills and knowledge, interpersonal skills, system knowledge, safety procedures, Rules, and hazardous materials knowledge.

#### *Implementation of Focus Group Phase*

The actual focus groups were run in the week of June 15. The project leader had used his connections to clear the way and set up seven focus groups in five separate locations, (Detroit, Flat Rock, Port Huron, Battle Creek, and Pontiac) involving every major employee group in the Grand Trunk Western Railroad. The letter he sent out to set up the focus groups is available in appendix C.

All team members were there for the focus groups on the first day. The Rules team member attended the first day as this was the day for the focus group most likely to have Rules training concerns. The teams split the remaining focus groups to ensure that there were at least two people to run the focus group. In every situation, either the GTC team member or the project leader attended to make the necessary introductions.

The focus groups were successful in capturing a great amount of feeling and opinion on the organization and training needs. The prepared introduction, and questions worked successfully in all the settings. No adjustment was required to the questions or process over the seven sessions.

Each focus group facilitator used their own style, yet generally the results were similar. The facilitators were always one of the CN team members. As pointed out earlier, two of the team members were trained and experienced facilitators. The other two team members, although not trained, had experience and skill as facilitators.



Care had been taken to ensure that there was always one team member who was familiar with the functional area at the focus group. Therefore the team member from Marketing attended the marketing focus group, and the team member from Information Technology Training (IS) attended meetings where computer systems dominated the function. This was to ensure reliable data.

An unexpected event occurred early in the week. When the project leader was updating the Vice-president Corporate, the Vice-president suggested that an effort be made to meet with unionized employees. The team immediately responded positively to the opportunity and with some amazement as meeting with unionized people was generally fraught with difficulty in CN. The project leader called in some more favours (he warned that he was using them up that week) and used his good relationships to arrange visits to two rail yards that were close to the Detroit headquarters. We were asked to limit our focus groups to no more than thirty minutes. Two team members drafted up questions. The questions were hand written and rough looking (see appendix C), but had been thought out, and worked successfully in the setting.

1. What training would help you on your job? What about Rules, safety, and hazmat training? Does it meet your needs?  
Do you use computers on your job?
2. What other employees do you deal with? What training do those employees need?
3. How about your supervisors? Is there any training they could use to support you better?
4. What do you think will improve the performance of the company?

The two team members and the project leader met with four groups of employees that ranged from four to eight people. The meetings were held in spare offices, in lunch rooms, and locker rooms. The two team members had wondered if the union employees would feel constrained in their comments in front of two women from CN headquarters, and the Corporate Secretary of GTC. Some constraint was visible in one of the sessions. This was the only session in an office setting. In all the others, the comments seemed to be open. The supervisor in all cases took care to absent himself

from the meeting, leaving the field free to the team. In one case the supervisor called the project leader the next day to say that one of the groups, a track maintenance gang, wanted to thank the team for talking to them. These sessions were highly valued by the two team members.

The four union employee sessions and seven management sessions required four days. During the same period of time, eight additional structured interviews were performed.

### *Team Dynamics in Data Collection Phase*

The team dynamics were influenced by the priority of the project for the individual team members and by their respective workloads. All the team members carried additional workload and experienced priority clashes. By the middle of the data collection phase, three CN team members saw the needs assessment as a low priority project. One team member had been up front in the very first meeting that he did not have time for this project, but would participate as much as he was able. He also stated that the needs assessment was too involved for what had to be accomplished. Another team member who had initially considered the needs assessment as a priority, now felt that the needs assessment was 'about five on his priority list and that it kept eating his time.' His management had questioned the value of doing a needs assessment at a time when his function in GTC was undergoing considerable change and would be "decimated" after integration. The third team member was also overloaded and questioned why System Training had become involved in a project driven by an Operations request and deadline. A very thorough needs assessment had been done for CN's supervisory employees. These results could easily be generalized to GTC. Her feelings coincided with the team member from Marketing: that the needs assessment had little value for the organization. As a result, these three people prioritized other events and activities over the needs assessment. They were not as close to the needs assessment and began to lose track of items that had already been discussed and decided. It reached a crisis in mid-May with a misunderstanding on two critical issues: whether focus groups would be done in GTC, and the purpose of a planned trip to Detroit in June.

There continued to be some differences in the perspectives on how a needs assessment should be done. It was a case of the practical, let's keep it simple, but do a good job, get it done team members versus the far thinkers, let's consider the bigger issues, do the right job team members. These perspectives were generally tolerated, but aggravated team members none the less.

The project leader in Detroit did not take a leading role in the planning of the data collection, leaving this to the CN members of the team. It was not his area of knowledge and he left it to those who knew more. The project leader stepped forward and took charge when it came to execution. For example, he made it clear that the planned two day schedule for the focus groups was not feasible in GTC. In the week in Detroit, his connections, knowledge of GTC, and coordinating abilities were a critical factor in accomplishing all the data collection tasks.

The GTC team member worked almost exclusively on the survey. He also attended some of the interviews as the scribe. The two team members who went down in May to do structured interviews, observed his interview skills and were concerned. He did not appear to have good listening, or debriefing skills. His comments seemed to be inappropriate. Generally this team member's contributions were not highly regarded by the CN team members. He seemed to be better in the "busy work" role where high volume detail work kept him occupied.

In the latter half of May, the Operations Training team member realized that the needs assessment was losing focus and, working with the other team members, arranged a meeting to regain focus and plan the focus groups. The meeting succeeded for the most part.

## **Analysis Phase**

### *Planning*

The analysis phase was planned for the week of June 15, in Detroit with all team members. The concept was that in Detroit we would be close to the data source if we had any questions, and away from our offices and other activities. We would be able to concentrate, share ideas, and information. The survey of current training in GTC was in a database. Reports could be

pulled out and the data examined from several perspectives. Each interview session would have been debriefed by the interviewers and the interview results summarized on a one page form for easy reference. Detailed plans on how to do the analysis were not made however. The sense was that it would be worked out when we got closer to that phase. The reality was that four of the five days in Detroit were used for completion of the data collection phase, and the rest of the time was used to gather all the documents and reports together for the analysis phase.

### *Gathering the Documents*

The team worked out of one large room in the Detroit headquarters. In between focus groups and interviews the team worked at ensuring all the data was in, copied, and distributed to the CN team members. Interview summary sheets and the focus groups debriefings were copied and distributed to each member.

Reports were requested from the survey database, one each for: instructors, training facilities, externally delivered courses, and internally delivered courses. In addition two complete course listings were requested. Concern built as the team members realized that the GTC team member could not produce the type of reports they wanted. The provided reason was that the database could not generate the type of reports we were requesting. In private conversations, the Information Technology Training team member stated that the database could generate the reports, but that the GTC team member did not know how. The other concern was that some of the survey information was not in the database. The database had not captured every item. For example the target population, the course goal, and the course content had not been captured because it would have been "too difficult." The responses in these areas were not checkoff categories and therefore difficult to capture. The team determined what reports were possible and requested those. Considerable time was spent by the GTC team member in getting these reports out.

In retrospect the team had underestimated the work involved in the database. There had been no quality check on the data entry and we realized that this was a mistake based on what we now saw. However, we had been continuously assured by the GTC team member that this part of the needs

assessment was well in hand. We had also received regular updates on the number of instructors, and courses entered, and the number of follow-ups performed to get the data from the field.

While in Detroit the team also asked for an employee distribution from the GTC Payroll department. We had asked for a count earlier in the data collection process in order to determine the focus group sample size. However this count had been very broad and did not provide employee counts by job function and work location. The team wanted to know how many employees were trainmasters, track maintainers, carmen, electricians, etc., so that they could determine the magnitude of a training need and also generate potential training costs if these were required. This report required a serious effort by Payroll as the system was not set up to produce an employee distribution by job function. After discussion, they produced a distribution that listed all the work locations and the number of employees for each job title at that work location. Back in Montreal a temporary employee was given the report and asked to restructure the report to show the number of people who had the same job title. It was a tedious, frustrating task as job titles were sometimes very ambiguous. In the end the data were not used.

### *Analysis Guidelines*

In this same week the team had short, tight, discussions on how to do the analysis, and prepare the findings and recommendations. A general guideline for the analysis output was worked out during the Detroit week and was provided to the team members. The instructions on the suggested format were:

1. What exists? Describe/list the facilities, instructors and courses.
2. What is needed? Use chart format below.

Identified Need	Target Group	Frequency	Indicated By	Comments

3. Summary of findings in text format
4. Recommendations in text format

Each team member was to produce a document for their function.

A tight schedule was constructed that allowed one week for analysis followed immediately by a team meeting to review the findings, and develop overall recommendations. From this output, a presentation would be prepared for preliminary presentation to Operations Training the next week, with the final presentation the Senior vice-president of Operations. The total time for analysis was a little over one week.

### *Actual Analysis Process*

The CN team member took their copies of all the data back to Montreal and analyzed it for training needs relevant to their function. Thus the team member from System Training (HR) analyzed the data for supervisory and management development needs, and related soft skill needs such as running effective meetings. The team member from Information Technology Training (IS) analyzed the data for training needs related to PC and mainframe computer applications. The team member from Operations Training focused on technical training needs. The Marketing team member focused on Marketing training needs. All captured any issues that seemed broad, or overall to the organization.

The Operations Training analysis involved a detailed review of the reports from the survey data base. Most of the GTC facilities, and instructors, and many of the courses were for technical training. The detailed review was important to the Operations Training analysis because the director of Operations Training wanted a very clear picture of the current state of training, so that decisions could be made on how technical training could be done in GTC. In this detailed review of the data base output, inconsistencies and holes in the data became apparent, particularly in the training facilities and in the instructor reports. Significant, known, training equipment was not listed: a boxcar that was equipped with freight car and air brake mockups and had been used to provide refresher training for car inspectors, a jumbo tank car that was equipped with numerous examples of valves and related equipment, and a locomotive simulator that was in a mobile van and used for locomotive handling training. Known instructors were missing from the data, and other people were listed who

would not be considered instructors. In addition, course duration on two reports were not consistent. A course was listed as fifty-six hours in one report and fifty-six days in another. The course, an apprenticeship program, was in fact fifty-six days. Several phone calls back to Detroit were made for clarification and to fill as many of the holes as possible. In an update meeting on the progress of the project, the team member advised the director of Operations Training of her concern over the missing, incomplete data. It was agreed that the known holes would be filled, but then data collection would stop because the presentation had to be prepared. Despite this agreement, the holes in the data haunted the analysis week, as the Operations Training team member struggled to close the holes, and discovered more. The detail that the director wanted, simply was not there.

Reviewing the interview summary sheets and the focus group write-ups was time consuming. Each document had to be reviewed, and training items identified by who needed the training and who had stated the need. During the analysis week, two team members emailed the group to point out that they would not report frequencies in their data as it was misleading. A frequency of one could represent a focus group consensus, the opinion of one focus group participant or one interviewee. There was disagreement on this, and the other two team members left the frequency in. The feeling was that it did give some idea of the scope of the training concern and that the possible interpretations of frequency could be addressed in the report.

The project leader came to Montreal for the analysis meeting. Team members came to the meeting with their findings and recommendations in various stages of completeness; final draft, working draft, and handwritten notes. The Rules analysis was presented in memo format. All had findings and recommendations ready for discussion, no matter what the format.

In the meeting it became clear that there were functionally specific training findings, broad overall training findings, and findings that were not training issues. To clear up confusion, the team reviewed all the findings and identified each as functionally specific, overall, or a non-training issue. There were no surprises in the findings. The overall findings and recommendations were more or less consistent across the team members.

In the meeting the group reached consensus on the overall, broad findings and recommendations. There were no challenges to the functionally specific findings. The group agreed to finalize their findings and recommendations and provide copies to the Operations Training team member for the presentation to the Operations Senior Vice-president.

## **Reporting Results**

### *Findings and Recommendations*

The needs assessment results provided in the presentation to the Vice-president of Operations are reported below. These results include the findings and recommendations for technical, computer, and supervisory and management training needs that applied to the Operations function. The Marketing findings and recommendations are not included as they do not apply to Operations. The focus of the presentation was on technical training needs because the presentation was made by the Operations Training department, which is responsible for technical training in Operations. Appendix D provides a copy of the Operations Technical Training report. This report contains greater detail on the findings, but is restricted to technical training.

The results in the final presentation included:

- Findings - Organizational Issues
- Findings - Current State of Training in GTC
- Findings - Training Needed to Support Integration
- Findings - Training Needed to Support On-going Operations
- Recommendations

#### *Findings - Organizational Issues*

During the needs assessment, organizational issues that have training implications came to the surface. These issues were not restricted to one particular function.

- Employees are deeply concerned about GTC's future and their own future. This concern overshadowed all the study. Employees feel that there is a lack of information and direction about the



integration. They want to know where the company is going, so that they can get out there and do the job.

- Cross-functional understanding is needed to improve inter-departmental cooperation. Scheduled employees, particularly those in the field, expressed concern that they did not understand how other departments worked. They feel that this lack of knowledge, and the increasing competition for limited resources has hurt cooperation.
- Management must emphasize communication and team work. The management style was seen as being directive, rather than leading by the scheduled employees.
- Quality is not fully integrated into daily operations. Employees in the field, who were not aware of Quality sessions being planned by management, felt that the Quality initiative was stalled.

#### *Findings - Current State of Training in GTC*

The findings on the current state of training in GTC include overall training issues, as well as the training, instructors, and facilities.

- Training is not a managed activity, except for legislated mandatory training required for Rules, locomotive certification, and hazardous materials.
- Insufficient time, personnel resources, and money are available for training. There is no dedicated training budget. There are four permanent instructors in the Operations function. These instructors are for Rules and locomotive engineer certification training. There are no full time instructors for technical skills training or for supervisory and management training. Due to the tight resources it is difficult to release employees and supervisors for training. Supervisors have little or no time to provide on-the-job training to their employees.

- Management and employees feel that training would improve if it were standardized structured training, and provided by qualified training instructors.
- Very little supervisory and management training is being done. Supervisory training is ad hoc. There is little or no supervisory or management skill development.
- PC training is available to meet current needs. However, end-user training on the mainframe systems is limited.
- There is little structured technical training in Operations. Technical training is primarily unstructured on-the-job training with a supervisor or co-worker. Since January 1990, the only significant training efforts were for Rules and hazardous materials training. No training was provided for track employees, car maintainer or inspectors, motive power employees, work equipment employees. Externally delivered courses were primarily specialized training for signals and communications employees.
- Permanent training facilities exist in Detroit, Battle Creek, Pontiac, and Flat Rock. The Detroit facility is for PC computer training. The remaining three facilities are for Rules, locomotive engineer certification, and for hazardous materials.

*Findings - Training Needed to Support Integration*

There were two primary questions in the needs assessment. One was what training was required to support the integration effort, and the other was what training was required to support on-going operations. The training needed to support integration is reported below.

- TRACS/YIS was the most frequently mentioned implementation and training priority for the integration effort. The TRACS/YIS implementation was targeted for the early 1993. Implementation of this mainframe train and equipment reporting system will create a critical training need for a large population in a short period of

time. Many other mainframe systems, which use TRACS/YIS as a support platform, are under consideration for implementation, e.g. REPAIRS, FIRST.

- Signals and Communications is considering implementation of its computer systems, e.g. UNIX and SCIMS. Implementation depends on computer purchases for the GTC companies and other factors.
- Motive Power is considering the implementation of CN motive power maintenance standards. This decision is pending for 1993.

*Findings - Training Needed to Support On-going Operations.*

Technical training needs for new employees and for upgrading existing employees were reported by functional group. In addition there were major training needs that were not exclusive to one group, but crossed functional lines: railway operation, safety, hazardous materials, and Rules.

- Railway Operation

The need for a better understanding of railway operation was identified a significant number of times in interviews and focus groups. Frequently referred to as cross-functional training or railway operation by the employees, this need actually has three different focuses.

Headquarters employees, in particular those whose work interfaces with operating employees in the field, need training that provides an understanding of how a railway operates - an introduction to railroading.

Scheduled employees, particularly those in the field, expressed a need for cross-functional knowledge. They are concerned that they do not understand how other departments work, or how their work coordinates with these other departments. They feel that if they

understood the operation of the different groups and departments, they could work more cooperatively together.

In Transportation there is a more specific need for understanding railway operation. Field employees feel that trainmasters, yardmasters, and dispatchers do not have sufficient operating knowledge and experience, or knowledge of their territory.

- Safety

Safety is a large concern for the Maintenance of Way, Mechanical, and Transportation employees. Safety training is important for all employees, but most critical for new employees. In addition employees with service do not apply safety rules sufficiently well. This can be both a training need (employees do not know the rules or how to apply the rules) and a need for increased safety awareness in the field (employees do not understand the consequences of not following the safety rules). A safety program is currently being implemented in GTC.

- Hazardous Materials

Training needs for hazardous materials were identified for several groups. Mechanical employees require training in inspecting freight cars and responding to incidents. Transportation employees require training in inspecting and in responding to incidents. Maintenance of way employees require training on appropriate actions to take when required to work near freight cars carrying hazardous materials or when working on track where there has been a spill of hazardous materials.

- Rules

Operations Rules training was not as rigorous in GTC as it is in CN. GTC training is shorter than in CN. Re-qualification is delayed without consequence.

- CSC/TIC employees

CSC and TIC clerks currently receive training on-the-job through co-workers.

Training effectiveness and efficiency would be improved by providing structured training on basic job knowledge away from the working environment, followed by on-the-job training with a co-worker. The structured training should cover basic railway operation and should take place away from the working environment. Knowledge of railway operation is a critical training need as employees with no operating experience are bidding into positions where a knowledge of railway operations is required.

