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The impact of required competencies and some selected variables on the quality of training among trainers in business and industry: A factor analytic approach

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Iowa State University, 1989

The impact of required competencies and some selected

variables on the quality of training among trainers in

business and industry: A factor analytic approach

by

Echeazu Jude Igbokwe

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For the Graduate College

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Ames, Iowa

1989

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

DEDICATION

This dissertation is dedicated to the memory of

my late father

Chief Boniface Nwalozie Nwanjoku Igbokwe

and

my late sister

Mrs Anthonia U. Kekeh

whose memories guided me through this study.

CHAPTER 1. INTRODUCTION

Background of the Study

Research in business and industry shows that the United States alone spends over $30 - $40 billion dollars annually on formal courses of instruction and training. It is also reported that over 40 million employees are trained yearly in the United States. (Calvert, 1985; ASTD, 1983). This represents a huge economic investment. Ironically, little evidence exists with regard to the payoff of such investment. It is assumed that training increases effectiveness, productivity, and, ultimately, total organizational payoff.

When one examines the role of training in business and industry, one finds that training is used to keep employees current on relevant job skills as much as a reward to productive employees. Training, according to May, Moore, and Zammit (1987), is very often used by business and industry for strategic purposes such as implementing strategic changes like becoming more entrepreneurial, improving customer service, developing a customer market focus, and developing the manager's

administrative potentials. In the words of Gherson and Moore, "training addresses organizational roadblocks and ultimately helps managers and employees understand their roles in implementing competitive strategy" (May, Moore, and Zammit, 1987, p. 88).

The importance of training for organizational growth and sustenance can not be overemphasized. With the increase in such forces as deregulation, advances in information technology, increased international competition, and shifts in consumer tastes and preferences, it is no wonder that training has become .such an important part of an organization. The use of training by business and industry to counteract these forces of change is one of many different levers available to management for effecting organizational change in support of strategic initiatives. Strategic levers, according to May, Moore, and Zammit (1987), are means for implementing strategic change once new directions have been set in the executive boardroom. The following quote in May, Moore, and Zammit (1987) reflects such a trend.

> "Some strategic levers provide means for
> 'making' a new business organization from
> within. These include redesign of

organizational structure, redefinition of
roles, and changes in reward structures,
as well as training to effect changes in
behaviors, attitudes, skills and knowledge.
Other levers provide means for 'buying'
change. These include acquisition and
merger to bring new business into the
corporation, hiring of new executive
talent to bring desired leadership skills
and business orientation into the firm, and
hiring of people with particular technical
expertise such as state-of-the-art
knowledge and skills". (p. 99)

Training in business and industry is for everyone
who has a stake in contributing to the organization's
objectives. These include managers, supervisors, line
and staff workers, clerical staff, front-line staff, and
technical staff, among others. Managers and supervisors
need training to improve and enhance their human
relations and supervisory skills. Line and staff
workers need training to enhance and upgrade their
skills based on the new technology. Clerical staff need
training to keep abreast of new technology and new ways
of doing things in the workplace. Front-line staff need
training in the ways of dealing with potential customers
and clients so as to have repeat business. Finally,
technical staff need training to keep up to date with
current production technology. Moreover, all these
business and industry employees need training to better

relate to and get along with each other in their pursuit of a common strategic business objective.

A concern of most business and industry analysts is that most business and industry trainers do not have formal training to be trainers. The backgrounds of these trainers range from academic preparation to on-the-job (OJT) experiences. Those with academic backgrounds differed in their academic disciplines, with some in business, others in education, liberal arts, psychology, sociology, philosophy, engineering, and other related disciplines. The result of these diverse backgrounds had stimulated concern regarding the possession and application of competencies deemed to be related to effective and quality training. These and other problems with training led the American Society for Training and Development (ASTD) to develop a competency list for trainers in order for them to be effective in the training they do.

This study therefore examined the need for trainers to have the ASTD's required competencies and how trainers in business and industry rate the importance and frequency of application of these competencies in the training they do. Finally, the study examined the

question of effective and quality training in
relationship to application of the competencies in
business and industry training.

Statement of Problem.

Since the ASTD competency study was made public in
1983, most business organizations and authors have been
identifying the possession of required trainer
competencies as a sine-qua-non for effective and quality
training in business and industry.

In business and industry, however, the bottom line
of all major investments, be it capital, human, or
otherwise, is increased payoff. No business or industry
can continually invest huge sums of money without
adequate payoff from the investment.

It has been documented that business and industry
in the United States spends over $30-$40 billion dollars
annually on formal courses of instruction and training,
and train over 40 million employees yearly (Thomas,
1981; ASTD, 1983; Calvert, 1985). These investments
ought to lead to an adequate payoff for the business or
industry.

In view of all these business and industry
objectives, vis-a-vis the possession of the ASTD-
required competencies by trainers, we do not know for
sure whether having these competencies, or the
application of these competencies, actually does impact
on the quality of training, and whether therefore they
impact on productivity. It is also unclear whether
these competencies are just ideals (to strive for) that
can never be reached, or are simply guidelines for the
trainer to aspire towards.

It is therefore important to ascertain whether
trainers in business and industry do indeed possess and
incorporate the ASTD-required competencies in the
training they do, and, if they do, whether their
training is seen as quality training.

Questions of the Study

1. Do trainers actually have these ASTD-required
   competencies, and do they apply them in the
   training they do?

2. Are these competencies perceived as essential to
   training?

3. Are different competencies applied in different types of training, and what is the deciding factor?

4. Are some of the competencies seen as more valuable/important than others? If so, which ones, and why?

5. Does the application of the competencies by trainers impact the quality and effectiveness of a training program?

6. Do differences exist between the perception of trainers and supervisor/managers on the criteria for measuring effectiveness and purpose of training in business and industry?

Definition of Terms

Quality of Training:

This concept reflects the degree to which trainers and training are seen to help achieve organizational objectives in business and industry.

Competencies:

This concept refers to the skills, knowledge, and attitude sufficient for one to operate in a defined area of expertise. Four role clusters that identify the ASTD required competencies are interface, concept development, research, and leadership clusters (ASTD 1983, pp. 17-18).

1. **Interface Cluster:** This concept is used to denote the following competencies: adult learning understanding, feedback skills, group process skills, intellectual versatility, organization behavior understanding, questioning skills, relationship versatility, and training and development technique understanding. These competencies involve the trainer in different roles, such as marketer, transfer agent, group facilitator, and instructor.

2. **Concept Development Cluster:** This concept is used to denote the following competencies: adult learning understanding, competency identification skills, computer competence, data reduction skills, intellectual versatility, model building, objectives preparation,

training and development techniques understanding, and writing skills. These competencies involves the trainer in different roles, such as program designer, instructional writer, and theoretician.