- Maintenance of Way employees

Maintenance of Way employees currently receive on-the-job training.

Trackmen require training in: equipment operation and maintenance, roll by inspections, FRA track standards, safety, hazardous materials, and basic track maintainer skills for new and seasonal workers. The strongest training need is for new hires and seasonal workers who need basic job skill training with an emphasis on safety.

Track foremen require training in: FRA standards for inspection and repair in order to better identify defective track conditions, roll-by inspections, and basic supervisory planning skills.

- Mechanical employees

Mechanical employees are a stable, experienced population. However they have not received significant training over the last few years.

Refresher and upgrade training is required in: AAR Rules, air brake testing in the shop, single car test in the field, freight car inspection and repair on the newer car equipment, measuring dimensional loads, hazardous materials, inspecting and responding to incidents, and safety.

- Transportation employees

Current training for Transportation employees is primarily for Rules and engineer certification.

Trainmasters, yardmasters, and dispatchers require: railway operating practices, territory familiarization, Rules, safety, hazardous materials inspection and incident actions, wage agreements, and drug testing.

Train service employees require training in safety, and Rules.

New train service employees require an orientation to railroading, basic job skills, and safety training. A training package is available for new employees, but an instructor must be identified.

- Wrecking

Wrecking in the GTC companies is handled by outside contractors. Therefore there is no need for crane operator training.

Training needs were identified for employees working at a wreck site: first aid for Mechanical employees, responding to hazardous materials incidents for Mechanical employees, and interdepartmental understanding for Transportation employees.

- Signals and Communications employees

Signals employees are a stable population. In the past signalman training was provided through outside facilities such as BN and ROLM.

Signal employees require training to upgrade for new technologies and procedures and for signalman apprenticeship program. GTC management would prefer that signal training be provided in CN facilities.

### *Recommendations*

The recommendations reported to the Senior Vice-president covered technical, supervisory and management, and computer systems issues. The recommendations for human resources, computer systems, and for Rules were integrated into the presentation to provide a broad view of all the training needs for Operations employees. The recommendations for these groups were presented in highlight form and were more detailed in their individual reports to their own functions.

In the presentation, the emphasis was that training is essential for integration and on-going operations in GTC, and that GTC requires CN's support to meet those needs. The appointment of the Director of Training was presented as critical to ensuring the successful coordination and management of GTC training.

The recommendations are listed below.

- Intensify a communication program that directly addresses employee concerns about integration.

The communication program should address the employees' need to know about the integration goals and plans, what must be accomplished to achieve the goals, and what it means to be part of CN.

- Appoint a Director of Training for CN North America - US.

Appointment of a Director of Training in GTC would greatly facilitate the coordination and prioritization of all training requests by GTC. This position would: address funding and personnel resource issues for training in GTC beginning in 1993, monitor training needs, develop and implement a corporate training plan, coordinate and direct training activities in GTC, ensure instructors are trained as instructors and qualified in their subject, ensure employee training is recorded in a training data base, and work with CN training groups to adapt and deliver training in GTC. The position should report within GTC, preferably at a corporate level to ensure that the position is composite rather than functional.

- Increase the quality and quantity of technical training, using available courses through Operations Training

Technical training is to be provided in Operations Training facilities or in existing facilities on the GTC, depending on the number of trainees and urgency of the training.

When appropriate, instructors in GTC are to be trained by Operations Training to deliver a training package and are to be supplied with the appropriate materials.

Further study is required for each training need to ensure that CN training fits in the US regulated environment and does not contradict the GTC inspection, repair, and maintenance standards.

- Initiate an intensive training needs assessment for Rules Training

Further study is required for Rules Training. This needs assessment would look at induction training for operating employees and train dispatchers, qualification standards for running trades employees, initial and refresher Rules training,



mandatory training and retraining of non-operation employees, and operating rules safety training.

- **Human Resource Training**

Implement a communication package and process to support the integration at GTC. Actions would include implementing the Managing Change workshop, adapting and implementing the workshop on CN Goals, Mission, Vision, and Values, and develop training for an overview of CN, basic railroading, corporate orientation as well as for cross functional understanding.

Promote and reinforce a new leadership style involving communication and teamwork. Develop training in communication and teamwork. Integrate GTC management into CN's leadership programs and Managing Our Business course.

Implement CN supervisory programs in GTC.

Purchase programs for specific identified soft skill areas such as conducting effective meetings.

Adapt and implement courses on labour relations, equity, sexual harassment, and human rights. The courses must be adapted to reflect U.S. laws.

- **Quality**

Ensure Quality receives emphasis and reinforcement. Push quality through awareness sessions to union employees, and emphasis on Quality principles by management.

- **Computer Systems Training**

Implement the electronic mail system used in CN to support and facilitate communication in CN North America.

Ensure training is an integral component of systems implementation plans.

Establish a position to coordinate and manage mainframe training initiatives as implemented.

Use available GTC resources to provide training on systems.

Ensure PC application software is standardized and provide training only for approved packages.

### *Communication to Management*

#### *Progress Updates to Management*

Throughout the needs assessment process each team member had kept his or her training manager up to date on the progress, and later on the findings and recommendations. In Operations Training the team member gave informal updates at the regular staff meetings and had six scheduled update meetings in which the Director was provided with a one page summary of progress. The one-page format was very acceptable to him. As he pointed out, he did not have the time to go through all the detail. If he needed detail on a specific item, he would ask. In this manner he was kept informed of the progress of the needs assessment, the findings, and the recommendations.

#### *Needs Assessment Report*

Early in the needs assessment process the group had been concerned about producing a report by the end of June. This had been resolved when the project leader had suggested that a presentation of findings and recommendations was all that was needed. When approached with this suggestion, the director of Operations Training had agreed. In fact, a large training survey performed in CN in 1988/89 had never generated a formal report. The findings and recommendations were only available in a hardcopy of the presentation to the senior executives.

In the Detroit week in June, the issue of the report was raised again. The project leader considered the report useful for GTC as it would be the starting point for training in GTC. The team member from Information Technology Training also was in favour of the report. She had been informed the week before that Information Systems management expected a report. The team agreed to generate a report, with the proviso that the final version of the report could wait until the Operations presentation deadline had been met. It was agreed that each team member would produce a mini-report of the findings and recommendations for his or her function. This document would then become part of the appendices in the final report. The proposed report outline followed the standard report construction.

- Executive Summary
- Table of Contents
- Background
- Methodology
- Findings
- Recommendations
- Appendices
  - Human Resources
  - Operations
  - Marketing
  - Information Systems
  - Rules
  - Employee Distribution
  - Course Listing

The project leader agreed to write the body of the report with some help for the Methodology section. The Operations Training team member offered to provide a draft for him.

The project leader at this point made a strong point that the Recommendations section have an action plan, consisting of an implementation plan for immediately available training and a development plan for outstanding training. His manager, the Vice-president - Corporate had suggested that the report include this. Preparation of an action plan

was discussed by the team. It was pointed out that a precise implementation plan would be very difficult to provide, given the amount of time and the type of information that had been collected. After some discussion, the team member from Human Resources suggested it was possible to come up with a tentative implementation plan for the supervisory training program. This was not provided, in the end, because Human Resources felt it made more sense to develop an implementation plan when a Director of Training for GTC was in place, and more time could be devoted to developing the plan.

The project leader advised the group that there were two audiences for this report, the GTC audience and the CN audience. Findings and recommendations must be stated in non-judgmental terms. If wording caused a negative reaction in GTC management, the report could be rejected.

Interestingly, the GTC team member was very enthusiastic about the report. He felt strongly that desk top publishing would be a critical bonus in the presentation of the report and he volunteered to do the desk top publishing. The team members were somewhat wary at this point, and wondered among themselves if there would be value in this. However he was insistent and in the end the team members agreed to supply not only hard copy, but also electronic copy of their appendices. Later, on the day of the presentation to to Operations management, the project leader brought a preliminary draft of the GTC team member's efforts and showed the work to the team members from Information Technology Training and Operations Training. When they saw the work, they were firm in stating that the work was not acceptable. The layout was poor. But far worse, the individual had taken the liberty of reordering all the text in the appendices. He had grouped all the functional findings together, all the functional recommendations together, and so on. This was in direct contravention of the purpose of the appendices. Each appendices was designed to be a stand alone document, so that the respective functions could review the findings and recommendations for their function. It was at this point, and only at this point, that the team members stated their opinion of the GTC team member; that he was the type of person who did busy things, but not necessarily quality things. The project leader, who had not had the time to review the effort prior to the meeting, was in agreement that the work was

not acceptable and that a better approach would be to simply put each appendices in the report exactly as they had been prepared by the team members. The body of the report did not require desk top publishing either.

The report was originally scheduled for completion by mid-August. Vacation schedules, including that of the project leader, interfered with this plan. It was re-scheduled for September, then October, then November. In the end, the report was never generated, despite several follow-ups by the team members from Information Technology Training and from Operations Training.

### *The Presentation*

The Operations presentation was prepared by the Operations Training team member using the mini-report/appendices and notes on the agreements reached in the analysis meeting. Her task was to prepare an acetate presentation to be given by the project leader to the Senior Vice-president of Operations. The presentation was to cover the training issues for Operations employees in GTC. This included the training needs for technical skills, Rules, computer systems, and management and supervisory development. The marketing findings would not be included as this was a different function. It had been agreed very early that the Operations presentation would include all relevant training needs, and that this included all the other training groups except marketing. Therefore the presentation had to represent fairly the findings and recommendations of all the groups, maintain an Operations focus, and use wording acceptable to the GTC management. It was to be about twenty minutes long.

The presentation was developed over the first week and a half of July. During that time, the material was reviewed at regular intervals by the project leader. He reserved most of his comments until he saw the preliminary acetates. Apparently he was accustomed to presenting from acetates and not from presentation notes. The presentation acetates were also reviewed, separately, by the CN team members. The director of Operations Training was out of town that week and, although he had been consulted prior to his departure, comments specific to the presentation could not be solicited until the dry run of the presentation.

The presentation dry run was in effect a formative evaluation of the presentation. This dry run of the presentation was made by the Operations

Training team member, and attended by the project leader, the director of Operations Training, the director of development for Operations Training, the manager of Information Technology Training, and the team member from Rules and Training. Comments centered on form, content, and duration. The presentation was thirty-two minutes; this was considered too long. Unfortunately, there was only one small area where the text could be reduced. Some wording was modified at the project leader's request to make the message more palatable for GTC management.

The major concern from both the project leader and the director of Operations Training was that there was no specific action plan. They were looking for an action plan that specified the next recommended steps. Their focus was different in that the project leader was looking for specific implementation dates for the recommended training. The director of Operations Training was looking for an action plan that recommended a training organization, and what instructors and facilities would be used to deliver training. In this dry run presentation they had to come to terms with the fact that they did not have a detailed plan such as they envisioned, even though both had known what the recommendations were. The project leader had helped formulate them. The director of Operations Training had been given regular progress reports and had been advised that a training plan was not possible with the information that had been collected.

It was pointed out that the primary recommendation, the appointment of a director of training for GTC, was the action plan. This was the first and very necessary step. GTC had to buy into this for the rest of the recommendations to follow. Once in place the GTC director of training would develop a specific training plan, taking into account the priorities of both integration and on-going training needs. The GTC director of training would act as a promoter of training in the organization and as a gatekeeper to ensure that the organization was not swamped with training. This point was accepted. In fact the director of Operations Training later said he would make it clear in the meeting that this recommendation was the action plan.

It was interesting that the training managers, who were experienced trainers, accepted the recommendations as they were. They seemed comfortable without a specific training implementation or development plan. However, the two people with the stronger railroad management

were not comfortable. Both were driven by the need to provide an action plan for their management. Railroad management is generally action oriented. They want quick decisions and actions. GTC is remarkably action oriented. People in CN have commented on GTC's flexibility and the way that the organization could implement decisions in very short order.

The problem was that the needs assessment goal and scope had been broad. It had not been designed to capture the type of information needed to detail plans for the implementation of existing training, the development of new training, or the creation of a training organization. To produce the action plans the director and project leader wanted, more information was needed. More information could only have been gathered with more time or by narrowing the scope of the needs assessment to concentrate on one area. If the needs assessment scope had been narrower, then the team would not have been able to report the broader picture and the overall needs of GTC. With the broader picture, the rest could move into action.

After the dry run the requested wording changes were made for the project leader who wanted to first use the presentation in GTC. He felt strongly that GTC management had to know the needs assessment results before the Senior Vice-president. The presentation went well. GTC management reacted positively to the results. He asked however, for "minor" word changes to make the presentation more palatable to GTC. This exercise in word changes really shows how critical it can be to find wording that states a negative feature in a upbeat way. Both of the statements that had to be changed were a reflection on GTC management. Instead of "Quality is not yet integrated into daily operations," the text was to read "Quality is not fully integrated into daily operations." The original statement had read "Quality is stalled." The second change was from "Management should communicate more and use team concept" to "Management must emphasize communication and teamwork." The Operations Training team member balked at the suggested phrasing "Management must continue to communicate and use teamwork." The original wording had been "Management is seen as directive, not leading."

The presentation was made on the appointed day to the Senior Vice-president and the Assistant Vice-president. The director of Operations Training used the opening minutes of the meeting to prepare the ground for the needs assessment results and to build support. There were to be no

surprises. The presenter was the project leader. He had actually been reluctant to make the presentation. Perhaps he did not want the needs assessment results to be too closely attached to him.

The presentation went very well. The findings and recommendations seemed to match the view points of the Senior Vice-president and the Assistant Vice-president. They had already sensed that training had not been a priority in GTC in the past. The needs assessment confirmed their perception. In particular they were pleased that the recommendations did not recommend additional instructors or facilities, but worked within the existing resources to coordinate and provide training.

#### *Outcomes of Presentation to Vice-president*

The major decisions of the meeting were that:

1. GTC Director of Training was to be appointed. This was not to be a new position, but rather a re-profile of an existing position. An existing position would assume these responsibilities. The preferred candidate for the position was the project leader.
2. GTC was to be treated as a district and not to be charged for their training. The principle goal is to integrate.
3. Training efforts must be prioritized and cost effective decisions made.

The appointment of the project leader as Director of Training for CN North America - US took place within a week. With this person in place the rest of the recommendations could be implemented. The project leader was viewed as a strong person for the position. From the needs assessment he had a broad scope view of the training needs in GTC. He had the contacts and positive image in GTC to promote training. He had established close contacts with the CN training groups through the needs assessment and through his efforts to attend training related meetings in CN. Just as importantly, he was not associated with any one function. With his corporate background, he could truly act as a composite training manager.

After the meeting the Operations Training team member who had been at the meeting, emailed all the team members the critical results, and met with them to debrief. The only exception was the Rules team member who



was out of town. All team members were positive. With the Director of Training in place, each training function could now meet with the Director and plan the next steps. The focus would be on providing available training. As new courses were developed, GTC would be included in the training plans. GTC's training needs had reflected in a large part the perceived training needs in CN. As the CN training needs continued to be addressed, so would those in GTC.

## **Chapter 4**

### **Discussion**

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#### **Review of Background**

Early in the first quarter of 1992, a request was made by the senior vice-president to the director of Operations Training for a report on how training would be handled in the Grand Trunk Corporation (GTC), a U.S. subsidiary of Canadian National Railways. The request was driven by the anticipated need for training to facilitate the integration of the Operations and Marketing functions in CN Rail and GTC into a new organization called CN North America. In discussions with other training managers, it was decided that a joint effort would be beneficial, as it would share the workload and produce more comprehensive results. After consultation with GTC, a multi-functional team of training professionals was assigned to a needs assessment project with a project leader assigned from GTC.

The needs assessment team started planning the needs assessment in March and had completed the initial planning by the end of the month. The plan's scope was reduced after concern for the deadline was expressed both within the team and by two training managers. The plan consisted of four phases; 1) determine current state of training in GTC, 2) determine training needs for integration and on-going operations, 3) compare training needs to CN, and 4) write and submit report.

Data collection started in mid-April with a survey to capture the current state of training in GTC. Structured interviews with GTC vice-presidents and functional heads started in early May. Structured interviews with CN functional heads were performed in early June and late June. Focus group sessions were conducted in an intensive one week effort in mid-June. Analysis of the collected data was done individually for each function by the responsible team member, and reviewed and refined in a team working session in late June. The third phase, compare training needs to CN, was never undertaken because of time constraints.

The results of the needs assessment were presented to the senior vice-president of Operations by the project leader in a presentation in mid-July. The major recommendation, that a director of training be appointed within

GTC to handle training for all functions, was immediately accepted. Overall satisfaction with the results was expressed because the results confirmed perceptions about training in GTC and because the recommendations worked within CN's existing training resources. The appointment of the director of training was confirmed within a week after discussions with GTC executives.

Feedback on the presentation and outcomes of the presentation was sent to the team members immediately after the presentation. In addition, three of the team members requested brief meetings to discuss the presentation outcomes and the next steps. It was agreed that the major needs assessment effort was complete and that the training groups would now work independently with the newly appointed director of training.

This chapter provides a discussion of the needs assessment, focusing both on the process and on the team functioning. It concludes with an epilogue that discusses the worth of the needs assessment effort.

### **The Team Factor**

A major feature of the needs assessment project was the multi-functional team. The team was formed because the training managers for Operations Training, Information Technology Training (IS), and System Training (HR) felt that a joint effort would be to their benefit, producing more comprehensive results while sharing the workload. Two other training groups joined when the decision to go ahead with the needs assessment was made. Since 1988 when a large training survey was conducted in CN, the training groups have striven to work cooperatively to improve the overall training process in CN. Cross-functional special task force teams have been formed and have worked successfully. The needs assessment team was viewed as a special task force.