3. Research Cluster: This concept is used to denote the following competencies: competency identification skills, computer competence, data reduction skills, feedback skills, intellectual versatility, performance observation skills, questioning skills, research skills, and writing skills. These competencies involves the trainer in different roles, such as evaluator, task analyst, and needs analyst.

4. Leadership Cluster: This concept is used to denote the following competencies: cost/benefit analysis skills, data reduction skills, futuring skills, industry understanding, organization behavior understanding, organization understanding, personnel/human resource field understanding, writing skills, and intellectual versatility. These competencies involve the trainer in different roles, such as strategist and manager.

Study Assumptions

1. Quality and effective training ought to lead to increased productivity/organizational payoff.

2. The objectives of training in business and industry will be integrally related to organizational goals and objectives.

3. In order to make generalizable conclusions from the sample selected, it is assumed that an acceptable sampling of trainers in business and industry can be obtained through the membership of ASTD.

4. Respondents will be forthright and honest in their assessments and responses about training competencies.

Hypotheses to be tested

1. There is a significantly ($p < .05$) positive relationship between the application of competencies by trainers and the reported quality of the training they do.

The assumption underlying this hypothesis is that trainers who possess and apply more of the ASTD-required competencies do quality training by their application of the competencies they possess while training. Therefore, the competencies are essential for trainers, and the more the competencies, the better the quality of training done.

2. There is a significantly (p < .05) positive relationship between the educational level and the application of competencies by trainers in business and industry.

The assumption underlying this hypothesis is that educational level leads to increased competency of trainers and trainers who possess and apply the competencies will attach more importance to their educational background and be apt to see the value of the competencies to quality training.

3. There is a significant difference (p < .05) in competencies applied during different types of training.

The assumption underlying this hypothesis is that the competencies applied are dependent on the type of training. The type of training, such as managerial, line/staff, clerical, and others, will require different competencies in assuring that those involved in the learning process do indeed learn during the training, thereby upholding some some adult learning theories. (For example, different teaching and learning styles help adults learn).

4. There is a significant difference ($p < .05$) in the importance of competencies among trainers with different educational backgrounds.

The assumption underlying this hypothesis is that business and industry should seek out trainers with educational backgrounds that tend to emphasize the importance of these competencies. These trainers are more likely to possess and value these competencies in trying to meet their organizational objectives.

5. Trainers who see the purpose of training as related
    to organizational goals will possess significantly
    greater (p <.05) levels of competencies than those
    who do not see training and organizational goals as
    necessarily related.

    The assumption underlying this hypothesis is that a
    trainer's attitude towards training has something
    to do with how prepared the trainer is with regard
    to the competency level. Those who view training as
    a means to achieve organizational payoff are more
    likely to be those who have the required
    competencies.

6. There is no significant difference (p < .05)
    between trainers and managers/supervisors on the
    criteria for training effectiveness.

    The assumption underlying this hypothesis is that
    when supervisors and trainers have the same criteria
    for measuring training effectiveness, then there is
    a common ground for evaluating success or failure.

Hence, industry objectives can be evaluated/weighed against the means of achieving those objectives to arrive at an acceptable result.

7. There is no significant difference ($p < .05$) between trainers and managers/supervisors on the purpose of training in business and industry.

The assumption underlying this hypothesis is that when supervisors and trainers see the purposes of training as essentially the same, then training will achieve its intended goal based on industry needs hence, impact productivity. However, if trainers and supervisors see the purpose of training differently, there will be a problem with the focus of the training itself.

Purpose of the Study

The first purpose of this study was to obtain comprehensive information from business and industry trainers, and their supervisors that could be used to ascertain competency levels of the trainers. A second

purpose was to identify the intended versus actual use of these competencies. A third purpose was to examine whether there is any link between the possession of these competencies, application of these competencies, and the effects of applying these competencies on the quality of training done in business and industry.

Need for the Study

The need for effective trainers in business and industry is a practical and important one among industry and business owners who want an adequate payoff for their investment dollars, and among employees who are faced with the rapidly changing technology that renders their originally acquired skills, knowledge, and attitudes obsolete. Most people are aware that until recently, the training profession had not been recognized as part of a profitable business venture. The result of this lack of recognition among business and industry executives was the hiring of individuals with varieties of educational and job backgrounds to be responsible for training. Generally, the training department, if it existed in any business or industry,

was used as a means by top management to occupy
inefficient managers and executives, who have not
reached retirement and cannot be fired because of
contractual obligations.

The computer age, as well as growing technology,
also rendered it imperative for business and industry to
re-train their manpower in order to be able to compete
effectively in the world market. Business and industry,
therefore, started to invest huge sums of money in
training. The need arises to make sure that those
charged with the training responsibilities have the
required skills and know-how to do the job so that the
investment would not be a wasted effort.

General procedure for the Study

After an extensive review of the literature on
adult learning theories and models, business and
industry training, and effectiveness and efficiency
in business and industry training, a survey instrument
was developed and mailed to 200 randomly selected
trainers and supervisors who have membership with the
Iowa Chapter of the American Society for Training and

Development (ASTD). The permission of the Iowa Chapter ASTD leadership was sought and received before the survey instrument went out to the individuals sampled.

Groups of questions were asked of the sample and the questions were divided into four parts, namely: questions that dealt with the perceived importance and the frequency of application of the 31 competencies; questions relating to general demographic characteristics of the sample; questions relating to the perceived purpose and effects of training in business and industry; and, finally, questions relating to standard measures of effectiveness in business and industry.

Out of the 116 (58%) returned instruments, 106 (53%) useable questionnaires were then analyzed for results. These data were analyzed by statistical methods using the SAS computer package. The results of the study were then reported, as seen in Chapter 4 of this research study.

Significance of Study

The study is significant because of the interaction of adult learning theories and principles in the composition of the competency requirements for trainers. These competencies were examined in the training context as seen by ASTD and as practiced by business and industry trainers. The study is also significant because recent documentations regarding the effects of some demographic characteristics on training in business and industry became apparent, and poses difficult questions to corporate employers. Finally, the study is significant because training quality and effectiveness which has been of serious concern among many business and industry executives can now boast of similar criteria in evaluating quality and effectiveness of training.

It is hoped that the implications of this study will help contribute to a better understanding of the body of knowledge and the discipline, from a theoretical and practical stand-point, as well as shed further light on the new area of training and development.

Study Limitations

This study is limited in the number of trainers reached due to costs involved in such a study. Another limitation to this study is the fact that not all the trainers in business and industry who are ASTD members were available to participate in the survey during the period of the research because of other prior training commitments within the state and beyond. Some trainers also were not able to read the chapter's newsletter, where a written explanation of the research was featured. However, this limitation was reduced by the efforts of the Board of Governors of the ASTD Iowa chapter to communicate the importance of the study to survey participants in advance and request their full cooperation in the study.