Training organizations often organize teams to accomplish activities. Most are formed for development projects. For example, a team composed of a training developer, subject matter expert, and instructor may work on the development of a technical training course. Bragg (1992) writes that training organizations organize three types of teams: training management teams that routinely work together to establish policies and managerial processes for training organizations, training development

and delivery project teams that work together to develop and deliver training products, and special task forces that are brought together for a short term to address a particular issue. Within CN these three types exist. The training managers of the four larger training functions have formed themselves into a training management team that meets very regularly to discuss joint concerns and corporate training policies. Special task force teams with multi-functional composition have been formed, through the training managers' cooperation, to work on training issues, such as the development of training standards for CN, and literacy in CN. Within the training functions, teams are regularly formed to develop and implement training products.

### *Features of the Team*

The features of the team are significant as they set the stage for the operation of the team. The major features were that

- the members were pulled from several training functions and a US subsidiary;
- the team members were all part time, rather than full time members;
- five were located in Montreal and two in Detroit;
- the Montreal (CN) members had worked with each other on teams, either briefly or extensively; and
- the Montreal (CN) team members were professional trainers, while the project leader had no training experience.

### *Multi-functional*

The team members represented six separate training functions; five of them based in Montreal. The project leader and one other team member were from GTC, which had been a separate US corporation for over 20 years.

The different reporting relationships meant that the team members had to balance the team's project goal against the project expectations of their different functional management. This caused some stresses for perhaps three of the team members. The director for Operations Training expected the needs assessment to address very specific issues; whether a training

facility was needed, and how track training, welding training, locomotive engineer training, etc. was to be handled. The multi-functional scope of the needs assessment and the tight time frame did not allow this type of detail to be gathered. The Rules manager expected a 'quick and dirty' study that determined the extent to which Rules training courses had to be implemented in GTC. The scope of the needs assessment was broader than needed for this. The Marketing manager questioned whether the study should even be done in view of the expected changes in Marketing.

A more significant factor was that the priority that a manager placed on the project influenced the team member's priority and the amount of time he or she was available. For example, the Operations Training team member had a high priority on the project, as did the director of her training function. Operations Training was one of the training groups that initiated the effort, and the project deadline was set to meet Operations Training's need. The Rules team member had a low priority on the project, as did his manager. Rules had not been part of the initiating effort, but had been encouraged to join the needs assessment effort after the project was established. The Marketing team member initially placed a high priority on the project, but after feedback from his manager reevaluated the project value and placed its priority much lower. The Systems Training (HR) team member also re-evaluated the project priority downward. The primary reason was that the scope of the project was not as expansive as she had anticipated. A contributing factor could have been that her manager had left and the replacement did not follow the project closely.

The differences in the priority assignment influenced the availability of the team members for meetings and influenced their commitment to the project. Therefore the team members from Operations Training and Information Technology Training were consistently available for meetings and stayed the entire week in Detroit, whereas the Rules team member was only sporadically available and attended only one day in Detroit. The other two Montreal team members attended a majority of the meetings and attended three to four days in Detroit.

#### *Part Time Members*

No one on the team was assigned full time to the project. All team members had to balance an existing workload and other responsibilities

against the needs assessment. Teams composed of part time members can have difficulty capturing full commitment to the team and a sense of accountability for the outcome (Barner, 1989). This difficulty did arise during the project and was compounded by the cross-functionality of the group.

The conflicts with other workload meant that at least one, and frequently two team members would be absent from a meeting, and have to catch up through the minutes of meetings and in the next meeting. In the middle of the project there were considerable gaps in the data collection progress as the team members and project leader were pulled away on business trips and for other responsibilities. By the middle of May these same gaps, along with the relative importance placed on the project, caused some team members to lose track of progress and significant next steps. There was confusion and tension over whether we were doing focus group sessions, and over the proposed trip to Detroit. However once the critical team members realized what had happened, there was a concerted effort to get back on track and to resolve the issues and resultant tensions. The working relationships, previous team experience, and the professionalism of the team members ensured resolution through a rapid sequence of emails, phone calls, and mini-meetings.

#### *Geographically Split*

Five of the team members were located in Montreal and, although in different buildings, could easily meet and communicate by telephone and electronic mail.

Two of the team, including the project leader, were located in Detroit. These two were not connected to the team by electronic mail. Communication between Montreal and Detroit was by telephone or through faxes. Meetings were either all-day meetings with the GTC members in attendance, or were shorter conference calls. Extensive use of the telephone, the fax machine, and electronic mail kept the team members current. The CN team members ensured that all members, including those in Detroit, were kept informed via electronic mail or fax. The Operations Training team member became the major conduit of information from Detroit to the rest of the group, passing messages and materials to the Montreal team members.

The responsibility to keep all team members informed was accepted by the team members. Due to time constraints or the extra steps involved, it would have been easy to forget to fax to Detroit or to forward a message from Detroit, yet this never happened. Although the logistical problems related to geographical distance were overcome, the geographical distance did hinder the team from fully forming.

#### *Established Team Behaviours*

The CN team members were all known to each other as members of the CN training community. They had worked together in the past on various training projects and committees. Notably all had worked, some extensively and others only briefly, on a multi-functional team responsible for the development of the CN training standards. This committee was in its final stages when the needs assessment project started up. Therefore the team member's preferred working styles and different training values were known factors at the start of the needs assessment.

Meeting techniques in the team were well established. Meetings early in the project had agendas, and assigned scribes, facilitators, and timekeepers. Minutes were always provided. Meetings held later in the project were work sessions and less formally conducted. Agendas were quickly established, but not prepared formally, and facilitators and timekeepers were not formally assigned. Facilitation skills were well developed within the team members through experience, and additionally through training in the case of two of the team members. High level facilitation skills were not used in meetings. High level facilitation techniques are required more when a team is in serious trouble either through its inability to meet its performance target, or through volatile conflicts between team members (Barner, 1989; Bragg, 1992).

#### *Training Expertise*

The Montreal team members had considerable training expertise between the team members. All were full time training professionals and had been in training a number of years. Four were either in a Masters level program in educational technology, or had completed it. Experience in performing a formal needs assessment varied from none to some, to

considerable. The team member from GTC had no experience in needs assessment and not much in training.

The project leader in GTC had no training background, and openly acknowledged this. He relied on the Montreal team members to provide their expertise in training and in needs assessment. This feature had considerable ramifications for the project leader and team roles.

### *Summary of Team Features*

Three of the team features contributed to team dysfunctionality during the project. The multi-functional nature of the team, the geographical split in the team, and the part-time membership in the team prevented the team from fully forming as an effective team. These features were overcome in Detroit when the deadline was very tight and all the team members were in one location in Detroit. During that week the team worked full time, out of one communal office, to complete the data collection.

### *Project Leader and Team Roles*

The team leader was the Corporate Secretary in GTC and was considered by the CN training managers to be a very acceptable appointment because he was from GTC. Rather than doing the needs assessment on GTC as a big brother/sister act, GTC's approval of and commitment to the project had been solicited before establishing the team. In addition, GTC had been asked to appoint a project leader who would provide knowledge of the corporation and the people within the corporation. The project leader was considered very suitable because of his corporate, rather than functional alignment, and the number and high level of his contacts both within GTC and within the CN executive. His significant lack was that he had no background in training.

### *Project Leader Role*

The project leader viewed his role as that of a project manager who would be the team interface with GTC executives and management, identify suitable sites and people as information sources, pull in resources in GTC, and make final decisions after committee discussion. This role he fulfilled completely. His strengths came to the front when the project moved



into data collection. His contacts and knowledge of the US railroad greatly facilitated the execution of the data collection phase. He was able to organize a total of eleven focus groups, with seemingly little effort. Part of this ease can also be attributed to the compact nature of the Grand Trunk Railroad.

The project leader saw the role of the CN team members as that of the process experts. The CN team members would provide process knowledge and skills, guidance in developing and implementing the plan, guidance in tool design and development, and support for the interview and focus group effort. The CN team members fulfilled these role expectations and more. They developed the plan and the tools, and provided considerable support for the interviews and focus groups.

#### *Team Role*

What is significant about the team is that it was composed of training professionals who had needs assessment process expertise and led by a client representative who did not have that expertise. The project leader did not lead in any area where needs assessment or related training expertise was expected. He believed that the CN team members had the necessary expertise and played relatively inactive role through the planning stages and the development of the data collection tools.

In these early stages, the CN team members assumed the expert consultant role as described by Block (1981). Even though the expert consultant role refers to an individual, many of the characteristics of the expert consultant role apply to the team. The characteristics of the expert consultant role are provided in figure 14.

During the early stages and where the team's expert knowledge of training and needs assessment were required, the project leader played an inactive role. He responded when asked for information or his opinion, but did not attempt to exert control over the technical issues. He judged the team output after the fact. For example, the survey documents were produced by the CN team and then reviewed by the team leader in a team meeting.

<b>Expert Consultant Role</b>
<ul style="list-style-type: none"> <li>• The manager elects to play an inactive role;</li> <li>• Decisions on how to proceed are made by the consultant, on the basis of his or her expert judgment;</li> <li>• Information and problem analysis is gathered by the consultant;</li> <li>• Technical control rests with the consultant;</li> <li>• Collaboration is not required;</li> <li>• Two way communication is limited, as the consultant initiates and the client responds;</li> <li>• The consultant plans and implements the main events;</li> <li>• The manager's role is to judge and evaluate after the fact;</li> <li>• The consultant's role is to solve the immediate problem.</li> </ul>

Figure 14 *Expert consultant role (Block, 1981)*

There were difficulties with this consultant role. The first was that the team was, in effect self-managed, for this stage. The team operated with only a nominal team leader, a figurehead. Within the team there was a shared leadership that revolved primarily between the four Montreal team members with the greatest knowledge of the needs assessment process. This is not to say that the project leader would not have taken charge, if the team was unable to produce. In fact the project leader did note the struggles between the team members over the two approaches to needs assessment. However, he did not step in because he felt that the team continued to function.

There was also the potential for a second difficulty in that projects completed by outside experts (as the CN team members were outsiders to GTC) do not carry the personal ownership and commitment needed for complete success (Block, 1981). However, this potential difficulty was not realized, as the team role shifted into a collaborative one in the later stages of the project.

In the later stages when the project leader's knowledge of GTC and expertise as an administrative executive were required, he provided them and took the initiative. At this point the roles shifted into a collaborative role. The features of the collaborative role as listed by Block (1981) are provided in figure 15.

<b>Collaborative Consultant Role</b>
<ul style="list-style-type: none"> <li>• The consultant and the manager work to become interdependent;</li> <li>• Decision making is bilateral;</li> <li>• Data collection and analysis are joint efforts;</li> <li>• Control issues become matters for discussion and negotiation;</li> <li>• Collaboration is considered essential;</li> <li>• Communication is two-way;</li> <li>• Implementation responsibilities are determined by discussion and agreement;</li> <li>• The consultant's goal is to solve problems so that they stay solved.</li> </ul>

Figure 15 *Collaborative consultant role (Block, 1981)*

This collaborative role grew through the data collection phase and was clearly established by the major data collection week in Detroit. Decision making was characterized by bilateral discussion and by respect for the responsibilities and expertise of both the CN team members and the project leader. Implementation and control issues were discussed and decisions reached based on the maximum use of the available resources, skill and knowledge. Examples of this would be the discussions on the best possible team assignments for the focus groups, and also the discussion on who would contribute what within the necessary time frame for the report. Communication was two-way with both the project leader and the team members taking the initiative depending on the issues. The CN team members and the project leader worked together with the understanding that events and decisions could only be effective by joining their skill sets; specialized process knowledge and organizational knowledge.

This move to the collaborative role was critical to the success of the completion of the data collection, the analysis, and the report. The implementation of the data collection events went very smoothly. Needs assessments are more successful when management participates in the process and buys into the process and the results.

By the later stages of the needs assessment process, the project leader was very clearly in a learning mode. He was interested in training and in particular, issues such as budgeting, organization, and process. The team members supported this and so he was expressly invited to the CN Training

Conference held in early June, and to the Operations Training semi-annual managers' meeting. He was recognized by the team as their preferred candidate for the director of training position, which was to be one of the critical recommendations in the needs assessment.

At all stages of the project, interactions between the project leader and team members were consistently open and respectful of the expertise provided by each.

### *Project Leadership*

Overall the project leadership was not a typical one. Due to the nature of the team make up (experts led by the client) and the geographical split in the team between Detroit and Montreal, the leadership was frequently shared among the CN team members. This is particularly true in the early stages of the project when the team leader took an inactive role. The CN team took responsibility for coordinating team meetings and setting agendas, for handling team processes and tools, for facilitating the attainment of consensus in decision making, and for resolving conflicts among team members. These are team leader behaviours listed by Bragg (1992) as shown in figure 16.

Bragg (1992) writes that "effective team leaders use strategies that fit the talents and needs of team members in given situations" (p. 11). It is clear that the team leader had chosen and maintained a particular role and strategy in the early stages of the needs assessment. He determined that he would step back to observe and learn the process, while providing any information that the team needed.

Bragg also describes the role of a team leader as being more directive in the early stages of the team development, and less directive, more guiding once the team becomes more cohesive and productive. This did not occur. The team already had team behaviours established through previous team work. The project leader realized this in the first two meetings, commenting that he could see the CN team members had worked together before. In addition they had a technical expertise that the team leader did not have. The team leader chose, wisely perhaps, to maintain a diplomatic posture during team struggles and create an environment of respect for the contribution of all team members.

<b>Team Leader Behaviours</b>	
<b>People-Related Behaviours</b>	<b>Task-Related Behaviours</b>
Showing commitment to a positive team environment  Helping members develop interpersonal communication skills  Resolving conflicts among team members  Maintaining a diplomatic posture during team struggles  Creating an environment of respect for the contributions of all team members	Coordinating team meetings and setting agendas  Communicating consistently about all aspects of the team's responsibilities  Handling fiscal, scheduling, logistical, and other concerns  Maintaining and developing expertise in the use of team processes and tools  Facilitating the team's attainment of consensus in decision making.

Figure 16 *Team Leader Behaviours (Bragg, 1992)*

### *Summary*

Block's (1981) description of the consultant / client role is the most appropriate description of the team / leader relationship. The team operated in an expert consultant role in the planning stages of the needs assessment. The role became collaborative in the later stages of the data collection when the project leader could apply his administrative skill set and network.

### *Team Successes and Difficulties*

Most people can recognize a good team when they see one. These are the teams where team members trust one another, work cooperatively and effectively together towards a shared goal, and produce. People talk about the bad teams they have seen, or worked on; teams where the team members seemed to be in continual conflict, out of their depth, and struggling to produce. However, teams are rarely all good or bad.

### *Successes*

The needs assessment team was a successful team in that it met its target date with an acceptable product. The team members worked relatively well together, sharing their expertise, and their ideas. Bragg (1992) has listed the characteristics of successful teams. These are teams that,

- work to reach consensus,
- act quickly when a decision is made,
- use time in group meetings productively,
- meet deadlines,
- face up to problems and aggressively work to solve them,
- evaluate their functioning continually, and
- strive to improve.

The needs assessment team was effective in the characteristics listed above. They worked to meet consensus, to act upon decisions, to meet the deadlines. When the team became obviously dysfunctional the members faced the issue, evaluated the problems, and resolved them. You could say that the team pulled through, despite the problems.

### *Difficulties*

Yet the fact is that all teams struggle, even when they are good teams. Bragg (1992) has listed some common problem areas where a team may struggle.

- \* making decisions and negotiating for consensus;
- failing to challenge each other's thinking (i.e. falling into group think);
- \* dealing with conflict among members;
- handling the difficult team member;
- \* getting upper management buy-in to overcome roadblocks;
- evaluating the entire team's accomplishment rather than an individual's;
- \* gaining equal contribution from all team members regardless of rank and seniority;
- prematurely jumping into action without thorough analysis of problems;

- holding the team and its members accountable for obligations and deadlines.

Of the potential problem areas listed above, the areas that caused most difficulty for the needs assessment team were those with an asterisk (\*).

Consensus on the project goal was reached after considerable discussion. We certainly did not fall into the danger of group think. However, although consensus had been reached on the project goal, it was not always a shared goal. The group was not unified by the goal, but sometimes divided by it. This is more a comment on the effect of the differing opinions on needs assessments than it is on how well the team worked. There was difficulty in getting upper management buy-in to overcome the major roadblock of insufficient time to perform a more comprehensive needs assessment. Differences in priorities and ongoing responsibilities meant that not all members contributed equally. Tension rose over the focus of the needs assessment process and the fact that not all members contributed equally. However, the team members faced up to the tension and worked to solve the issues. As remarked before, previous team experiences, long working relationships, and the professionalism of the team members contributed to the successful team behaviours.

### *Summary*

In summary, the team was effective in producing a well received product on time. It successfully accomplished the assigned task in the assigned time period. Internal conflicts were resolved in the effort to provide an acceptable product on time.

However the team struggled and did not always work effectively. In fact, the team was dysfunctional for part of the process and only pulled together towards the end in Detroit. Part of the reason for the dysfunction was the nature of the team makeup. The organizational issues and the differing perspectives on what a needs assessment process is, contributed to the dysfunction. The next section of this chapter looks at these other issues.

### **The Needs Assessment Process**

In this section of the discussion, the needs assessment process is examined with respect to the model, the difficulties, and the successes.

## *Needs Assessment Model*

No one model was selected and followed in the needs assessment process. This was not a deliberate decision by the team. Rather it was based on an understanding that needs assessments can be approached in different ways.

### *Actual Process*

In the first project planning session, the team member from Human Resources reviewed the needs assessment process. Her review was based loosely on the needs assessment process outlined in the CN Training Standards, but focused more on Rosenberg's (1990) Performance Improvement System as a visual model to explain the concept of performance and organizational gaps. The process was described as one of problem identification, which could be approached in several ways. The benefits of a macro level needs assessment, in which the starting point would be to determine the organization's goals and current state, were outlined. After considerable discussion on the needs assessment constraints, management expectations, and the reasons for the needs assessment, the group determined that the needs assessment effort would focus on the gaps in training in GTC .

The needs assessment project can be described as an assessment of the training needs in GTC to facilitate integration and on-going operations. The actual needs assessment steps that were followed are,

- 1) Plan the needs assessment
  - Assess the context and purpose
  - Establish a project goal
  - Establish the major phases with suggested sources of data and recommended data collection tools.
- 2) Collect the data
  - Plan, prepare, and conduct survey
  - Plan, prepare, and conduct structured interviews
  - Plan, prepare, and conduct focus groups
- 3) Analyze the data
  - Gather the data



- Analyze the data
  - Prepare findings and recommendations
- 4) Report Results
- Present findings and recommendations to management

### *Comparisons to Models*

In retrospect the process that the team followed was basic to all needs assessments. And the process is very similar to that described in the CN Training Standards (see appendix E), yet it was only referred to briefly in that first meeting. The CN Training Standards has six basic steps 1) assess the context and purpose, 2) select the techniques and tools, 3) develop a needs assessment plan, 4) conduct the needs assessment, 5) analyze and synthesize data, and 6) communicate the results and recommendations. Interestingly in the CN Training Standards the challenge of the needs assessment process is described as "To perform a thorough, effective, purpose-based needs assessment and still work within reasonable time expectations, organizational constraints, and budget limitations" (p. 14).

If the actual process did not follow any particular model, the next question is what model did it approximate, other than the CN Training Standards. It is easiest to compare the actual process against needs assessment models, following Sleezer's (1992) description of models by where they start in the analysis process, where they end, and what they produce.

There are two general categories of models based on where they start in the analytical process. One category assumes the training or performance need has not yet been identified, and the second category assumes that the training or performance need has been identified. The GTC process started with a request that training needs for GTC be identified. So in this respect, the process matches Rossett's model (1987) rather than Kaufman's (1982).

Rossett identifies three initiators for a needs assessment: a performance problem, the introduction of a new system or technology, and an automatic or habitual training request. The initial thrust for the GTC needs assessment was the integration and the proposed introduction of CN computer systems and technology into GTC. It was supported by concern by the training groups and functions that GTC did not provide training except that which was mandated by legislation. Thus the primary initiator for the

needs assessment was the introduction of CN systems and technology into GTC. The secondary initiator was a concern that GTC needed training, an automatic training request.

The initiating reason for a needs assessment generally determines the scope and level of the needs assessment. In the preliminary planning session, a thorough assessment of the purpose and context of the needs assessment caused the team to focus the project on GTC's training gaps for the integration and for on-going operations. This focus places the GTC needs assessment at the product level using Kaufman's Organizational Elements Model (1982, 1991). In his later writings (1991, 1992) this is called a micro level needs assessment. The needs assessment level is limited to a product (trained employees) that is delivered to internal units within the organization. Rossett's (1990) macro and micro levels are based on the scope of the needs assessment rather than on the organizational level. Using Rossett's levels, the needs assessment was at the macro level, a broad scope assessment where the skill/knowledge domain is not specified.

The ending point of the needs assessment was the presentation of the needs assessment results and recommendations to management. Each CN team member produced a mini-report for their function. In addition a presentation was made by the project leader to vice-president of Operations and to the director of Information Systems. Most models end with a report to management, that lists the findings and recommendations (Robinson and Robinson, 1989; Rossett, 1987).

After the comparisons, one question to ask is "Was this a needs assessment?" The answer is yes. The needs assessment was based on a general discrepancy model. It looked for the gaps in training in GTC by determining the current state and the desired state of training. It preceded the implementation of any interventions. Rather than jump to provide training, the training managers made the decision to investigate the training requirements in GTC first and in a comprehensive manner. There was a distinction between problems that could be addressed effectively by training, and those that should be addressed through other means. This was clear in the analysis phase when the findings were scrutinized to identify non-training issues from training issues. The GTC needs assessment fits into the general description of a needs assessment. It was not however, a needs assessment conducted at a holistic organizational

level such as recommended Kaufman or by Rosenberg. The needs assessment was not directly tied to the desired output of the GTC organization.

### *The Difficulties*

There are in every project, things that go well and things that do not go well. In this project the major areas of difficulty were in the agreement on the needs assessment approach, and the organizational support. Minor difficulties were encountered in logistics.

#### *Agreement on Needs Assessment Approach*

One of the difficulties in conducting a needs assessment is in having a common agreement on what approach to follow. It is important to the success of a needs assessment that all those involved agree on what the process is and how it should be done. This agreement must exist between the sponsor and the team, and among the team members. The fact is that there are many definitions of needs assessment and different views on when an activity is or is not a needs assessment. As Sleezer (1992) writes "labeling a planned activity as a needs assessment is insufficient to communicate the intended "inputs," "through puts," and "outputs" of that analytical process" (p. 40). Therefore at the very beginning of the process it is essential to clarify expectations about the process and its results.

The CN team members were aware that there had to be consensus on the project. For that reason, they met before the first full team meeting to share information and to ensure there was a common understanding of the project. Then in the first full meeting there was a deliberate effort to ensure understanding by reviewing the different approaches to needs assessment, determining the context / constraints of the project, and establishing of a project goal. There were arguments for three different approaches: a quick training survey, a product level needs assessment that focused on training, and an organizational level needs assessment that focused on business needs. Agreement on the approach and on the project goal was only reached after lengthy discussion. It was agreed that given the constraints and the mandate from management the needs assessment would focus on

training gaps, i.e. would be a product level needs assessment focusing on training.

Although there was consensus on the project goal in the first planning session, there continued to be difficulties on the needs assessment approach within the team. There was intellectual agreement that given the context and the constraints of time and resources, the needs assessment should focus on training needs. However, the two team members who would have preferred to conduct a more holistic level needs assessment continued to edge towards this during the planning stages. This caused frustration in the meetings. As the project continued, these team members questioned the value of the needs assessment and its output. In both cases, there had been an earlier needs assessment conducted for their function that either applied specifically to GTC or could be generalized to GTC. They lowered their commitment to the project, with a resultant drop in attendance at meetings. The team member who felt strongly that the effort was too intensive and too broad in scope also gave a low commitment to the project, attended even fewer meetings, and contributed little.

A misunderstanding in the approach and expectations of the output seemed to exist between the Operations Training team member and her director. The other team members did not appear to have the same concern. The Operations Training team member assumed that the director had the same understanding as herself of a needs assessment and the type of results that could be expected from a broad scope needs assessment in the time available. The director expected a projection of training needs for GTC that included the number of people that required courses, and recommendations for facilities and instructors. He wanted to be able to report how training would be handled in GTC. Despite clarification that this detail was not possible given the time constraints and the broad scope, he continued to urge for some semblance of a training plan. This misunderstanding is partially explained by the director's relative lack of experience in training. He had only two years experience.

### *Organizational Context and Support*

The nature of a needs assessment is determined to a large extent by the organizational context and its support for a needs assessment process. The

context and support includes not only the nature of the request, but also available resources, expertise, time, and money.

The time available was determined by the June deadline imposed by the vice-president of Operations for a report on how training would be handled in GTC. This deadline limited the effort to four months from the initial team formation in early March to the completion of the analysis at the end of June. In an effort to share the workload a multi-functional team was formed initially by three CN training groups and later five. However the team members were not full time on the project, but were expected to continue with their regular activities. In addition the multi-team effort meant the needs assessment took on a broader scope, in effect increasing the workload. Thus time and resources were tight for the project.

Expertise was a concern. Only one team member had conducted large needs assessments before. The others had some experience in domain specific needs assessments or none. Fortunately this lack of experience was somewhat countered by a broad knowledge of needs assessment through courses and readings.

Money was also a concern. At the very beginning, when a needs assessment was being considered, money concerns rejected a proposal to hire an outside consultant to conduct the needs assessment. The training functions had not budgeted for this. In addition the company was deeply concerned with reducing expenses. During the needs assessment, travel expenses were a concern and limited travel between Montreal and Detroit. Conference calls were used to handle several meetings.

In summary the organization supported the effort sufficiently to form needs assessment team, however there were time, money, and resource restrictions. The strongest restriction was the deadline imposed by Operations. This deadline had to be met, and was met so that the vice-president could include training in his report on integration to the board of Canadian National. In the end, this formal report to the board was never made. The integration effort had continued at a faster than anticipated pace and there was no need for a report.

The context of the needs assessment effort is how the organization views both needs assessments and the training functions. In CN the prevailing view by management is that the training department is there to provide training. This view is not unusual for most organizations (Regalbuto, 1992).

The role of a training department is to answer training requests; its productivity is judged by the number of courses delivered and the number of trainees trained (Robinson and Robinson, 1989). The picture is not of course, completely black in CN. In recent years there have been strong efforts by the larger training departments to change their role and the criteria against which they are judged. Large scale needs assessments have been conducted for management training and both large scale and micro needs assessments have been conducted in domain specific areas. However the needs assessments have all been initiated in response to a perceived training need. In this context, performing an organizational level needs assessment that looked at business needs would have required strong training management support. Support from the training managers for this level did not exist. In fact, the director of Operations Training made it clear in an early meeting that this level was inappropriate and that he would have halted such an effort.

Part of the organizational context was the support, or lack thereof, provided by the training managers. Three training managers initiated the project. Then they "disappeared." The training managers never met again as a unit and never met with the team in the forming or closing stages. The team members were left to work with the mandate to *do a needs assessment on GTC*, but with little other support and guidance.

In summary, the organizational context for the needs assessment and the support given to the project limited the needs assessment effort. The organizational context determined the needs assessment level. Organizational support determined how comprehensive the needs assessment could be. Time and resources were the greatest restrictions. In fact the original project goal was modified based on concern that it was not achievable given the time and resource restriction. And in the end the phase three, a comparison of training needs to CN, was not performed.

### *Logistics*

There were relatively few logistical problems with the needs assessment effort. The greatest problem during the planning phase was arranging team meetings. Due to other commitments it was difficult to arrange a time convenient for all the team members. In fact, only twice were all the team members in attendance.

Due to the geographical split in the team between Detroit and Montreal, communications could be difficult. The telephone, email system, and fax machine were used extensively in the communication effort. Unfortunately the Detroit project manager and team member did not have access to email. This was aggravating, and limited the team to telephone and faxes when communicating to Detroit. Since completion of the needs assessment project, GTC has connected into CN's email system as part of the effort to integrate into a smoother operation.

The greater logistical problems arose during the data collection phase. It could be extremely difficult to arrange structured interviews in GTC and in CN. Not all were accomplished. An important interview with a member of the original integration planning team was never achieved despite repeated attempts. Another interview with a CN functional manager was never achieved despite repeated phone calls from various people. Functional managers and executives are very hard to reach. Sufficient time must be allowed in a data collection phase for the difficulties in reaching these people and then in coordinating their limited schedule with your own. In addition, it is important to be flexible. If a person cannot be reached, then consider other data sources for the information.

The only other significant logistical problem arose, although very briefly, when the CN team members tightly scheduled focus groups over two days, under the assumption that all focus groups could be held in the Detroit head office. This turned out to be impossible because the functional managers and supervisors in GTC were located in field offices outside of Detroit and could not be released to travel to Detroit. As a result of extensive downsizing in GTC there was no one who could be spared to travel into Detroit. The railway still had to run. This error in scheduling was pointed out immediately during the project manager's review of the plan. The focus groups were instead conducted over three days in Detroit and in four field locations.

One potential logistical problem never arose. The team was aware that arranging focus groups can be very time consuming and difficult to accomplish without organizational support. This understanding was based on experience, and is supported also in literature. This was not the experience in this needs assessment. The major difficulty was in arranging a block of time where all the team members could be in Detroit to

run the focus groups. The arrangements for the focus groups were handled very smoothly and seemingly effortlessly by the project leader. His position, contacts, and positive reputation in GTC were the contributing factors to the success the focus group.

### *The Flaws*

There were flaws in the needs assessment, particularly in the data collection phase. The survey data base had questionable data and the structured interviews were less structured than they could have been.

#### *Survey Data Base*

The survey forms were structured for easy completion and entry into a database. Check off boxes were used to a great extent, with limited free form areas for course content, and goal. However, no one had any expertise in using a database for survey data. In fact, the person who entered the data did not know dBase IV at the beginning of the project. The GTC team member volunteered to learn dBase IV and enter the survey data. As no one else had the time or any experience in this area, this was agreed to. As coordinator of a computer training center, the GTC team member seemingly had the background as well as easy access to the software, hardware, manuals, and tutorials. He took complete responsibility for the survey distribution, follow up, data entry, and reports. In meetings, his updates seemed to indicate lots of activity in this area. The mistake was that there was no real follow up by the team to ensure reliable, quality data.

The problems became apparent when the GTC team member started to generate reports during the week in Detroit. He had made certain assumptions during data entry, choosing to leave out any data that was not easy to categorize. Thus course content, course goal, and the target population was not input into the data base. There was sufficient information from the title, the owning function, and the course length to impute the course content area, and this is what the team members used. However, the wealth of information that had been collected was still on the forms.

Later, when analyzing the reports, it became apparent that there were significant errors in the data. Known training equipment and instructors



were not reported in the data. People who were not instructors were included, despite an early agreement that people who had only made presentations were not to be included. These errors affected the Operations data to the greatest extent as this was where much of the training had occurred. The data for the computer training, the other significant area of training activity, appeared to be correct. In this area the GTC team member was of course, very knowledgeable.

### *Structured Interviews*

The structured interviews were conducted using a prepared form for the interview and a second form to summarize the interview during the debriefing session. The interview process and the dangers of biasing were reviewed in a meeting and shared in note form with all team members. However, after observing four sessions conducted with the project leader the Operations Training team member noted that the project leader did not follow the interview questions closely. Part of the problem could have been the structure of the interview questions. The first question allowed very broad observations and this tended to obviate the need for the later questions. The result was that the interview tended to be led by the interviewee. In addition, the GTC team member frequently asked questions that deviated from the purpose and did not take many notes. Later in the debriefing session, his comments were drawn mostly from memory and were sometimes muddled by inaccurate recollections. However, as the project leader did not seem concerned, and as the GTC team member was his appointee, nothing could be said directly.

In summary, considerable planning had gone into the data collection phase, yet the actual data collection had flaws. The primary reason for the flaws was that there was little control or follow up. The constraints of the data collection phase, wherein it was performed in Detroit under the control of the project leader who had other major responsibilities, contributed to these flaws.

## *The Successes*

There were successes in the project. The major success was that the results and presentation were produced on time and were accepted by GTC and CN management.

In the presentation to the vice-president, the findings on the current state of training were accepted as confirmation of what the vice-president and assistant vice-president had sensed. The recommendations were also accepted. The major recommendation that a director of training position be established in GTC was greeted with interest and handled immediately in an unplanned post presentation meeting.

The vice-president and assistant vice-president noted that the recommendations were very reasonable in that they worked within the existing resources in CN North America (CN and GTC). It was good, they stated, that no one had considered setting up a training center and staffing it, because with the current financial position in CN, this would not be acceptable. They made it clear that there was no money for extravagances. Only priority training was to be done, and that was to be provided in a cost-effective manner. As this was the message delivered verbally in the presentation by the project leader, again there was concurrence.

There was no question at any time about numbers of people to be trained, or the details of how training was to be handled. The vice-president's only comment in this area was that the details of training would work themselves out over time. The concern by the director of Operations Training and the project leader that the presentation did not contain an action plan appeared unfounded.

There were successes in the process as well. There were solid efforts to follow a systematic process, starting in the initial planning meetings. The context for the request was analyzed. The project goal and phases were built from the context and consensus was reached on what had to be done.

The data collection was planned, based on preferred data sources and data collection tools. Efforts were made to ensure data collection came from different sources and used different tools. The data collection tools were carefully structured taking into consideration the needed data, the preferred source, how best to phrase the questions, how to ensure consistency in data collection, and how to avoid bias. The focus group

sessions were planned to confirm management opinion of training needs and to uncover any unidentified needs.

In summary, one success was that there was a systematic approach to the needs assessment. Strong efforts were made to ensure that the process was planned and gathered reliable data from a variety of sources. The second and very important success was that the results were accepted, and the major recommendation was immediately acted upon.

## **An Epilogue**

Time has past since the project was finished, allowing a reflective look at what has happened since the needs assessment results were reported. There are items that have moved forward, and others that have not.

### *Steps and Issues Left Undone*

There are some very obvious steps and issues that have been left undone. The most obvious issue is that the second pass at the needs assessment has not occurred. The second pass at the needs assessment was the answer to any concerns during the process that an issue should be tackled, but could not be, because there was no time. Examples of this are the need for greater detail about the current state of training, the need to determine the cost effectiveness of using CN facilities versus GTC facilities, and the planned comparison of GTC's training needs versus training available within CN or other facilities. By the end of the process this second pass was no longer discussed. The feeling was that if details were missing, or a more in-depth look at an issue was needed, this would be handled on a case-by-case basis by the concerned function.

A second pass at a needs assessment for Rules training was actually part of the Rules recommendations. This second, more detailed needs assessment, has not occurred, and is unlikely to occur. There is no organizational support for the needs assessment. Other priorities and tight limits on resources has put the effort in the background. There is as well, an unspoken sense picked up by the Rules team member that perhaps the needs assessment is not necessary because GTC is managing without the training.