These limitations make it difficult for the study to claim with certainty that those trainers reached are typical of all the trainers. It also makes it difficult to claim that the sample, which covers mostly trainers in manufacturing and the service sectors, is representative of trainers in all sectors of the business world. Therefore one can only make a generalization of this study to business and industry

trainers in Iowa. There is also an uncertainty as to the generalizabilty of the findings to similar states that are mostly agriculture or service-oriented. Hence, caution should be exercised with the interpretation of this research findings to encompass business and industry training efforts in other states.

CHAPTER II. REVIEW OF LITERATURE

The purpose of this chapter is to review pertinent literature on business and industry training, vis-a-vis organizational expectations and payoff, and how training can be accomplished by trainers with the application of adequate training competencies.

The chapter is divided into five sections, namely: an overview of business and industry training; relationship between adult education and training; the relevancy of training models in business and industry; why training programs fail; and, finally, the relationship of the literature to the present study.

Some of the sections have further been subdivided into subsections to help guide the reader through the literature review. Section 1 examines the historical as well as the current perspectives on business and industry training. It also examines effectiveness and efficiency as seen in business and industry training, and, lastly, examines factors affecting job training in business and industry.

Section 2 examines relationships between adult education and training, which include: the aims and objectives of education and training; role of theories

in training situations; the dynamics of the learning
process; and the selection and organization of learning
activities.

Section 3 examines the relevancy of training models
in business and industry training. Section 4 examines
the reason why training programs fail. Finally, Section
5 synthesizes the literature and discusses relationships
of the literature to the present study.

An overview of business and industry training

This section examines the historical and current
perspectives in business and industry training. The
section also discusses the perception of effectiveness
and efficiency in business and industry training. It
concludes with an examination of factors affecting job
training in business and industry.

Historical perspectives

The historical development of job training in
industry and its rise to influence was "due in part to
the addition of training and development departments to
industrial firms" (Wenig and Wolansky, 1972, p. 4).

According to them, this situation occurred because both management and line supervision began to see the ineptness of their own training ability and the haphazard training and development programs. Many large business firms, such as Authur Anderson Company, Ford, IBM, and Pioneer Hi-bred, maintained large training and development departments which employ trainers and or hire entrepreneurial trainers to do corporate training.

The primary duty of the managers and supervisors of these training departments was "to work with both top management and labor to accomplish a broader and more adequate training program for all levels of workers" (Wenig and Wolansky, 1972, p. 4). Wenig and Wolansky (1972), quoted one such manager as saying "The performance of training and development directors and their departments to meet job training needs has not succeeded as hoped for by management" (p. 4).

Historically, many legislative policies and regulations have helped business and industry training. Some of this legislation includes: Government Employees Act of 1958, The Area Development Act of 1961, Trade Expansion Act of 1962, The Manpower Development and Training Act of 1962, The Economic Opportunity Act of

1964, and The Comprehensive Employment and Training Act
of 1973, among others (pp. 16-18).

These historical trends led to a re-evaluation of
what training ought to accomplish in business and
industry and where the focus of the training ought to
be. Current studies suggest that the perspective of
training in business and industry ought to reflect
overall economic activity, because of the huge budget
outlay that goes to training. Let us now see what the
studies specifically suggest for training in the 1980s
and for the 1990s.

Current perspectives

Currently, the issue of how training relates to
overall economic activity has been a major focus for
researchers involved with training and development in
business and industry. Carnevale (1981) and Wenig and
Wolansky (1983) concluded that "corporate training
programs are today somewhat less affected by fluctuating
economic conditions that have, in the past, resulted in
decreased programming with the beginning of recession,
and increased programming with economic recovery. This
is due to the fact that educational efforts in industry

today are held in high regard by executives" (Wenig and Wolansky, 1983, p. 19).

Hawkridge (1988), in his research on financial services, concluded that "training is in recent years needed to improve banks' image and increase profits" (p. 5). Wenig and Wolansky (1983) also view training as a current "investment in future profits" (p. 24).

The types of training done in business and industry in recent years include orientation training, safety training, on-the-job training (OJT), formalized skills training, speed and accuracy in job performance, management training, general education, and others (Kearsley 1982, p. 121; Wenig and Wolansky 1983, p. 33).

Hawkridge (1988) contended that recently, unions have an important role to play towards employee training and in fact require it as part of a work contract which is frequently negotiated on.

On the current cost of training relative to size of the organization, Hawkridge (1988) concluded that "training costs are relatively higher for small companies, yet training must be done in any company that expands or changes its range of products and services" (p. 9). For Hawkridge, "expensive training may seem

prestigious at the time, but is only worthwhile when it is highly effective" (p. 10).

Lusterman (1985), in his recent study of business and industry training, also indicated that much training happens outside the formal educational system, through OJT, and special off the job courses. He estimated that informal training amounts to 80-90% of all job-related training.

On the sectors of business that currently offer the best career opportunities in training, Bard (1987) asserted that "during the early part of this decade, trainers tended to agree that communications, banking and finance, and health care services were the industries offering the best career opportunities in the training field. Mining and oil, construction, government (local state, federal), and retail trade were considered the worst industries for trainers seeking career growth. Opinions were mixed about training career opportunities in manufacturing and education. However, the majority of the respondents to the training surveys have tended to be in manufacturing, finance, insurance, banking, and business services" (p. 20). Bard also indicated that in recent years "approximately

60% of those in the training field have undergraduate
or graduate degrees in either education, business
or management, or social science (psychology in
particular)" (p. 20).

McKee (1969), Livingston (1971), and Carnevale
(1981), researching on the short-term and long-term
nature of training in business and industry, stressed
that the position held by management today has changed
from viewing job training as short-term into a long-term
investment as a factor for economic planning and
stability.

According to Wenig and Wolansky (1972), several
factors worked against the change of management's
position towards job training. These factors include:
hiring from similar industries, the armed forces, and
specialized training institutions during periods of
greater manpower needs; soliciting trained workers from
similar industries by offering higher pay, during low or
poor economic conditions. To prevent this trend,
Lebergott, as quoted in Wenig and Wolansky (1972),
stated that "industry must be induced to sponsor more
training, so that the process of employers bidding
workers away from each other be reduced or eliminated

because it would tend to raise wages; hence cost of labor would go up, which in turn, would raise the price of consumer goods and services" (p. 4).

Wenig and Wolansky (1972) concluded that "...in a highly competitive market, those industries which have training programs could, in essence, sell their products at a lower price" (p. 5), and that management would soon realize the benefits of conducting its own training program. This concept was supported by Livingston (1971), who argued that "the total cost of training activities does not apply against the profits of the year in which the costs are incurred, but is spread over the entire period of time that training is expected to influence corporate income" (p. 51).