Another item left undone is the needs assessment report. Long promised by the project leader, he has not had time to work on it. His activities as corporate secretary were supposed to diminish significantly with the integration, but they have not. As there has been no strong demand from the functions, the report has moved to low priority.

Another item is that there never was a presentation to the board of CN on the integration. By the time that the needs assessment results were ready, the need for the presentation no longer existed. This was not a reflection on the needs assessment effort, so much as an organizational reality. The needs assessment results were still needed in that the issue of training in GTC had to be addressed.

### *Value of Product*

One important question to answer is whether the product had value for the organization. It is not an easy question to answer, for the answer changes depending on the perspective. Was there any change in the organization? Are the findings used? Will the results have impact on actual performance? Are the results worth the associated effort and cost?

### *Organizational Change*

Starting with a very direct look at the product and whether the results caused any change in the organization, the answer is yes. The results did cause a change in the organization that would not have happened without the needs assessment. The appointment of the director of training is very significant for GTC and CN. It signifies a commitment to training in GTC that was not there before. There will be a person assigned as both a promoter and gatekeeper to training. He will promote training in GTC, ensuring sufficient resources are found for all necessary training. At the same time he will act as gatekeeper, ensuring that GTC is not swamped with training by the different functions, but that employees receive priority training. For example a supervisor could be scheduled to attend supervisory training, hazardous material training, safety training and hazardous material training in the same year. The organization with its limited resources cannot allow this to happen. If everyone is attending training, no one will be running the railway.

The director has made progress in promoting training in GTC. He has established a committee of GTC managers and trainers to build teamwork and cooperation in training efforts. He has met on several occasions with the different training groups in CN to establish CN's and GTC's training priorities. He has also coordinated training requests within GTC to the appropriate training function in CN. However his director of training role is in addition to his corporate secretary role and this latter role consumes much of his time. Most of the HR training efforts have been done through direct links into the human resources function in GTC. Only one new attempt has been made as of early 1993 to build technical training to meet an expressed training need, and this one was aborted due to union difficulties. In addition, both GTC and CN have been undergoing considerable downsizing efforts. This consumes much of the organization's attention and effort. So the establishment of the director of training position was the right move, but it seems to be ineffective at present.

#### *Use of the Findings*

The second question posed is "Are the findings used?" The answer is a qualified yes. Yes, because the director of training is aware of the critical needs in his organization for CN computer system training, supervisory training, and technical training and works towards these. For example, he monitors the progress of the massive rehosting of CN's Yard Inventory System (YIS), one of the priority integration training needs. Once the rehosting is complete, the system will be implemented in GTC. The director now has the contacts to monitor this. Supervisory training, another priority, is being implemented. Requests for technical training are matched to the findings. Of course, any of the requests have been in the critical areas identified in the findings and therefore there has been automatic agreement to meet the request. The director plans to use the background data, the reports from the structured interviews and focus groups, to prepare himself as he meets with the functions to establish his role and confirm the training needs.

The qualification to the use of the findings is that the needs assessment is not being used as a data source to establish a training plan. Rather it is used as a guideline for priorities. However, without the guideline the director of training position would be in a clearly reactive mode.

### *Impact on Employee Performance*

The third question is whether the results will have an impact on the employees' performance. There is no clear answer to this. Whether the results will have an impact or not cannot be measured. In the structured interviews, statements of a training need were met with a request for details on who needed the training, why, what indicated there was a lack of skill or knowledge, and what was the urgency of the need. In the focus group sessions the questions were "What are the areas where training would improve your employees' performance? Your performance? Your manager's performance?" However the needs assessment findings were not based directly on performance, to outputs of jobs or functions. No hard data on employee performance was collected. No performance standards were established. The needs assessment was in effect an opinion survey on training needs conducted at many levels in the organization.

### *Value of the Needs Assessment*

The final question is whether the needs assessment was worth the time and effort for the organization. Again, the question is answered from different perspectives.

The director of training finds the product very worthwhile. He has been part of a broad scan of his organization, and now has information to guide him in his new role. Just as importantly, the process gave him an intensive opportunity to learn about the needs assessment process, the training process, training management, and budgeting. He developed valuable knowledge on how training is managed within CN and who to contact with training requests.

When asked about the value of the needs assessment effort, the three major CN training functions indicate that they view the results as comprehensive and value the information it provides. They feel that they have the information they need to guide their direction and efforts in GTC. They know what the priorities are and they have an increased awareness of the differences and commonalties between CN and GTC employees. This awareness means that the training groups can determine which of the CN products are best suited to the GTC needs.

The training functions frequently mention the by-products of the effort. The effort has made entry into GTC much easier for the training functions. It has eased the integration of training efforts. They now have training contacts in GTC, just as GTC now has training contacts within CN. In the Human Resources function there is satisfaction that the findings have confirmed some of the perceived trends and needs in CN. Examples are the need for training focusing on railway operation, and the need to promote a leadership style that involves communication and teamwork. In Information Systems an important by-product was the recognition by functional management that training must be an integral component of systems development and implementation plans.

Could the organization have managed without the needs assessment? The answer is probably yes in the case of Rules and Training, Marketing, and Human Resources. Rules never saw the value of the process. Marketing and Human Resources already had needs assessments data that they could have used to guide the training efforts in GTC. However, in the case of Human Resources the additional information gained in this needs assessment effort did guide the implementation of the training, and did highlight the differences in GTC that had to be taken into account when implementing training.

Operations Training and Information Technology Training could have done some informal investigation on their own. This investigation would have provided information specific to their needs. However, the needs assessment results were more comprehensive than either would have accomplished on their own. Moreover, the cooperation from GTC would not have been as easily achieved without the GTC project leader.

In summary, the needs assessment effort was worth the effort to the director of training in GTC and to three of the five training groups in CN. The sense is that the by-products of the needs assessment effort are valued as highly as the needs assessment findings.

## **Recommendations**

### *Improvements to the Project*

Looking back on a project, it is easy to see what went wrong, what went right, and with some reflection, why. There is a realization that if certain

things had been done differently, the difficulties could have been avoided. A list follows of those things that could have been done differently on this project, even working within the organizational constraints of a multi-functional project and a three and a half month deadline.

- **Team members should have been full time on the project.**  
The team members were hampered by their multi-functional nature, the part-time assignment to the team, and the geographical split. These factors inhibited team functioning. Assigning the team members full time to the project would have overcome effects of the geographical split and the multi-functional team composition, and would have allowed the individuals to form sooner into a functioning team. Just as importantly, full time assignment would have meant more time was available for the project.
- **Clear directives on the mandate should have been provided by management.**  
The training managers did not meet with the team as a whole to provide clear directives on the mandate. In addition, the training managers did not seem to have a common understanding of the needs assessment process and output. As a result each team member came with a different understanding of what was expected. Clear directives would have reduced team confusion over the needs assessment approach and priority.
- **Training management should have been brought together for approval of the mandate, the plan, and the presentation.**  
Training management neglected the project once it was initiated. They assumed that the team would function on its own and never held a joint team / management meeting. Approval of the mandate, needs assessment approach, and initial findings would have provided direction and contributed to the team functioning. The caveat is that it can be very difficult to get all team members and their managers together for this type of meeting. Arranging for a common date would have meant delays.



- **Survey data base quality should have been monitored.**  
Once the survey forms were distributed, the data collection was not monitored except by the GTC team member who lacked experience in surveys and data base construction. Monitoring the data base input and output would have prevented the poor quality of the survey data base.
- **Interview questions should have been tested before use.**  
The survey forms received a rough form of evaluation. This evaluation improved the survey form questions, instructions, and layout. The interview questions were not evaluated other than within the group. A rough tryout would have revealed flaws in construction, and question formulation. Because this was not done, the interviews were less systematic than planned. The potential for bias and for lost data was higher than it should have been.
- **Interview process should have been followed more rigorously.**  
Although the interview process was discussed and instructions were provided to the team, the actual interview process was not consistent in its application. The implementation of this stage had been left to the project leader and the GTC team member, the least experienced team members. In retrospect, the initial interviews should have been conducted by a more experienced team member so that the required interview process would have been modeled. In addition, the inadequacies of the interview questions would have been noted and corrected for subsequent interviews.

### *Suggested Guidelines to a Needs Assessment*

There are issues to watch out for in a needs assessment process. Following is a list of guidelines that can help avoid these issues. The list is not comprehensive, being based on my experience with one project.

- **Ensure the client is actively involved in the needs assessment process.**  
When a client-manager is actively involved in the process the needs assessment application is more efficient and there is a good

probability that the results will be supported by the client. The process application is more efficient because the client knows the organization, its culture, its operation, and its people and can provide contacts and guidance during data collection. The project also has more status and importance within the organization because of the client-manager's involvement. This aids the process and increases organizational commitment to the project. If actively involved in the process, the client is more likely to support the results. Finally, an important by-product is that an involved client learns about training and what must be done if training is to happen and be effective. This can facilitate the implementation of the recommendations.

- **Obtain a clear understanding of the organizational constraints and issues that will have a bearing on the project.**  
The organizational constraints and issues have a tremendous bearing on what can be achieved. The constraints must be identified by the team and factored into the decision on the needs assessment approach.
- **Ensure client and team consensus on the expected output and approach for the needs assessment.**  
Consensus on the expected output and approach for the needs assessment must be established between the team and client, and within the team. This consensus on what will be accomplished must be handled at the beginning of the project and communicated to all. This includes the clients, the team members, and the recipients. Failing to handle this promptly and directly will lead to tension and may result in a product that does not meet management expectations.

All concerned should also be made aware of what will not be done in the needs assessment. This removes any possible misunderstandings and when handled with diplomatic effectiveness, it can be an opportunity to educate management on the potential for higher level needs assessments.

- **Ensure the team has the necessary resources, expertise, and time.**  
The team will produce only what it is capable of producing given the time available, the expertise available to the team, and the required human resources. Expertise in the subject area and in the needs assessment process is critical. The expertise in the process will ensure efficiency in the process and validity of findings. Expertise must be available within the team or if a particular expertise is lacking, it should be made available through an internal or external consultant.

- **Plan data collection and analysis to ensure efficiency of effort and validity of findings.**

Planning is essential for data collection and analysis. Planning reduces the risk of invalid findings and ensures effective use of time, human resources, and money. Hannum and Hansen (1989) offer five key principles to guide data collection.

- Ensure problems are examined from a number of perspectives by employing a combination of data sources and collection methods.
- Build in redundancy to increase trust in the data.
- Gather data in a consistent way to reduce the influence of evaluator biases on collected data.
- Allow for a broad as well as in-depth look at the problem.
- Solicit organizational input in conducting the study to ensure collection of relevant information in a reliable and cost-effective manner.

When planning data collection, do not forget analysis. Ensure that the data are collected and recorded for ease of analysis.

- **Be flexible to take advantage of the unexpected opportunity and overcome any obstacles.**

Needs assessments provide both unexpected opportunities and obstacles. When involved in needs assessment be flexible enough to be able to react swiftly to an opportunity. For example on this

project, when presented with an opportunity to conduct focus groups with union employees, the team members immediately ran with it. In addition, do not be defeated by obstacles, but determine alternate approaches.

- **Communicate your results to management throughout the project.** Communicating progress and results to management is critical. It keeps management informed of the needs assessment progress and ensures the project has their attention and their buy-in.

### **Final Remarks**

Before this project I had never been involved in a needs assessment of this scale and most of my understanding of needs assessment was based on book knowledge. I was a true novice, but as the cliché says, experience is a great teacher.

One of my major confusions before this needs assessment was which model to follow. The models all seemed to have relevance, yet seemed to contradict each other. Now I realize that each needs assessment is different based on the organization, the training function, and the nature of the problem. There are process guidelines to follow, but no precise step-by-step procedures that fit all situations. For each needs assessment you have to recognize the constraints, establish the purpose of the needs assessment based on the constraints and problem, and systematically gather and analyze the data to meet that purpose.

As I was unclear about the appropriate needs assessment approach, so were others involved in the effort. Ensuring a common understanding on the needs assessment process and expected outcomes is both critical to the project and not easy. Everyone in training knows what they mean by needs assessment, but these meanings do not necessarily coincide. Do not assume that other people, and this includes your manager, have the same understandings as yourself.

I have learned the importance of effective team dynamics. You must continually evaluate how well the team is functioning and work to improve team functioning. This is critical to the success of the needs assessment.

To conclude, I feel that the CN Training Standards have best stated the challenge in performing a needs assessment:

**"The Challenge: To perform a thorough, effective, purpose-based needs assessment and still work within reasonable time expectations, organizational constraints, and budget limitations" p. 14.**

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## **Appendices**

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### **Appendix A - Survey Documents**

- Memo to GTC instructors
- Training Facilities and Equipment - Survey
- Instructor Information - Survey
- Courses Internally Delivered - Survey
- Courses Externally Delivered - Survey
- Courses Externally Delivered - Shortened Survey

**April 16, 1992**

**From: Chuck Dvorak  
Bill McKnight  
1333 Brewery Park Blvd.  
Detroit, MI 48207-2699**

**To: GTC Training/Instructors 1990 to present.**

**You have been identified as a trainer, instructor or assigned speaker at training given to Grand Trunk Corporation employees during the January 1, 1990 through present timeframe.**

**A GTC - CN project team has been formed to determine the instructor, facility and course base offered at Grand Trunk Corporation and at the Canadian National. Bill McKnight and myself represent the GTC in this effort. A presentation will be made by J. Reoch and J. Kelsall at the July CN Board Meeting. I need to receive the completed forms for entry into a database program no later than April 28, 1992.**

**The packet contains four (4) separate survey forms for you to fill out. Please make every effort to complete these forms as completely as you can; estimate costs where appropriate if you cannot locate records with actual costs.**

**The first form is the Instructor Information Form. Please give current information as to Title, Department and Mailing Address and Phone/Fax. Functional Areas correspond to CN database requirements; please enter your area. The Breakdown must total 100%. Certification must be training related (e.g. You must be CPR certified to teach a CPR course). In the Courses Taught area, general topic areas are sufficient.**

**The Second form is the Training Facilities & Equipment Form. Make as many copies as you need - ONLY ONE facility per form. Mobile Facility includes GTC owned training cars, simulators... Additional Courses may be entered on the back (Please Indicate if the back is used)**

**The third and Fourth forms - Survey of Current Courses - the first is for DELIVERY BY INTERNAL RESOURCES and the next is for DELIVERED BY EXTERNAL RESOURCE - please note the different headings. The information required is virtually the same, except for the cost area. **EACH COURSE MUST HAVE A FORM (all six pages) FILLED OUT.****

**A brief Goal is all that is necessary; for Course Content, a list of MAJOR topics only - do not go into detail. I need the exact certificate or license issued, if indicated,**

**Under COURSE FREQUENCY - use data through present.**

**Under REASONS FOR TRAINING - please state EXACT Legislation, body, Agreement, Rule as required.**

**I Hope you haven't any problems filling this set of forms out, but if you run into any problems please call Chuck at extn - 6147 or Bill at extn - 6460 in Detroit.**

**A reminder - note the date this information must be returned.**

**Thank You for your help in this effort!**

**A list of Known Trainers is included below for your information. If you know of any additions, please call as soon as possible to enable me to include them in this survey.**

**Chuck Dvorak  
Technical Training Specialist  
Detroit, MI**

**Chuck Dvorak  
Kathi Lowe  
Jack Buysse  
Ernie Novak  
Dave Karoly  
Cindy Hulten  
Sam Moore  
Jim Krikau  
Ed Strauss  
Chuck Hoekstra**

**Andrea Maier  
Roger Meade  
Karen Plechaty  
Patricia Post  
Barry VanEngelen  
Joe Waldecker  
Chuck Tindol  
Ty Gibson  
Jack Tyson  
John Vogeli**

**Fred Finfrock  
Bob Cerri  
Bob Lipmyer  
Larry Pawley  
Paul Werner  
Joe Millmann  
Roger Mott  
Paul Rodriguez  
John Curcio  
Richard Moore**

# Training Facilities & Equipment

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## Instructions

Complete one form for each GTC owned facility used for training.

## Location

Specify city, building, and floor or yard location. If mobile, please indicate home terminal.

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## Primary Use of Facility

- Training
- Conference Room
- Other. Please specify \_\_\_\_\_

## Description of Facility

- Training centre (more than one room)
  - Number of rooms? \_\_\_\_\_
  - Number of lab/demonstration rooms? \_\_\_\_\_
  - Number of trainees facility can accommodate? \_\_\_\_\_
- Training Room
  - Number of trainees room can accommodate? \_\_\_\_\_
- Mobile Facility
  - Please describe \_\_\_\_\_
- Other
  - Please specify \_\_\_\_\_

## Courses Delivered at this Facility

Please list the types of courses delivered at this facility.

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## Instructors permanently assigned to this facility

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# Training Facilities & Equipment

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## Equipment Assigned to this Facility

Please check off what equipment is assigned to this facility.

- Standard AV equipment, e.g. overheads, flip charts, white board, screen
- Slide projectors      Number: \_\_\_\_\_
- VCRs and monitors      Number: \_\_\_\_\_
- Simulator  
Describe: \_\_\_\_\_
- Mock ups  
Specify: \_\_\_\_\_
- Equipment (samples of actual equipment, e.g. EOT unit)
- Micro-computers  
Specify type...                      and number  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
- Mainframe terminals
- Liquid crystal display (pallets)
- Other: \_\_\_\_\_

## Facility Other

Please indicate what significant features are offered at this facility.

- Access to rail yard, shop track, welding facility  
Please specify \_\_\_\_\_
- Cabling for mainframe systems / LAN connections
- Other: \_\_\_\_\_

---

Completed by: \_\_\_\_\_  
Please print name

\_\_\_\_\_

\_\_\_\_\_

# Instructor Information

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## Instructions

Complete one form for each instructor.

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Department: \_\_\_\_\_

Mailing address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Telephone: ( ) \_\_\_\_\_

Fax: ( ) \_\_\_\_\_

## Functional Area

- Operations
- Rules
- Safety
- Human Resources
- Information Systems
- Marketing
- Corporate and Finance
- Other:

Please specify \_\_\_\_\_

## Breakdown of Current Job Responsibilities

% time spent on non-training related activities \_\_\_\_\_

Please specify : \_\_\_\_\_

% time spent developing / modifying training material \_\_\_\_\_

% time spent delivering training \_\_\_\_\_

% time spent on training administration \_\_\_\_\_

**Total to 100%**

# Instructor Information

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## Instructor Qualifications

**Certification** in technical area (e.g. crane operator certification)

Please specify:

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## Instructor Skills

Specify how acquired. More than one may apply.

- On the job
- In-house Instructional Techniques Course
- External Instructor Skills Workshop
- College or university courses
- Other: \_\_\_\_\_

## Instructor Experience

- less than a year
- one to three years
- three to five years
- more than five years

## Courses Taught

Please list the topic areas you have instructed during the last five years.

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Completed by: \_\_\_\_\_

Please print name

\_\_\_\_\_  
Title



# Survey of Current Courses

## Delivered by Internal Resources

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### Instructions

Complete one form for each course that is delivered by internal resources. The course may have been developed internally or purchased.

### Course Description

Course Title \_\_\_\_\_

Is this course part of a larger program?

- no                       yes

If yes, specify the program \_\_\_\_\_

### Function that controls this course

- Operations
- Rules
- Safety
- Human Resources
- Information Systems
- Marketing
- Corporate and Finance
- Other:

Please specify \_\_\_\_\_

**Overall Course Goal** Complete the following statement.

*At the end of this training, the trainees will ...*

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**Course Content** List the major topics covered in this course.

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# Survey of Current Courses

## Delivered by Internal Resources

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**Recommended Class Size:** \_\_\_\_\_  
Minimum Maximum

**Course Duration** \_\_\_\_\_ hours \_\_\_\_\_ days

**Method of Instruction**

- Instructor Led (theory only)
- Instructor Led (theory and hands on)
- Computer Based Training
- Interactive Video Instruction
- Self-instruction
- Structured On-the-job Training
- Other : \_\_\_\_\_

**Final Test**

- no
- yes Passmark: \_\_\_\_\_%

**Certification or License Issued**

- no
- yes Specify \_\_\_\_\_

**Development**

- internally developed by (department): \_\_\_\_\_
- externally developed Cost \$ \_\_\_\_\_

Year last developed or purchased \_\_\_\_\_

**Delivered**

- on-site
- off-site

If off-site, specify where and why.

\_\_\_\_\_  
\_\_\_\_\_

# Survey of Current Courses

## Delivered by Internal Resources

---

### Target Population

Who is the target audience for this course? You may check more than one.

- Management
- Schedule - Clerical
- Schedule - Other

Which target population does this course serve? You may list more than one.

<i>Department</i>	<i>Sub-department</i>	<i>Job Category</i>

Which railroad does this course serve? You may check more than one.

- CV
- DW & P
- GTW

### Trainee prerequisites

Specify any prerequisite courses or work experience a trainee must have to take this course.

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### Course Frequency

How many sessions of this course have been delivered between January 1, 1990 and December 31, 1991? \_\_\_\_\_

In this time period how many trainees attended the course? \_\_\_\_\_

# Survey of Current Courses

Delivered by Internal Resources

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## Course Requirements

The following questions determine the human resource, facility, and equipment requirements for one session of the course.

## Instructor Requirements

How many instructors are required to run this course? \_\_\_\_\_

Specify if guest instructors, assistant instructors, etc. are required.

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Certified instructor required?

- No
- Yes If yes, specify.  
\_\_\_\_\_

What knowledge specific to the course must the instructor possess?

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## Facility Requirements

- Classrooms. Specify number of rooms: \_\_\_\_\_
- Lab/demonstration room. Specify type: \_\_\_\_\_
- Access to rail yard, shop track
- Cabling for mainframe systems / LAN / gateway
- Other: \_\_\_\_\_

## Equipment Requirements

- Standard AV equipment, e.g. overhead, flip charts, whiteboard, screen
- Slide projector
- VCR and monitor
- Simulator
- Mock ups
- Equipment samples
- Micro-computers
- Mainframe terminals
- Liquid crystal display (pallets)
- Other: \_\_\_\_\_

# Survey of Current Courses

## Delivered by Internal Resources

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### Instructional Materials Required

- Instructor guide, leader's guide, lesson plan
- Trainee text, workbooks
- Acetates, flipcharts, slides
- Slide/sound presentation
- Video
- Computer software (computer-based instruction software)

### Costs

Are there OCS costs associated with this course...

for the instructor?       No                       Yes

for the trainees?         No                       Yes

Are there any exceptional costs associated with course delivery (e.g. special equipment, supplier kits, games)?

- No
- Yes. Specify item and cost.

---



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### Assessment of Course

Please assess the course on the following questions.

1	Does the technical information in the course need updating?	<b>1</b> None	<b>2</b> Minor	<b>3</b> Moderate	<b>4</b> Extensive
2	Does this course need to be restructured to improve its effectiveness?	<b>1</b> None	<b>2</b> Minor	<b>3</b> Moderate	<b>4</b> Extensive
3	How effective is this course in achieving its goal?	<b>1</b> Very effective	<b>2</b> Moderately effective	<b>3</b> Somewhat effective	<b>4</b> Ineffective
4	How effective is this course in enhancing the trainees' performance on the job?	<b>1</b> Very effective	<b>2</b> Moderately effective	<b>3</b> Somewhat effective	<b>4</b> Ineffective

# Survey of Current Courses

Delivered by Internal Resources

---

## Category of Training

The following are categories of training courses. Please check the **PRIMARY** category for this course. **Only one category can apply.**

- Orientation. Aimed at integrating a new employee.
- Management. Related to supervision or management
- Work Related Skills. Skills or knowledge required on the job.
- Health and Safety. Related to health and safety of the employees
- Customer Relations. Customer relations, service, sales, and marketing.
- Computer. Programming or application software training.
- Quality at Work. Supporting the Quality at Work process.

## Reasons for Training

The following are reasons for training. Please check the appropriate reasons for this course. **A training initiative may exist for more than one reason.**

- Mandatory. Required by legislation, e.g. operating rules.  
Specify the legislation and legislative body.  
\_\_\_\_\_
- Legislated Training. Suggested by legislation, e.g. human rights.  
Specify the legislation.  
\_\_\_\_\_
- Collective Agreement. Required by collective agreement.  
Specify the Agreement and Rule.  
\_\_\_\_\_
- New Technology Training. Required by introduction of new technology.
- Performance Improvement Training. To gain or maintain a competitive edge or to meet job requirements.
- Other. \_\_\_\_\_

---

Completed by: \_\_\_\_\_

Please print name

Title

Telephone

# Survey of Current Courses

Delivered by External Resources

---

## Instructions

Complete one form for each course that is delivered by external resources.  
The course may be delivered on-site or off-site.

## Course Description

Course Title \_\_\_\_\_

Is this course part of a larger program?

- no                       yes

If yes, specify the program \_\_\_\_\_

## Function that controls this course

- Operations
- Rules
- Safety
- Human Resources
- Information Systems
- Marketing
- Corporate and Finance
- Other:

Please specify \_\_\_\_\_

## Overall Course Goal (Complete the following statement)

*At the end of this training, the trainees will ...*

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## Course Content (List the major topics covered in this course)

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Recommended Class Size: \_\_\_\_\_

Minimum

Maximum

Course Duration            \_\_\_\_\_ hours            \_\_\_\_\_ days

# Survey of Current Courses

## Delivered by External Resources

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- Method of Instruction**
- Instructor Led (theory only)
  - Instructor Led (theory and hands on)
  - Computer Based Training
  - Interactive Video Instruction
  - Self-instruction
  - Structured On-the-job Training
  - Other : \_\_\_\_\_

- Final Test**
- no
  - yes    Passmark: \_\_\_\_\_%

**Certification or License Issued**

- no
- yes    Specify \_\_\_\_\_

**Developed by:** \_\_\_\_\_

- Delivered**
- on-site (i.e. in a GTC facility)
  - off-site

If delivered off-site, please specify where. (e.g. university or hotel. Please provide name of university etc. )

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**Target Population**

Who is the target audience for this course? You may check more than one.

- Management
- Schedule - Clerical
- Schedule - Other

Which target population does this course serve? You may list more than one.

<i>Department</i>	<i>Sub-department</i>	<i>Job Category</i>



# Survey of Current Courses

Delivered by External Resources

---

Which railroad does this course serve? You may check more than one.

- CV
- DW & P
- GTW

## Course Frequency

How many sessions of this course have been delivered between January 1, 1990 and December 31, 1991? \_\_\_\_\_

In this time period how many trainees attended the course? \_\_\_\_\_

## Course Requirements

The following questions determine the human resource, facility, and equipment requirements for one session of the course.

### Instructor Requirements

How many instructors are required to run this course? \_\_\_\_\_

Specify if guest instructors, assistant instructors, etc. are required.

---

Certified instructor required?

- No
  - Yes. If yes, specify.
- 

What knowledge specific to the course must the instructor possess?

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# Survey of Current Courses

Delivered by External Resources

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Complete the *Facility and Equipment Requirements* sections only if the course is delivered in a GTC facility.

## Facility Requirements

- Classrooms. Specify number of rooms: \_\_\_\_\_
- Lab/demonstration room. Specify type: \_\_\_\_\_
- Access to rail yard, shop track
- Cabling for mainframe systems / LAN / gateway
- Other: \_\_\_\_\_

## Equipment Requirements

- Standard AV equipment, e.g. overhead, flip charts, whiteboard, screen
- Slide projector
- VCR and monitor
- Simulator
- Mock ups
- Equipment samples
- Micro-computers
- Mainframe terminals
- Liquid crystal display (pallets)
- Other: \_\_\_\_\_

## Costs

What are the costs associated with this course?

- Tuition per trainee \_\_\_\_\_
- OCS?             No             Yes
- Material costs per trainee \_\_\_\_\_
- Instructor fees per session (include estimate of travel costs, hotel and meals) \_\_\_\_\_
- Facility rental per session \_\_\_\_\_
- Other. Please specify \_\_\_\_\_

# Survey of Current Courses

## Delivered by External Resources

---

### Assessment of Course

Please assess the course on the following questions.

- |   |   |                            |                                  |                                |                         |
|---|---|----------------------------|----------------------------------|--------------------------------|-------------------------|
| 1 | Does the technical information in the course need updating?                     | <b>1</b><br>None           | <b>2</b><br>Minor                | <b>3</b><br>Moderate           | <b>4</b><br>Extensive   |
| 2 | Does this course need to be restructured to improve its effectiveness?          | <b>1</b><br>None           | <b>2</b><br>Minor                | <b>3</b><br>Moderate           | <b>4</b><br>Extensive   |
| 3 | How effective is this course in achieving its goal?                             | <b>1</b><br>Very effective | <b>2</b><br>Moderately effective | <b>3</b><br>Somewhat effective | <b>4</b><br>Ineffective |
| 4 | How effective is this course in enhancing the trainees' performance on the job? | <b>1</b><br>Very effective | <b>2</b><br>Moderately effective | <b>3</b><br>Somewhat effective | <b>4</b><br>Ineffective |

**Why is this course delivered by an external resource rather than internal resource?**

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# Survey of Current Courses

Delivered by External Resources

---

## Category of Training

The following are categories of training courses. Please check the **PRIMARY** category for this course. **Only one category can apply.**

- Orientation. Aimed at integrating a new employee.
- Management. Related to supervision or management
- Work Related Skills. Skills or knowledge required on the job.
- Health and Safety. Related to health and safety of the employees
- Customer Relations. Customer relations, service, sales, and marketing.
- Computer. Programming or application software training.
- Quality at Work. Supporting the Quality at Work process.

## Reasons for Training

The following are reasons for training. Please check the appropriate reasons for this course. **A training initiative may exist for more than one reason.**

- Mandatory. Required by legislation, e.g. operating rules.  
Specify the legislation and legislative body.  
\_\_\_\_\_
  - Legislated Training. Suggested by legislation, e.g. human rights.  
Specify the legislation.  
\_\_\_\_\_
  - Collective Agreement. Required by collective agreement.  
Specify the Agreement and Rule.  
\_\_\_\_\_
  - New Technology Training. Required by introduction of new technology.
  - Performance Improvement Training. To gain or maintain a competitive edge or to meet job requirements.
  - Other. \_\_\_\_\_
- 

Completed by: \_\_\_\_\_

Please print name

Title

Telephone

**Survey of Current Courses**  
**(Shortened Version)**  
**Delivered by External Resources**

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Yes, we use External Resources       No, we do not use External Resources

Name \_\_\_\_\_ Date \_\_\_\_\_

Title and description of course: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Costs?       No cost       Fees and/or instructor expenses

Delivered by \_\_\_\_\_  
(Name of organization that delivers the course)

How many trained? \_\_\_\_\_      Course duration? \_\_\_\_\_

## **Appendix B - Interview Documents**

- GTC Vice-President and Integration Team - Structured Interview
- GTC Functional Management - Structured Interview
- CN Management - Structured Interview
- Interview Summary Sheet

**GTC TRAINING NEEDS ASSESSMENT**

**STRUCTURED INTERVIEW**

**GTC Vice-President & Integration Team Questions**

Page 1 of 3

<b>NAME:</b> _____	<b>DATE:</b> _____
<b>TITLE:</b> _____	<b>LOCATION:</b> _____
<b>PHONE:</b> _____	
<b>INTERVIEWER NAME:</b> _____	<b>PHONE:</b> _____

1) **Is current training adequate? Are there areas for improvement?** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2) **What are the most pressing training needs in your area?** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Get details, who needs training, why, what is the skill or knowledge lack, what indicates that there is a lack, what is the estimated urgency?** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3) **What training do you see required for new technology?** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Get details on the training, who needs it, what indicates that there is a training need, estimated urgency.** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**GTC TRAINING NEEDS ASSESSMENT**

**STRUCTURED INTERVIEW**

**GTC Vice-President & Integration Team Questions**

Page 2 of 3

4) What training do you see required for computers? \_\_\_\_\_

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Get details on the training, who needs it, what indicates that there is a training need, estimated urgency. \_\_\_\_\_

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5) What training do you see required for technical skills? \_\_\_\_\_

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Get details on the training, who needs it, what indicates that there is a training need, estimated urgency. \_\_\_\_\_

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6) What training do you see required for soft skills? \_\_\_\_\_

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Get details on the training, who needs it, what indicates that there is a training need, estimated urgency. \_\_\_\_\_

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**GTC TRAINING NEEDS ASSESSMENT**

**STRUCTURED INTERVIEW**

**GTC Vice-President & Integration Team Questions**

Page 3 of 3

7) What training do you see required for supervisors/managers? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Get details on the training, who needs it, what indicates that there is a training need, estimated urgency. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

8) Ask for priorities. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

9) What integration issues do you see would have impact on training? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

10) Recommended Contacts: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**GTC TRAINING NEEDS ASSESSMENT**

**STRUCTURED INTERVIEW**

**Functional Managers Questions**

Page 1 of 4

<b>NAME:</b> _____	<b>DATE:</b> _____
<b>TITLE:</b> _____	<b>LOCATION:</b> _____
<b>PHONE:</b> _____	
<b>INTERVIEWER NAME:</b> _____	<b>PHONE:</b> _____

1) What on-going training is needed by your function?

• general? \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

• apprenticeship? \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

• recertification? \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

• mandatory / regulation? \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Get details, what is the training, who for, its frequency and duration, its importance to the operation of the function now and in 2-5 years.