Despite economic forces, the American Society for Training and Development (ASTD) has in recent years also been instrumental in changing management's attitude towards the benefits of operating a job training program. Through the leadership of both its executive officers and membership, improved training programs were made possible (Wenig and Wolansky 1972, p. 5).

Training is also currently seen as part of human resource development in any organization where it exists and, in the words of Nadler (1986), human resource

development can be construed as 'training' when its primary purpose is to improve current job performance, as 'education' when its primary purpose is to help personnel advance to a different job, or as 'development' when it aims to strengthen the organization through benefiting individuals or organizational units (Nadler, 1979). Nadler (1979), discussing the concept of Human Resource Development, made a unique distinction among training, education, and development. According to him, "training is job-related learning experience, education is individual-related learning experience, and development is organization-related learning experience" (p. 254). Marsick (1987) concurred with this distinction while emphasizing that "training is preplanned educational activity, usually designed by the organization to further the learning of employees and improve work performance" (p. 101).

Overall, the ultimate goal of human resource development is to benefit the organization, as seen in Figure 1 below.

```
                 |  HRD     |             |          |
                 | PROGRAM  |             |WORKPLACE |
                 |----------|             |----------|
 Employees       |Employees | Employees   |Employees | Payoff
 lacking->       |learn new |------------>|use new   |---->to
 SKA enter       |   SKA    | exit with   |   SKA    | Organi-
                 |          | new SKA     |          | zation
                 |_____|             |_____|
```
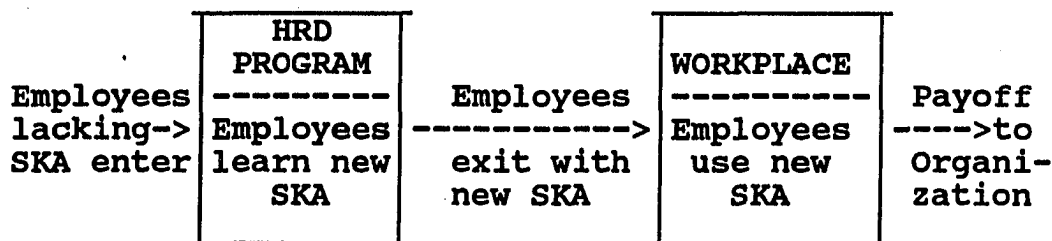
Figure 1   The logic of human resource development
            (adopted from Brinkerhoff, 1987)

In the above illustration, training programs

provide employees some sort of learning experience, such

as a workshop, on-the-job training, self-instructional

resources, or an external course. They acquire some

new skill, knowledge, or attitude (SKA), from this

intervention. These participants, or employees, return

to the workplace and put the new SKA to some use, and

the use of the new SKA produces positive results for

the organization in terms of payoffs. Brinkerhoff

refers to this training structure as "classical

training." He, however, maintained that sometimes the

route to organizational benefit is neither direct nor

clear (for example, the provision of such things as

cardiopulmonary resuscitation (CPR) instruction for

employees, a trip to a professional convention, and

others). These training options need not result in newly-acquired skills that are applied in the work place. They are intended as a reward, to create greater loyalty, commitment, and dedication in the recipient. These attributes, it is assumed, will pay off for the organization in increased productivity of recipients and even their subordinates, lower turnover, and the like (Brinkerhoff, 1987).

For human resource development programs such as training to pay off, participants must complete their training, learn the new skills taught, comprehend the motives behind the training, and transfer these skills to the workplace. Managerial support is also essential for this transition to take place. One of the key ingredients for payoff to result from training is that learning must take place.

In conclusion, the section lays emphasis on the focus of training to overall economic activity. The section also shows that there has been an increase in the perception of training as a positive force in businesses by top executives. Training is now used to improve a company's image and increase profits. Training is now classified according to types to help

trainers plan their course of action accordingly. Small companies pay more for training because the economies of scale is with the big corporations. Career opportunities in training is with service and manufacturing, followed by education. Trainers are now highly educated and management attitude has changed to seeing training now as a long-term investment as well as part of a learning experience with the overriding criteria being the effectiveness and efficiency of the training process and outcome.

If the overriding criteria are effectiveness and efficiency, then how are they perceived with regard to business and industry training, and how do the competencies help in identifying the effectiveness and efficiency criteria?

Effectiveness and efficiency as perceived in business and industry training

According to Hawkridge (1988), "training is always likely to be seen as more effective if it is available where and when needed" (p.13). Hawkridge emphasized that companies look at training in several ways. "In general, they want training to be appropriate to the

individual, but they also want it to produce more or less the same standard of performance in all employees doing a particular job" (p. 11). He contended that companies are interested in a training system that: standardizes training, decentralizes training, reduces time required for training, and saves on training costs. He also argued that "in a few cases, companies may judge training effectiveness in terms of its success in meeting sudden large-scale training needs" (p. 12).

Business and Industry want training to result in improved job performance. Warren (1979), while not questioning the conclusions reached by Hawkridge, contended that "in other cases, companies look at training action itself, to evaluate whether training brought about desired change using established criteria to evaluate a participant's on the job performance, and evaluate participants themselves and the need for further training" (p. 144). Odiorne (1970) refers to this type of situation as "training by objectives," which entails moving from a previous position towards an objective (p. 148).

One way to evaluate the training process and increase training effectiveness is to standardize

training through the use of a system popularly known as "computer-based training" (CBT). According to Kearsley (1983), computer-based training reduces the actual training time, leads to improved job performance, and increased training control, reduces resource requirements for training, individualizing training and others (pp. 2-15). Hawkridge (1988) concurred with the above advantages of CBT, indicating that these advantages of CBT would also improve training effectiveness. Hawkridge (1988) concluded that "trainers see the arrival of computers and new communications systems as important because they hope the technology will make training more effective" (p. 11). Ineffectual training, according to him, is despised by employees, rejected by managers and damages company morale (p. 10).

When businesses talk about efficiency and effectiveness, one of the criteria used is cost/benefit measures. According to Kearsley (1982), cost/benefit analysis is a methodology or a set of procedures that allow trainers to answer questions such as:

1. How to justify existing programs.

2. How to achieve a better understanding and control over a training system.

3. How to reduce training expenditures and
    increase efficiency.

4. How to improve training results through
    increased effectiveness.

5. How to evaluate the feasibility or payoffs of a
    proposed training program.

Kearsley (1982) defines cost/benefit analysis as "a
technique or method for assessing the relationship
between results or outcomes and the costs required to
produce them" (p. 2). He suggests three terms that
describe how well trainers and business organizations
are balancing their costs and results. These three
terms are: efficiency, effectiveness, and productivity.

According to Kearsley, improved efficiency means
that the business trainer has achieved the same results
with fewer costs; improved effectiveness means that the
business trainer has achieved better results with the
same costs; and improved productivity means that the
trainer has achieved better results with fewer costs.
He therefore concluded that "improved productivity means
improving both efficiency and effectiveness at the same
time, or, put simply: Improved productivity equals
doing more with less" (p. 3). Warren (1979) also

concluded that "cost/benefit analysis is important in training, especially when looking at effectiveness" (pp. 3,4). Kearsley (1982) emphasized that if the goal of a business is to reduce training expenditures, or trim the budget, then improved efficiency is the focus. If the problem is to improve results of training, then improved effectiveness is the focus. If the concern of the business organization or trainer is to do both cost cutting as well as producing better results, then improved productivity is the focus (p. 3). He proposed a training resource requirements model to deal with training costs. The model is shown in Figure 2 below.

Training costs can be computed using the basic model below by adding up all the rows and columns of the matrix. Each cell of the matrix can represent a different aspect of training costs. This model can be used to compare two training techniques or approaches and thus produce cost savings over an existing method. The model can only be used to compare efficiency, and not effectiveness (Kearsley, 1982, pp. 12,13).

Finkel (1987), while dealing with training costs, emphasized the need for training to obtain a return from the total investment, and that the quality of training obviously must rise to produce an offsetting

	Personnel	Equipment	Facilities	Materials
Analy-sis				
Design				
Devel-opment				
Imple-menta-tion				
Evalu-ation				

Figure 2   Training resource requirements model
(adopted from Kearsley, 1982)

level of improved job performance. He argued that in this way, training time will also be effectively used and that learning will be enhanced by proper environmental design.

The Kearsley (1982) model assumes that the two training approaches to be compared lead to equal training results; that is, - they are equally effective." The model also assumes that training has cycles, namely: R & D, start-up, operational period, and transition period (pp. 13,14). Other cost/benefit

analysis models such as the "life cycle model,"
"benefits model," or "productivity model," can be seen
in Kearsley (1982, pp. 13-19).

Benefits models, according to Kearsley, are used in
cases where the explicit purpose of a new training
approach is to improve effectiveness of the training
(pp. 15, 57-79). According to him, "a benefits analysis
must causally link the attributes of a training program
with the major goals of the program and ultimately with
those of the organization" (p. 15). The model shows
that a number of training system attributes (for
example, media capabilities, testing capabilities,
student capacity, and others) result in certain training
outcomes, such as student completion time, retention,
attitude changes, motivation, and so on.

Training outcomes, in turn, lead to operational
outcomes, like production time, equipment failure rates,
sales volume, customer interactions, and others. When
the outcomes are positive, there are benefits such as
faster production times, reduced equipment failures,
increased sales, reduced customer complaints, and others
like that (p. 17). To use the model, Kearsley contended
that it is necessary to identify all the causal

relationships for the training system concerned because businesses such as manufacturing will differ with sales organization.

Productivity models are intended to measure both efficiency and effectiveness. To improve productivity Kearsley argued that costs or resources utilized must be reduced at the same time training results are increased. He concluded that in the training realm, this measure is typically job proficiency skills such as improved sales, customers served, machines serviced, and others (p. 17).

Training effectiveness deals with the process of training and how trainers ought to select and use a learning medium which is interdependent with the training method used. According to Veri and Vonder Haar (1971), commonly used methods include: brainstorming, case study, demonstration method, discussion groups, lectures, workshops, forums, panels, role playing, simulations, and others (pp. 55-64). Davies (1973), while discussing training effectiveness, contended that "in arranging and allocating resources for learning, training managers and instructors have one primary responsibility. They must ensure that their training programs are effective" (p. 4). He also argued that

"effectiveness has become the central issue, and for this reason, a systematic and integrated approach has become essential" (p. 4).

Veri and Vonder Haar (1971) and Gardner (1976) discussed the evaluation of training effectiveness, and concluded that it can be done in stages, namely: early stage - when the main purpose of the trainer is to teach the method of each task to the trainee; a later stage - when trainers are concerned with development of speed; and the last stage - when the trainee is learning job organization, the view of his performance should focus primarily on his development of skill in staying abreast of the job (Veri and Vonder Haar 1971, pp. 83-99; Gardner 1976, pp. 110,111).

Reddin (1970), as quoted in Davies (1973), distinguished between effectiveness and efficiency in training. This distinction can be seen in Table 1. Davies (1973) contended that "effectiveness in the context of training does not involve personality traits or the quality of administration and instructional techniques. Effectiveness is simply a function of what the training-manager or instructor does; the extent to which he realizes the objectives of his position. If he

Table 1. Distinction between training effectiveness and
          efficiency (adopted from Davies, 1973)

	Training Effectiveness		Training Efficiency
1.	Do the right things	rather than	Do things right
2.	Produce creative alternatives	rather than	Solve problems
3.	Optimize resource use	rather than	Safeguard resources
4.	Realize learning objectives	rather than	Follow duties
5.	Determine training needs	rather than	Lower cost of training

---

fails to realize the training objectives that have been

set, he is ineffective - no matter how efficient he may

be" (p. 4).

Trainers are judged by what they accomplish and

this is the reason why "effectiveness and the definition

of learning objectives go hand in hand, for without

objectives, management is not possible" (Davies, 1973

p. 5). Veri and Vonder Haar (1971) also concurred and

concluded that the "...objective is the desired outcome

of a learning situation, stated in terms of observable

behavior of the learner" (p. 25). Gardner (1976),

however, argued that if trainers can define the problem

of the moment, and design their training to meet this specific problem rather than placing reliance on the same broad approach each time, they have a much better chance of success (p. 141).

Davies (1973) also observed that effectiveness can be learned and that it is rarely a quality that is brought to a situation. For him, therefore, effectiveness is something that is consciously done or achieved by learning how to manage a learning situation (p. 5). Davies (1973) indicated that successful achievement of learning objectives and the enhanced motivation and morale of the students are the main characteristics or indicators of an effective learning situation. The authors also argued that the characteristics or indicators of a successful or effective training program are three-fold, namely:

1. The absence of any great variation in performance between students.

2. The achievement of all or most of the agreed learning objectives.

3. The absence of any direct relationship between the ability of the trainees and their actual achievement at the end of the training (p. 5).

The trainer's aim in the first instance is to reduce the variance in student/employee performance. According to Davies et al., "it is his duty to destroy the normal distribution and replace it with a skewed distribution, indicating that the majority of the learning objectives have been successful and realized" (p. 5). Gardner (1976) summed up the solution of this particular problem by indicating that the approach must be geared to the needs of the individual when individual performance is desired and to group training when group performance is desired (pp. 141,142).