\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

2) Is current training adequate? Are there areas for improvement? \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

**GTC TRAINING NEEDS ASSESSMENT**

**STRUCTURED INTERVIEW**

**Functional Managers Questions**

**Page 2 of 4**

**3) What are the most pressing training needs in your department? \_\_\_\_\_**

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**Get details, who needs training, why, what is the skill or knowledge lack, what indicates that there is a lack, what is the estimated urgency? \_\_\_\_\_**

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**4) What training do you see required for new technology? \_\_\_\_\_**

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**Get details on the training, who needs it, what indicates that there is a training need, estimated urgency.**

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**5) What training do you see required for computers? \_\_\_\_\_**

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**Get details on the training, who needs it, what indicates that there is a training need, estimated urgency. \_\_\_\_\_**

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**6) What training do you see required for technical skills? \_\_\_\_\_**

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**GTC TRAINING NEEDS ASSESSMENT**

**STRUCTURED INTERVIEW**

**Functional Managers Questions**

Page 3 of 4

Get details on the training, who needs it, what indicates that there is a training need, estimated urgency. \_\_\_\_\_

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7) What training do you see required for soft skills? \_\_\_\_\_

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Get details on the training, who needs it, what indicates that there is a training need, estimated urgency. \_\_\_\_\_

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8) What training do you see required for supervisor/manager? \_\_\_\_\_

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Get details on the training, who needs it, what indicates that there is a training need, estimated urgency. \_\_\_\_\_

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9) Ask for priorities. \_\_\_\_\_

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**GTC TRAINING NEEDS ASSESSMENT**

**STRUCTURED INTERVIEW**

**Functional Managers Questions**

**Page 4 of 4**

10) What integration issues do you see would have impact on training? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**GTC Needs Assessment  
CN Interviews**

Interview with: \_\_\_\_\_

Name \_\_\_\_\_

Title \_\_\_\_\_

Department \_\_\_\_\_

Date: \_\_\_\_\_

Interviewer(s) \_\_\_\_\_

1. What are the major known integration issues for your function?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2. What training will be required due to integration - in GTC? - in CN?

a) \_\_\_\_\_  
\_\_\_\_\_

Target Population: \_\_\_\_\_  
Implementation Date: \_\_\_\_\_

b) \_\_\_\_\_  
\_\_\_\_\_

Target Population: \_\_\_\_\_  
Implementation Date: \_\_\_\_\_

3. What other training needs do you know of in GTC? Are there any areas where GTC employees seem to need improved skills or knowledge? (trade - supervision - technology?)

a) \_\_\_\_\_  
\_\_\_\_\_

Employee group: \_\_\_\_\_  
Indicators: \_\_\_\_\_

b) \_\_\_\_\_  
\_\_\_\_\_

Employee group: \_\_\_\_\_  
Indicators: \_\_\_\_\_

**GTC TRAINING NEEDS ASSESSMENT - Interview Summary Sheet**

**Interviewee:** \_\_\_\_\_

**Title:** \_\_\_\_\_

**Function/Department:** \_\_\_\_\_

**Location:** \_\_\_\_\_

**Interviewer:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Instructions:** Immediately following the interview, debrief and summarize the key interview findings on this sheet.

<u>Critical Training Issues in Priority Order:</u>	<u>Indicators for Training Need</u>	<u>Target Population</u>

<u>Issues to follow up</u>	<u>Who to Contact</u>

<u>Information to Confirm</u>	<u>Who to Contact</u>

<u>Other Information and Issues</u>

## **Appendix C - Focus Group Documents**

- Memo to GTC Functional Management
- Facilitator Guide for Focus Groups
- Facilitator Guide for Schedule Focus Groups



June 4, 1992

R. A. Duffany  
R. G. Lipmyer  
E. E. Shepard

Subject: Training Needs Assessment Focus Groups

As we have discussed, part of the current training needs assessment process calls for interviews with focus groups of 6-8 first-line supervisors from the engineering, mechanical and transportation departments. Management supervisors are preferred, but schedule supervisors are also OK.

Each session will last about 1 1/2 hours. The key question we will be asking is, "What training do you think your employees need?" In addition to Chuck Dvorak and me, training personnel from CN in Montreal will be involved.

We are scheduling these focus groups as follows:

Flat Rock: June 15, 2 PM (conference room)

Pontiac: June 15, 2 PM ("Dick Neumann's" office)

Battle Creek: June 16, 10 AM (Conference room, 2nd  
floor, M&PS Building)

Port Huron: June 16, 10 AM (Car shops conference room)

To the extent possible, please arrange to schedule at least two supervisors from each of the three areas at each session. Groups of 6-8 people in total are ideal. Would you please call me (6460), Chuck Dvorak (6136 or 6147) or Jackie Matusko (6581) to tell us who you have scheduled to attend.

Ray, confirming our conversation, we understand you will line up two people for the Flat Rock session, several at Pontiac and one at Battle Creek, but no one is available at Port Huron.

Thanks for your help.

  
W. J. McKnight

Copy to: C. J. Dvorak  
D. C. Gezon  
C. E. Hamilton

**Facilitator Guide for Focus Groups**

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**Introduction**

- GTC and CN are conducting a study on the training needs in GTC.
- Already have:
  - sent out survey forms to instructors in GTC to determine what training is going on now.
  - met with senior managers in GTC to get a handle on training issues, both immediate needs and those due to integration
- Want to get your perspective on the training needs that you see for your employees, for yourself, and for management.
- Need a reality check from a cross section of people who actually handle the day-to-day running of the railway.

**Questions:**

**Q1** What are the main issues that GTC faces today?

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## Facilitator Guide for Focus Groups

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**Q2** What are the areas where training would improve the performance of your employees?

**Probe for:**

- technical skills & knowledge
- systems skills & knowledge
- rules,
- safety,
- hazardous mat. handling,
- interpersonal skills

**Record**

- Who needs training
- What training
- Indicators of training need

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## Facilitator Guide for Focus Groups

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**Q4** What about management? What are the areas where training would improve the performance of your management?

**Probe for:**

- technical skills & knowledge
- systems skills & knowledge
- rules,
- safety,
- hazardous mat. handling,
- interpersonal skills

**Record**

- Who needs training
- What training
- Indicators of training need

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## Focus Group Questions - Scheduled Employees

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**Location:** \_\_\_\_\_

1. What training would help you on your job?

What about Rules, Safety, HazMat Training?

Does it meet your needs?

2. Do you use computers on your job? (If yes, what system, any training?)

3. What other employees do you deal with? What training do those employee need?

4. How about your supervisors? Is there any training they could use to support you better?

5. What do you think will improve the performance of the company?

## **Appendix D - Operations Technical Training Report**

Operations Technical Training Report

**CN North America - US  
Needs Assessment**

**Operations Technical Training**

This document provides the findings and recommendations for technical training in Operations. The training requirements for computer systems, supervisory and management development, and for Rules are addressed in the separate appendices and in the main report.

Findings - General Training Issues.....	2
Findings - Training needs for GTC Operations.....	3
Integration training needs.....	3
General training needs.....	3
Technical training needs by functional group.....	4
Technical training needs by topic area.....	7
Findings - Existing Training for Operations .....	14
Internally Delivered Courses.....	14
Externally Delivered Courses.....	16
Training Facilities and Equipment.....	17
<b>Recommendations.....</b>	<b>18</b>



## Findings

### Findings - General Training Issues

This section addresses the general training findings. For information on existing training for Operations employees, refer to the section *Existing Training* on page 14 of this appendix.

- Little structured training exists other than for Rules, locomotive certification and hazardous materials

Training in the Operations function is not a structured activity, with the exception of legislated training for the Operating Rules, Locomotive Engineer Certification, and Hazardous Materials. Technical training is ad hoc, and supplied through on-the-job instruction, outside vendor, or outside courses.

- Insufficient time, personnel resources, and money available for training

There is no dedicated training budget. Permanent instructors in the Operations function are for Rules and locomotive engineer certification training. There are no full time instructors for technical skills training.

Due to the tight resources it is difficult to release employees and supervisors for training. Supervisors have little or no time to provide on-the-job training to their employees.

- Perceived need for structured training

Management and employees feel that training would improve if it were standardized structured training, and provided by qualified training instructors.

## Findings - Training needs for GTC Operations

### □ Integration training needs

TRACS/YIS is the most frequently mentioned implementation and training priority. TRACS/YIS implementation is targeted for the first quarter, 1993 and will create a critical training need for a large population in a short period of time. Many other mainframe systems, which use TRACS/YIS as a support platform, are under consideration for implementation, e.g. REPAIRS, FIRST.

Signals and Communications is considering implementation of its computer systems, e.g. UNIX and SCIMS. Implementation, which depends on computer purchases for the GTC companies and other factors, could be in 1992.

Motive Power is considering the implementation of CN motive power maintenance standards. This decision is pending for 1993.

### □ General training needs

The needs assessment identified three major training needs that were not exclusive to one group, but crossed functional lines.

#### *Railway Operation*

The need for a better understanding of railway operation was identified a significant number of times in interviews and focus groups. Frequently referred to as cross-functional training or railway operation, this need actually has three different focuses.

##### Introduction to railroading

At headquarters, there is a need for training that provides an understanding of how a railway operates. This was identified most strongly for employees whose work interfaced with operating employees in the field, e.g. TIC clerks and supervisors.

##### Cross-functional knowledge

Scheduled employees, particularly those in the field, expressed a need for cross-functional knowledge. They are concerned that they do not understand how other departments work, or how their work coordinates with these other departments. They feel that if they understood the operation of the different groups and departments, they could work more cooperatively together.

### Operating knowledge and territory familiarization

In Transportation there is a more specific need for understanding railway operation. Field employees feel that trainmasters, yardmasters, and dispatchers do not have sufficient operating knowledge and experience, or knowledge of their territory.

### *Safety*

Safety is a large concern for the Maintenance of Way, Mechanical, and Transportation employees. Safety training is important for all employees, but most critical for new employees. In addition employees with service do not apply safety rules sufficiently well. This can be both a training need (employees do not know the rules or how to apply the rules) and a need for increased safety awareness in the field (employees do not understand the consequences of not following the safety rules). A safety program is currently being implemented in GTC.

### *Hazardous Materials*

Training needs for hazardous materials were identified for several groups. Mechanical employees require training in inspecting freight cars and responding to incidents. Transportation employees require training in inspecting and in responding to incidents. Maintenance of way employees require training on appropriate actions to take when required to work near freight cars carrying hazardous materials or when working on track where there has been a spill of hazardous materials.

### Technical training needs by functional group

Technical training needs are described by function below. A summary of the training needs by topic area follows.

### *CSC/TIC*

CSC and TIC clerks currently receive training on-the-job through co-workers.

Training effectiveness and efficiency would be improved by providing structured training on basic job knowledge away from the working environment, followed by on-the-job training with a co-worker. The structured training should cover basic railway operation and should take place away from the working environment. Knowledge of railway operation is a critical training need as employees with no operating experience are bidding into positions where a knowledge of railway operations is required.

*Maintenance of Way*

Maintenance of Way employees currently receive on-the-job training.

Trackmen require training in:

- equipment operation and maintenance,
- roll by inspections,
- FRA track standards,
- safety,
- hazardous materials,
- basic track maintainer skills for new and seasonal workers.

The strongest training need is for new hires and seasonal workers. They need basic job skill training with an emphasis on safety.

Track foremen require training in:

- FRA standards for inspection and repair in order to better identify defective track conditions,
- roll-by inspections,
- basic supervisory planning skills.

*Mechanical*

Mechanical employees are a stable, experienced population. However they have not received significant training over the last few years.

Refresher and upgrade training is required in:

- AAR Rules,
- air brake testing in the shop,
- single car test in the field,
- freight car inspection and repair on the newer car equipment,
- measuring dimensional loads,
- hazardous materials, inspecting and responding to incidents,
- safety.

### *Transportation*

Current training for Transportation employees is primarily for Rules and engineer certification.

Trainmasters, yardmasters, and dispatchers require:

- railway operating practices,
- territory familiarization,
- Rules,
- safety,
- hazardous materials inspection and incident actions,
- wage agreements,
- drug testing.

Train service employees require training in:

- safety,
- Rules.

New train service employees require an orientation to railroading, basic job skills, and safety training. A training package is available for new employees, but an instructor must be identified.

### *Wrecking*

Wrecking in the GTC companies is handled by outside contractors. Training needs for employees working at a wreck site are for:

- first aid for Mechanical employees
- responding to hazardous materials incidents for Mechanical employees
- interdepartmental understanding for Transportation employees.

### *Signals and Communications*

Signals employees are a stable population. In the past signalman training was provided through outside facilities such as BN and ROLM.

Signal employees require training:

- to upgrade for new technologies and procedures
- for signalman apprenticeship program

GTC management would prefer that signal training be provided in CN facilities.

□ Technical training needs by topic area

The following chart identifies the training needs by topic area and provides comments from the interviews and focus groups.

Need	Target Group	Identified by	Comments
AAR Rules for car repair	carmen (mechanical work force)	carman field mgmt focus group	Do not receive training or field manual. Just get on-job-training. Insufficient. No longer have apprenticeships.
Accident investigation	GT Police	GT mgmt interview	Accident investigation procedures and interview techniques for investigation.
Air brake testing	carmen in the yard	field mgmt focus group	Single car air brake test per AAR new regulation.
	carmen in the shop	field mgmt focus group	A problem because of bumping and because no longer have apprenticeship.
Bridgework	engineering work forces	field mgmt focus group	
CN - knowledge of	customer service supvr.	HQ mgmt focus group	Hard to get information from CN because do not who to call. Need to know the structure, the names.
	HQ mgmt	HQ mgmt focus group GT mgmt interview	CN and Canadian culture. Implications of being a crown corporation.
Communications (tele-communication)	signal radio technicians	GT mgmt interview	
Crane operation & maintenance	mtce of way forces	field mgmt focus group	Needed for rubber tired mobile and for Burroughs (contractors hired for wrecking)

Technical training needs by topic area *continued*

Need	Target Group	Identified by	Comments
<p>Cross-functional knowledge</p> <p><i>Learning how your job fits into the railway, how it interfaces with other depts.</i></p> <p><i>See also :</i></p> <ul style="list-style-type: none"> <li>- <i>Introduction to Railroading</i></li> <li>- <i>Railroad Operating</i></li> </ul>	craft employees	<p>field mgmt focus group</p> <p>GT mgmt interview</p>	<p>Need to know how to work together to get shipment there on time, to work with internal and external customers. Acquaint crafts with needs of other crafts.</p> <p>All employees, especially new hires need to understand how their work interfaces with other dept.</p>
	transportation field personnel	field mgmt focus group	Need interdepartmental training for situations such as wrecking.
	field employees	mgmt focus group	Should know how HQ works.
	field management	<p>field mgmt focus group</p> <p>field mgmt focus group</p> <p>field mgmt focus group</p>	<p>Need to know what other departments do.</p> <p>Need better understanding to make informed decisions.</p> <p>Joint problem solving with cases was very good in the past. Networking aspect very good. (suspect this was a CN course)</p>
CSC/TIC job knowledge	TIC clerks	<p>CS/TIC focus group</p> <p>TIC supvr</p> <p>GT mgmt</p> <p>field mgmt focus group</p>	<p>Due to consolidation of seniority lists, bumping within and in/out of the TIC means:</p> <ul style="list-style-type: none"> <li>- many do have a RR background because coming from HQ desk job.</li> <li>- many do not know terminology for the territory they are working.</li> <li>- some are trained and leave for another position</li> </ul> <p>No time for supervisors to give training.</p> <p>No time for staff to attend training.</p> <p>Need formal training away from the job for the basics, followed by OJT. (stressful to learn in operating environment)</p> <p>Data frequently not entered timely fashion or correctly. Consequences: failure to pick up or move cars, billing out of synch with car arrival, repairs to BO cars not recorded. Do not know territory, terminology, or RR operation</p>

Technical training needs by topic area *continued*

Need	Target Group	Identified by	Comments
CSC/TIC customer service skills	CSC and TIC	GT mgmt	Introduction and reinforcement of service.
		HQ mgmt focus group	Training for customer service attitude being done through <i>Service Plus</i> (DDI) but this is not needed for TIC who work with internal customers.
Dimensional loads	carmen	field mgmt focus group	Training on measuring dimensional loads at the industrial site.
District knowledge	crew dispatcher	train crew	Dispatchers are new to job. Do not know the district, who to assign to job, etc. Move as soon as they learn it.
Drug testing	field management	field mgmt focus group	What is the law, the company policy.
	foremen	field mgmt focus group	
	trainmaster/yardmaster	field mgmt focus group	
Track equipment	track work forces	field mgmt focus group	
	track foreman	GT mgmt interview	New equipment technologies
First aid training	block truck operators	field mgmt focus group	Frequently first on the scene.
	field supervisors	field mgmt focus group	Especially at wreck sites.
FRA Track stds	track gang	track gang	Everyone should receive regular training on track repair and safety standards per the FRA.
	track foreman	track gang and track foreman  field mgmt focus group  field mgmt focus group	Need FRA training and refresher training. Need standards for engineering work.  Need training on standards, inspection, & repair.
FRA	trainmasters / yardmasters	field mgmt focus group	
Freight Billing	Rate clerks	Frt. Billing mgr	No formal training, only on the job training. Manuals lost and out of date.