In the second instance, the trainer must define objectives in the most precise terms possible and have measures to evaluate these objectives, to check if learning objectives were realized. In the third instance, Davies (1973) suggested that intelligence is a prime factor in job performance, and concluded that any one can be made to perform better (p. 6). In order for trainers to be effective, the authors indicated that training managers must make effective decisions. The training managers must decide, as a result of analysis, what the real training need is. The trainers must then determine the learning objectives to be realized. It is

only when this is accomplished that trainers will be able to start arranging or organizing their resources so as to realize these learning objectives and at the same time harness student motivation (p. 7).

Four primary skills are demanded of trainers in order for them to be effective in the training they do. According to Davies, these include: sensitivity, diagnostic ability, professional expertise, and flexibility (p. 8).

In conclusion, training is seen as efficient and effective if it is available when and where needed. It has to be appropriate to the individuals being trained and produce the same standard of performance in all employees. Systems such as cost-benefit analysis are now used to aid in this evaluation. Improved training efficiency and effectiveness was seen to be synonymous with increased productivity. Effectiveness was tied to learning objectives by the using the three characteristics of effective training. Since we have known how training effectiveness and efficiency is perceived in business and industry, the next logical question to ask is what factors affect training in business, so that trainers can be aware of what they are up against in trying to be effective.

Factors affecting job training in business and industry

According to Wenig and Wolansky (1972), certain

factors affect job training in industry. "Historically,

in the United States, the type and amount of training in

industry has been dependent upon changes in political,

economic and social forces" (p. 3). They also cited a

U.S. Department of Labor Report published in 1968 which

confirmed that training in industry within the last ten

years was forced to change due to:

1. Society's and industry's concern with human
   resources;

2. Unemployment and underemployment;

3. Scientific and technological advances;

4. Organized labor's demand for better wages,
   welfare benefits and working conditions;

5. Employers requirements for workers.

Wenig and Wolansky (1972), as well as scholars such

as Hawkridge (1988, p. 9), while accepting the fact that

"the industry decision on whether to provide job

training has mainly hinged on economic motives," also

argued that "today, however, most union contracts have

some stipulations for job training which is a form of

societal benefit to the worker made possible by the

political and economic forces." They also cited an
article by Mager and Pipe (1970) which indicated that
"historically, industry has identified lack of job
training as the problem to low worker productivity,
when, in fact, it is merely a symptom of the problem in
human performance" (p. 3).

The conclusions that can be drawn from this section
of the literature review is that training has moved from
a non-recognized business activity, to one that is
highly respected by major business organizations. These
business organizations use training in several ways,
including: improving current job performance, helping
employees advance to different jobs, and to strengthen
the organization through benefiting individuals or
organizational units. The business organizations either
maintain a full training department within the
organization or hire entrepreneurial trainers to do the
work for them. The trainers are expected to possess
and be skillful in the competencies required to be
effective in the training they do. This will in turn
provide the organizations with the expertise to be able
to reap the benefits from training.

Now that we have established the link between
training and learning, the appropriate place to further
seek this relationship is in adult education literature.
This is because most employees in business and industry
are adults, and adult education deals with how to manage
these types of learning situations for adults.

Relationship between Adult Education and Training

This section will examine the aims and objectives
of education and training; some applicable theories in
training situations; the dynamics of the learning
process; and, finally, the selection and organization of
learning activities.

Aims and objectives of Education and Training:

Davies (1973), citing the study done by Bloom, used
the three major classes or domains to classify the aims
and objectives of education and training. These three
major classes or domains are the cognitive, the
affective, and the psychomotor domains (pp. 84,85).
These three categories also deal with the relationship

between objectives and instructional methods. According to Davies, if the objective of training is affective then, role playing and brainstorming can be applied. If the objective is both affective and cognitive, mini case studies, group discussions, seminars, independent studies, or business games can be applied. If the objective is purely cognitive, lectures, programmed materials, computer assisted instruction, and others can be applied.

The cognitive domain is concerned with such processes as recall of information, comprehension of material, and intellectual response. The affective domain is concerned with interests, attitudes, values, and appreciation. The psychomotor domain is concerned with physical responses such as those present in skilled performance on a lathe or typewriter (Davies 1973, p. 85; Goldstein and Sorcher 1974, p. 17).

For cognitive objectives, Davies (1973) recommended different evaluation strategies, such as achievement tests administered before and after instruction, reports, and essays. For affective objectives, self-evaluation questionnaires, course evaluations questionnaires, attitude and personality

questionnaires, behavioral measures such as attendance,
behavioral checklists, and rating scales are suggested.
For psychomotor objectives, performance tests such as
accuracy, speed, observation by others, rating scales,
and behavioral checklist are suggested. These
evaluation strategies by implication involve evaluating
different teaching/training methods (p. 85).

In conclusion, these domains help the trainer to
select appropriate instructional methods based on the
learning objectives that the trainer had defined. The
role of theory in helping training situations is
examined next in order to appreciate the difficulty
trainers face in adopting learning theories and
philosophies.

The role of theories in training situations

Training has been dominated by the philosophical
doctrines of behaviorism (Marsick 1988, McKenzie
1985). This philosophical orientation assumes certain
traits about the individual learner and the instructors'

belief systems. Training addresses formal as well as informal learning frameworks while encouraging a stronger emphasis on informal learning. The type of learning advocated by Marsick (1988) in training "assumes a level of employee participation that is seldom found, productivity under this framework must be redefined and conditions within the organization re-examined if such learning is to take place" (p. 10).

Davies (1973) and Goldstein and Sorcher (1974) agreed that McGregor's Theory X and Theory Y can be applied in training situations. Theory X assumes that workers are lazy and have to be pushed to do things. Theory Y on the other hand assumes that workers are creative and participative. They, however, came down in favor of the Theory Y approach because, according to them, those who adopt this theory are less concerned with student's present behavior, but more with their potentialities for growth and development. Theory Y position demands a great degree of professionalism from trainers and managers (Davies 1973, pp. 11-13; Goldstein and Sorcher 1974, p. 19). Theory Y assumptions about the individual learner also best reflects the behaviorist ideology.

Marsick (1987) argued that most training models use the current andragogical approach of Knowles. Knowles' andragogical theory about adult learning is shaped on the conceptual framework and assumption that: adults are generally self-directing; they bring rich experiences to the learning environment; they are ready to learn what they can directly apply; they are performance centered. Marsick (1987) concurred with this analysis of adult learning assumptions (p. 136).

According to Nixon (1981), learning does not happen automatically, even when the learner is exposed to challenging situations or intensive learning experiences. It has its own logic, which can be helped along but not forced. Three stages of learning include: goal setting (self-assessment); skills development (learning new concepts, increasing assertiveness, and others); application of learning (planning and implementing new ideas and skills) (p. 4). Veri and Vonder Haar (1971) and Marsick (1988) also concurred that "the organization is a learning environment" (Veri and Vonder Haar 1971, pp. 73-76).

According to Knowles, McClusky researched the topic
on self-directed learning (which training can be part
of), urged organizations to provide adequate recreation
facilities in the work environment and to use education
or training to arrange the circumstance and the
stimulation in order that the potential of high mental
performance in adults may be actualized. Some
suggestions on the way to achieve this result are to
create a supportive learning environment, designing
educational or training programs to tap some deep
interests and need, designing a program that must
restore confidence in the employees' ability to learn,
providing a non-competitive environment, plenty of room
for fellowship, considerable counseling to assist
learners to relate instruction to personal needs, and
to combine auditory and visual imagery (Knowles, 1979).

Knowles (1979) concluded that facilitators of
learning (trainers included) seem to have three types of
understandings. (1) They understand what is to be
learned. (2) They understand the learners. (3) They
understand useful procedures to help the learners build
on their present competencies to achieve their

educational objectives. Finally, they not only understand these three issues well, but can put them together well (Knowles, 1979).

In summary, the use of instructional methods based on the objectives of the learning situation were seen to enhance learning. The application of McGregor's theory was seen to be helpful in identifying different strategies available to the trainer. Three stages of learning were introduced, and the types of understanding required of trainers and facilitators of learning were discussed. Since there is a theoretical relationship among learning objectives, learning situation, learning outcome, and learning in general, the next question is how this learning actually takes place for the individual learner.

The dynamics of the learning process

Wilson (1980) showed that learning can be a biological process, in which case learning becomes a change in one's response stimuli. Advocates of such a theory include Gagne (1965), Hull (1943), Skinner (1968), Spence (1960), and Thorndike (1949). Other

theorists such as Ausubel (1968), Bigge (1976), Brunner (1966), and Woodruff (1967) argued that certain phenomenological changes occur during the course of learning. According to Wilson, "cognitive and perceptual constructs such as insights, goal insights, cognitive field, and understanding mediate what is learned. People develop cognitive structures through experience and by perceptual restructuring of their experience. Learning is the process by which learners recognize their perceptual and psychological worlds or fields. Learning then, is a change in the learner's cognitive structure" (Wilson, 1980, p. 69).

Some authors such as Havighurst (1972) and Maslow (1970) focused on characteristics of the learner such as personal dynamics and conditions of readiness, and they described learning as an adjustment or maladjustment of a person in his environment. Yet, others such as Bales (1950), Flanders (1970), Schumuck and Schumuck (1971) focused on learning as a social process. They argued that "in order to comprehend the learning process, one must understand the interpersonal processes within learning experiences that facilitate or inhibit awareness and diagnosis" (Wilson, 1980,

p. 69). The facilitator of these learning experiences must therefore possess enough skills, knowledge and aptitude (i.e., competencies), to recognize the existence of these inhibiting factors and ways to deal with them to achieve maximum benefit from the learning experience.

Wilson contended that except for the pure behaviorists, learning is a cognitive activity and "involves the use of intellect for the development and structuring of understanding about oneself and the world in which one lives. Learning is a continuous process of organizing and re-organizing what is known and believed to be true on the basis of new evidence. This process occurs within the individual, and during this process, numerous personal and emotional attributes interact." According to Wilson, learning culminates in change (Wilson, 1980, p. 70).

Learning is the process of growth and development whereby the learner organizes his perceptions of what he knows about himself, his environment, and various inter-relationships between the two. Three key processes were identified, which culminate in the learner's ability to perceive the isolated attributes of some total mass, to

organize these detached attributes into some pattern of unity, and to unite entities by formulating a new construct (Wilson, 1980, pp. 71,72).

These three key processes include: differentiation - which indicates the learner's ability to distinguish the various components of what appeared to be a homogeneous field; structuring - which is the mental process of organizing differentiated attributes into patterns within the given field in an effort to percieve the units of those differentiated attributes that compose a homogeneous mass; and integration - which is the cognitive process during which a person begins to combine various structured entities that initially appeared only as separate and detached attributes of a global mass (Wilson, 1980, pp. 71,72).

Other cognitive processes include abstraction - which involves the use of selected aspects of a phenomenon; and generalization - which is the mental process that is in a sense, the culmination of the progression of the cognitive processes. Generalization involves the perception of a common pattern, which is exemplified by all of the examples or instances. Thus,

generalization is a summation of the products of the

process of abstraction (Wilson, 1980, pp. 71-73).

For Kidd, learning means change; it is active, not

passive. The learner opens up himself, stretches

himself, reaches out, and incorporates new experiences,

and expresses or unfolds what is latent within him

(Kidd, 1976, as cited in Knox, 1987 p. 5).

Kidd used the 3 R's of adult education to explain

learning. These are: relevancy, relationship or

relatedness, and responsibility. The competencies

should equip the trainer to identify and differentiate

these three concepts and recognize when they are in

operation during the learning experience. With

relevancy, no adult will deeply absorb himself in study

unless he sees, and unless he feels, that the subject is

part of his life and destiny. With relationship, no

skill, or knowledge or attitude (SKA) is discrete. The

adult wants to understand how it relates to his

experience, to what he is, and to what he knows. With

responsibility, any one seeking learning must act, and

by acting has assumed some obligation at least to

question, to try to understand, or to do something about

the consequence of the study (Kidd, 1976, as cited in

Knox, 1987, p. 7).

Since we have demonstrated that training is a
learning activity, the big question is: what are the
criteria for the selection of learning activities?
Secondly, does the possession and application of the
competencies help trainers in the selection and
organization of these learning activities?

Selection and organization of learning activities

Scholars such as McDonald (1987) and Knox (1987)
had argued that the criteria for the selection of
learning activities is the set of educational objectives
to be achieved.

According to Knox (1987), "if the objectives
predominantly entail acquisition of information, then
the learning episode should include activities such as
discussion or testing to discover the learner's existing
cognitive structure related to the topic and viewing a
film or reading a book so that the learner can build new
information on his current knowledge. If the objectives
are predominantly skill development, then the learning
episode should include activities such as simulation or
coaching so that the learner can practice the skills he

is trying to develop. If the objectives are
predominantly attitudinal change, then the learning
episode should include activities such as discussion or
role playing so that the learner can explore his
feelings and those of others in a climate of stimulation
and social support that is conducive to change of
attitudes" (Knox, 1987, p. 99). The competencies of
adult learning understanding, audio/visual skills,
career development knowledge, competency identification
skills, performance observation skills, and, finally,
personnel/human resource field understanding would help
the trainer in making an objective selection of learning
activities.