Technical training needs by topic area *continued*

Need	Target Group	Identified by	Comments
Freight equipment inspection and repair	carman in the field	carman	No training or information.(e.g. articulated 5 packs, new multi-levels)
		Mech'l Mgr	Training on how to repair and inspect freight cars. Note that the training car is no longer in use.
		field mgmt focus group	Inspection of multi-levels, including information on why certain tolerances, clearances.
		field mgmt focus group	Relying on training received 15 years ago. Need reviews, updating on repairs. Need technical training on hot and common issues. (sending letters, and updates to the field not enough)
	carmen in the shop	field mgmt focus group	Lack of training is leading to deterioration in quality and productivity in the shops. Resident experts are retiring.
Hazardous Materials	track gang	track gang	Work around leaks, spills, dust with no preparation. Work on ballast, rails etc, that have spills on them with no protection or understanding of dangers.
	carmen	field mgmt focus group CN Mgmt	Training on inspection practically non-existent.
	carmen (first responders)	field mgmt focus group	Critical for first responders
	TIC clerks	HQ mgmt focus group TIC supvr	Documentation and marshalling
	trainmasters	trnsprn mgr	
	transportation field management	field mgmt focus group field mgmt focus group	What is the law, the company policy
	train crew	field mgmt focus group field mgmt focus group	Currently on-job-training.  No one would know what to do. Only receive on-job-training. Fear of accidents. Should know how to ship, document, respond to emergencies.
	TIC chief clerk	TIC supvr	

Technical training needs by topic area *continued*

Need	Target Group	Identified by	Comments
Introduction to Railroading	headquarters employees	mgmt focus group  HQ mgmt focus group	Need to know what the field does, how they work.  Departments in HQ need to understand what other departments do and how it fits together - concept of internal customer. The course <i>Intro to Railroading</i> did this. CSC and TIC need this
	TIC clerks	HQ mgmt focus group TIC supvr	Need to know how the RR works. Many (due to bumping in HQ) do not have a transportation background.
	TIC and CSC	GT interview	Need cross-functional knowledge, railway knowledge.
	TIC mgmt	TIC supvr	Need to know how the RR works. Cannot support staff if they do not know.
Mtce of way machine operation and maintenance	machine operators	track gang  track gang foreman  field mgmt focus group	No training or insufficient training is common.  Provide operation and mtce training or hire qualified people. Currently use informal on-job-training. Result is low productivity and equipment damage.
Mtce of way Robotrucks	driver/operator	track gang	No one knows how to operate the truck when the regular operator is off, but everyone has to use it.
Mtce of way track inspection, & repair	track foremen	field mgmt focus group	Weak on inspection , repair. See also FRA Stds.
Mtce of way roll-by inspections	track gang	track gang	Expected to perform them, but do not have training in what to inspect for and why.
	track foreman	track foreman	
Motive Power maintenance practices	motive power employees and management	CN mgmt	Maintenance standards on GT locomotive fleet will possibly change

Technical training needs by topic area *continued*

Need	Target Group	Identified by	Comments
Railroad operating and territory familiarization	yardmaster	traincrew	Do not have enough operating experience
	trainmaster	traincrew	Do not have enough operating experience. Do not listen to traincrew suggestions.
		yardmaster	Lower seniority employees taking post to keep a job. Get no training and learn by fire.
	conductors	yardmaster	Do not have enough job skill/knowledge.
	transportation employees	field mgmt focus group	Need ground training on railway . Need orientation to work. Currently work with a buddy or may attend class.
	transportation field management	field mgmt focus group	Use locomotive simulator, and basic orientation.
	<i>Train dispatching operating knowledge and territory familiarization</i>	train dispatcher	traincrew
motive power dispatchers		field mgmt focus group	Give orders that do not reflect reality of moving equipment in yard. Need railway operation experience.
Safety	track gang	track gang	Do not receive any safety training. Very unsafe for employees particularly new hires. New hires
		field mgmt focus group	
	engineering work forces	field mgmt focus group	
	trainmasters	field mgmt focus group	
	locomotive engrs	field mgmt focus group	
	traincrew	traincrew field mgmt focus group	People do not adhere to rules, do not know rules.
yardmaster	traincrew	Do not have enough experience	
	field mgmt focus group	What is the law, the company policy	

Technical training needs by topic area *continued*

Need	Target Group	Identified by	Comments
Safety continued	transportation employees	field mgmt focus group GTC interview	Needs more of a push, not emphasized enough. poor on-job-application of safety practices
	mechanical work force (carmen)	field mgmt focus group	
	field management	field mgmt focus group field mgmt focus group	What is the law, the company policy  Better to work with someone who knows what they are doing.
	all employees returning after absence (eg 30 days)	field mgmt focus group	Mentioned for trainmen, carmen and trackmen.
Signals	signal people	GT mgmt interview  GT mgmt interview	Should go to CN schools to keep current with technology and methods. Presently go to BN. Need to keep up with changing technologies
Track maintainer skills	track gang new hires	track gang  field mgmt focus group	Do not receive any basic skill training on tasks and tool use. Unsafe. Should include safety training. Induction training for new hires critical, especially for safety. Seasonal hires particular problem.
Welding	carmen	field mgmt focus group	Hire experienced welders so that this is not a problem
	mtce of way	field mgmt focus group	Only on-job-training available. Note that there was an indication in another group that welders are hired with the skills and training not an issue.

**Findings - Existing Training for Operations**

This section reports the state of training in the Operations function. Included are:

- courses delivered either externally or internally between January, 1990 and May, 1992
- training facilities, equipment, and instructors

**Internally Delivered Courses**

The chart below lists the courses delivered to Operations employees internally between January, 1990 and May, 1992.

Course Title	Target Population	Duration	Number of Trainees	Comments
Business Interruption Training	Management	5 days	122	Training in critical railway activities in the event of a major interruption to railway operation. Method: instructor led theory and hands on Requires: classroom, training car, and access to yard.
Careful Car Handling	Schedule	2 hours	244	Training for operations employees on careful car handling. Method: instructor led theory Requires: classroom
Haz Mat Emergency Response	Management Schedule	8 hours	600	Method: instructor led theory with hands on Requires: classroom and access to yard
Introduction to Railroading	Management Schedule	5 days	30	An introduction to railroading designed for employees in non-operating positions. Method: instructor led theory with hands on Requires: access to yard
Locomotive Movement	Schedule	1 day	186	Method: instructor led theory with hands on Requires: classroom and access to yard
Locomotive Air Brake Operation	Schedule	1 hour	20	Method: instructor led theory with hands on Requires: access to yard

Internally Delivered Courses *continued*

Service Plus	Management Schedule	20 hrs	60	Five modules addressing customer service for employees who interface with external customers. Method: instructor led theory Requires: classroom and break out rooms
Service Plus Facilitator	Management	3 days	3	Training for supervisors in facilitation skills for the Service Plus program Method: instructor led theory Requires: classroom
Train Service	Schedule	5 days	20	Basic job skills for train service new hires. Method: instructor led theory with hands on Requires: classroom and access to yard

**Externally Delivered Courses**

Courses delivered to Operations employees externally between January, 1990 and May, 1992.

Course Title	Target Population	Duration	Number of Trainees	Comments
Area Technical Conference	Management	3 days	15	Method: Instructor led theory with hands on Developed by: Eng Members
Signalman Apprentice Training	Schedule Other	50 days	0	Method: Instructor led theory with hands on Developed by: CN
Service Process Management	Management	3 days	1	Method: Instructor led theory Developed by: ASQC
Service Plus	Management	5 days	1	Method: Instructor led theory Developed by: DDI
Managing Technical Training	Management	5 days	2	Method: Instructor led theory Developed by: U of Wisconsin
CB06 Redwood Mtce & Configuration	Management Schedule	9 days	3	Method: Instructor led theory with hands on Developed by: ROLM
CM57 9751CBX TI/D3 Maintenance	Management Schedule	5 days	1	Method: Instructor led theory with hands on Developed by: ROLM
MC08 9751 CBX Maintenance	Management Schedule	19 days	4	Method: Instructor led theory with hands on Developed by: ROLM
MC09 9751 CBX TI/Data Maintenance	Management Schedule	4 days	1	Method: Instructor led theory with hands on Developed by: ROLM
MC23 PM Maintenance	Management Schedule	9 days	1	Method: Instructor led theory with hands on Developed by: ROLM
SW24 9751 CBX Configuration	Management Schedule	15 days	1	Method: Instructor led theory with hands on Developed by: ROLM
Transportation Management	Management Schedule	14 days	2	Method: Instructor led theory with hands on Developed by: Northwest University

## **Training Facilities and Equipment**

Permanent training facilities exist for Transportation and Hazardous Materials training in Battle Creek, Pontiac, and Flat Rock. Permanent instructors for Rules, Locomotive Engineer Certification, and Haz Mat training are located at these centres. Facilities consist of 1 to 3 training rooms depending on the location.

All remaining training facilities are basically conference rooms in the various rail yards and offices, which are used on an ad hoc basis.

### *Battle Creek*

Battle Creek has three training rooms. One full time instructor and one occasional instructor for engineer certification work from this location. In addition there are two people who provide mechanical training as needed; approximately 5% of their time is spent on developing and delivering training.

A box car, used in the past for refresher training in car inspection, installation of end-of-train units, and air brake, is located in Battle Creek. It has not been used for two years.

### *Flat Rock*

Flat Rock has three permanent instructors for Rules and Engineer Certification.

The type 2 locomotive simulator works from this location. It is in a trailer and in regular use throughout the system.

### *Pontiac*

The Hazardous Materials manager/ instructor is located in Pontiac. Work Equipment training (supplier training) is done in the Work Equipment shop and yard facilities.

A retrofitted jumbo tank car works from this location. It is in regular use for Hazardous Materials training both to GTC employees and to the public (e.g. fire departments).



## Recommendations

- Increase the quality and quantity of technical training, using available courses through Operations Training

Technical training is to be provided in Operations Training facilities or in existing facilities on the GTC, depending the number of trainees and urgency of the training.

When appropriate, instructors in GTC are to be trained by Operations Training to deliver a training package and supplied with the appropriate materials.

Further study is required for each training need to ensure that CN training fits in the US regulated environment and does not contradict the GTC inspection, repair and maintenance standards.

- Appoint Training Director for CN North America - US

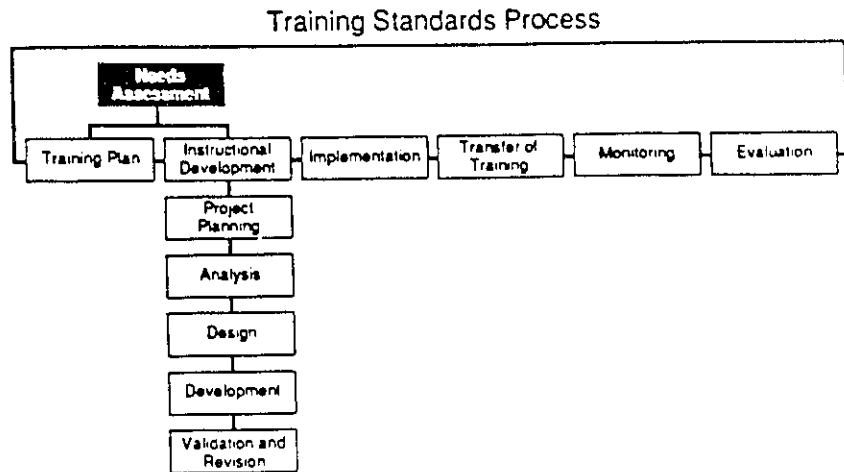
Appointment of a Director of Training in GTC would greatly facilitate the coordination and prioritization of all training requests by GTC. This position would:

- address funding and personnel resource issues for training in GTC beginning in 1993,
- monitor training needs,
- develop and implement a corporate training plan,
- coordinate and direct training activities in GTC,
- ensure instructors are trained as instructors and qualified in their subject,
- ensure employee training is recorded in a training data base,
- work with CN training groups to adapt and deliver training in GTC.

**Appendix E - Excerpt from CN Training Standards**

## *Needs Assessment*

CN recognizes that training must be linked to the organization's goals and objectives, therefore a needs assessment must be performed.



### *What is a Needs Assessment?*

A needs assessment involves the systematic study of a perceived need, opportunity, problem, or innovation. It incorporates data and opinions from varied sources, in order to make effective decisions or recommendations about what should happen next.

Sometimes that recommendation involves training, sometimes not, i.e. changes to selection procedures, job design, reward and recognition systems, work processes, or other types of solutions.

A needs assessment pinpoints:

- gaps between actual and desired performance
- causes of the performance gaps
- potential solutions or recommendations

A needs assessment ensures the real problem has been objectively identified and quantified. With this information, development of solutions can proceed from a solid foundation.

<i>The Challenge</i>	To perform a thorough, effective, purpose-based needs assessment and still work within reasonable time expectations, organizational constraints, and budget limitations.
<i>Scope</i>	<p>A needs assessment varies in length depending on the:</p> <ul style="list-style-type: none"> <li>• size and complexity of the problem or opportunity</li> <li>• objectives of the assessment team</li> <li>• resources available</li> <li>• cooperation from interested parties</li> </ul> <p>Accordingly, length can range from a few hours, to days, to several weeks, to a few months.</p>
<i>Timing</i>	<p>A needs assessment must come at the beginning of any systematic approach to training.</p> <p>It is important to assess needs before and separately from the process of determining solutions. Many people have a natural tendency to seek solutions before the problem is defined. This leads to the costly “<b>ready-FIRE-aim</b>” syndrome.</p>
<i>Steps</i>	<p>Successful assessments are based on six steps listed below and elaborated on the following pages:</p> <ol style="list-style-type: none"> <li>1. Assess the context and purpose</li> <li>2. Select the techniques and tools</li> <li>3. Develop a needs assessment plan</li> <li>4. Conduct the needs assessment</li> <li>5. Analyze and synthesize the data</li> <li>6. Communicate results and recommendations</li> </ol>

**1. Assess Context  
and Purpose**

It is important to develop a clear picture of the setting or environment in which the assessment will be conducted. Information is gathered on:

- who supports the assessment
- what barriers will be faced
- what resources are available
- timing
- scope, etc.

In addition, the reasons for the needs assessment and management expectations are clarified.

**2. Select Techniques  
and Tools**

Information is collected on:

*Desired Performance:* What is desired performance and how does this contribute to achievement of company goals?

*Actual Performance:* What are employees currently doing?

*Attitudes:* How do they feel about the issue?

*Causes:* What is causing the performance gap?

*Solutions:* What solutions are possible? Preferred?

The following approaches can be used to collect information:

- research
- seeking opinions
- analyzing subject matter
- analyzing tasks/jobs
- establishing a performance monitoring system

Tools and techniques commonly used to collect the information are:

- interviews
- meetings
- focus groups/discussion groups
- surveys
- observation
- documentation and literature review, e.g. job documents and collective agreements

*3. Develop Needs Assessment Plan*

Before the assessment begins it is important to plan what data are needed, from whom, and how this will be:

- collected
- analyzed
- communicated

An overall outline, and a detailed stage by stage plan of the needs assessment must be developed to detail information on the context, purpose, techniques, tools, and sources.

*4. Conduct Needs Assessment*

The data are collected from a sample of the target population, using the tools and techniques selected, according to the plan developed.

*5. Analyze and Synthesize Data*

Analysis and synthesis of the data into findings and recommendations requires organization and creativity.

Interpretating and synthesizing the data into recommendations with priorities requires consideration of many factors including cost/benefit ratios and contribution to the company's mission, vision, and values.

*6. Communicate Results and Recommendations*

During and after the needs assessment, results and recommendations must be communicated to management.

When planning your communication consider:

- with whom you must communicate
- why you are communicating
- how to communicate clearly and with tact

*Conclusion*

From a needs assessment, the data, findings, and recommendations related to training form the basis for the next step in the process, i.e. the selection or development of training.

## Appendix F - Case Study Methodology

This document describes the case study methods used by the author in her research role of participant-observer. The construction and use of a daily log, the collection of project documents, the method of observation, and the means used to confirm observations are described.

### *Daily log*

When the author was assigned the project, she immediately started a daily log of events and observations on her computer. For every day on the project, she entered the date, a succinct description of the project activities, and observations on what had occurred. Entries into the daily log were made at the end of the day after regular working hours. During heavy project activity, for example project meetings, the author took notes during the meeting and entered them into the log at the end of the day. When there were minutes of meetings, these were used to confirm the accuracy of log entries. Some records were a brief sentence. Other daily entries extended over two pages.

A format was developed to ease the daily log entry and use of the log as a reference document. Entries were in point form, with the use of headers to label the activity. People were identified by initials, rather than full name. Direct quotes from individuals were recorded as such with quote marks.

A partial sample of log entry is provided below.

### April 10 - Friday meeting

- CD & bmck arrived in time for meeting. Computer set up with liquid crystal display.
- JM, RC and SS were the only reps for CN. LD sick, TU traveling.

### *Survey forms*

- Positive feedback on the forms from GTC. CD had tried it out once and was satisfied that the forms would work. CD stated that had started putting survey into dBase IV.
- Worked through the survey forms. Minor modifications made. Refinements to capture information better from 10:30 to 1:30. Printed out for review.

### *Timeline for phases*

- Reviewed the reworked phases. Agreement on them.
- Worked out a timeline. My timeline sheet proved extremely useful, especially as it was in the computer and I could quickly get in the critical events and print it.
- Bmck called executive office in CN to determine exactly what was the date for the next board meeting after the end of June. - July 28. Gave us some leeway because then our report could be made into a presentation to Reoch/Kelsall, in time for Kelsall to prepare for presentation to the Board
- Bmck questioned if DH needed report or just recommendations that would lead to a presentation
- Arranged for DH to come into meeting to clarify what exactly was needed for the Board meeting.

The log was backed up on a diskette and printed on a regular basis both for security and as reference during the project.

During the project, the log was a useful reference to the author as a check of what had been done on the project and what had yet to be done. After the case study the log was the primary source used to write up the thesis, providing the chronological order of events, individual actions, and observations on these. The author was able to confirm observations in later events. For example, early in the project the author indicated concern with the GTC team member learning dBase IV for the project. Later she noted that he seemed overloaded with the data input and analysis for the surveys, but that he assured the team that he could handle it. By the end of the project the concern was validated by the condition of the survey data base. It was unable to produce the information that was needed and had significant gaps in the data.

### *Project documentation*

The author maintained a paper file of all minutes of project meetings, electronic mail communications, and memos related to the project. In two cases where a letter was sent out by GTC, the author asked for a copy for the project file and received it by fax. These documents supplemented the daily log, in particular the electronic mail communications as they validated observations on team interaction.



### *Confirmation of observations*

For a case study researcher, a major factor in the reliability and validity of the data is confirmation of observations. In this case study the author confirmed her observations with team members and other stake holders through discussions with the various team members. The discussions were, for the most part, naturally occurring discussions on team process and events. On several occasions the author requested confirmation of an observation with a team member. All verbal discussions were noted in the daily log. If the "discussion" took place in electronic mail, the electronic mail was printed and added to the paper file. All team members, including the project leader, were aware of the author's participant-observer role and were thoughtful providers of their observations when this was requested.

After the case study had ended, the author prepared a set of four questions to interview the four key team members. The questions asked for their observations on the functioning of the team, on the project leader, on the needs assessment process, and on the end value of the needs assessment. These interviews confirmed all major observations.