Knox urged people who facilitate adult learning to
understand which types of activities tend to be most
effective for the achievement of various educational
objectives and help the learners to select those
activities that best serve their purpose.

Once the selection of the learning activities has
been accomplished, then the learning activities have to
be organized, so that the learner progresses well
through them and achieves the objectives. These are
conditions under which learners learn most effectively,

and would include aesthetics, preferred learning styles, and the overall learning environment. Knox identified three principles that might be considered as the learner makes decisions about the organization of his learning activities so as to optimize progression, application, and gratification (i.e., principles of organization).

With regard to progression, Knox contended that the achievement of educational objectives typically requires persistence in learning activities over a period of time. Persistence, he said, is more likely if the learning activities have a sense of coherence and sequence and forward movement, in contrast with brief and unrelated learning episodes.

With regard to application, Knox contended that in continuing education the main reason for behavioral change is to be able to apply the increased competence in the form of improved performance. The likelihood of application is greater if new topics are studied in relation to the context in which they are applied.

With regard to gratification, Knox argued that to be sure if learners persist in a relevant educational activity, it is likely that the experience is gratifying in some way. Since people participate in important

activities for multiple reasons, one or perhaps two predominate, and these reasons should be taken into consideration when organizing an educational activity (Knox, 1987, pp. 100-102).

These discussions blend directly into what McDonald urged researchers to use in the strategic evaluation of training (McDonald, 1987, p. 19). According to him, training has to prove its worth and the criterion of 'worth' include questions such as:

1). What are the valid criteria of the program's effectiveness?

2). If there are several criteria, how are the different criteria weighted?

3). What factors influence the validity of the criterion measures?

4). How context-bound are the criterion measure?

In an answer to these questions, McDonald suggested that primary evaluation criteria usually involve the immediate effectiveness of the training program: the amount of learning and the satisfaction of the participants at the end of the training workshop. Other criteria involve the participants' intention to use the training. Additional criteria involve application of

the training: whether the participants actually use the training, and how useful they find the training once they have tried to use what they have learned. If participants use what they have learned due to training, then typically one may be confident that the program is good (McDonald, 1987, p. 20).

In summary, any evaluation of training should look at amount of learning, satisfaction with the training processes, intended and actual use, and the effects of use. These, according to McDonald, seem like a reasonable set from which to judge the effectiveness of training program. Some of the questions that might arise with the use of these criteria include the following: What if the participants are satisfied and learned a significant amount, but never use what they learned, or use it sporadically, or use only some of what they learned? What if the participants are not notably happy with what they learned, but use it anyway because their superiors insist that they do so? What if the training they use has no visible, or only a marginal impact where it is supposed to have made a difference? Is the training program still a success (McDonald, 1987, p. 20)?

McDonald further analyzed the most important criteria in assessing the worth of a training program, and these include: (1) "amount of learning" - measured by attitude change, skill development, and problem solving at the end of the training session; (2) "satisfaction" - (desirable but not necessary). This is because satisfaction can be influenced both by program characteristics and by other factors unrelated to the program; (3) "intended use" - usually measured by a statement from training participants that they will use what they learn; (4) "Actual use" - and the "effects of use" - which provide an even more critical test of the training program's effectiveness and learning. Since actual use also is determined by opportunity, difficulty in application, reward for use, and the effects of use on the learner, we must therefore ask: what level of improved job performance is required before we say that the training program is successful (McDonald, 1987, pp. 20-21)?

These questions will help address the issues at stake in this research, namely: What competencies are necessary for trainers in business and industry, what constitutes effective and quality training in business

and industry, and whether effective and quality training are experienced in business and industry. According to Warren (1979), in order to know whether the desired behavior is being affected, the trainer will need some kind of feedback on the trainee (p. 79). The training is measured on ability to bring about specified behavior, and therefore needs to be able to appraise the degree of success in achieving these behaviors (p. 79).

For these reasons, Warren (1979) suggested that it is necessary to consider how much training will be needed to qualify a trainer in the use of the method selected. He concluded that this issue is one of the problems of the OJT method, since the trainer is usually a supervisor or task leader with other duties more directly related to the job reward structure (p. 79). According to him, "training the competencies - the skills and knowledge available in the trainer, and the capability of time and motivation of the trainer become important considerations in the selection of an effective training method" (p. 79).

In conclusion to this section, it can be seen from the above literature review that there is a definite relationship between adult education and training.

Knowles (1979), defended the fact that training is part of adult education; that trainers are adult educators; and that training is education. According to him, "education is the systematic intentional development of increasing competence by individuals of all sorts with the help of the services and resources of people and institutions of all sorts" (p. 49).

Trainers work with people who see themselves as essentially adults, and so trainers are adult educators. Knowles defined adult education in three terms, namely: Process - i.e., process by which mature people acquire new knowledge, understanding, skills, attitudes, values, and interests, used by individuals for self-development and by organizations and institutions for growth and development of their employees; a set of organized activities - for the accomplishment of specific educational objectives; a field of social practice - which brings together into a discrete social system all individuals, institutions and associations concerned with the education of adults.

In selecting and organizing learning activities, facilitators use models to guide their process in a simplified format. These models help them to evaluate

the progress and goals of the learning activity. The
use of such models in training is therefore examined
below to ascertain their relevance in a training
situation.

                        The relevancy of
        training models in business and industry training

        Training models have been in use for many years.
Training models have been evolving steadily from the
traditional model to a totally integrated systems
model. Wenig and Wolansky (1972) state that "a
traditional systems concept of training usually
refers to a particular model or structure of training"
(p. 12). The steps in this type of model is shown in
Figure 3.

Needs   ->Objectives ->Program ->Imple-   ->Evaluation
Assessment Setting   Design   mentation

Figure 3   The traditional concepts of the training
            model (adopted from Miller, 1969)

These steps are frequently thought of as discrete phases of development. The flaw in this design according to Miller (1969), is that needs assessment data are prematurely arranged and stated as training needs, which results in objectives being stated in very general and unmeasurable terms that are not related to real training needs. This event leads to the designing and implementation of programs which are irrelevant to real-life circumstances faced by trainees, which in turn results in training increasingly leading to more general and less precise training efforts. The above-mentioned problems in the traditional design could lead to inaccurate training results.

Miller (1969) proposed a better approach, which looks at training as an intergrated process. In this type of model, training is conceived as an integrated process, consisting of sub-processes. Each sub-process would not become a final statement, but would continually be reworked to develop better objectives, questions, and answers. Such a model is shown in Figure 4 below.

Renton (1969), Odiorne (1970), Warren (1979), and Kearsley (1982) have all proposed what they referred to as "a total systems training model." According to

Renton, industry, like education, has been faced with numerous types of new training programs or curricular

```
 _____      _____
| Evaluation |-->| Needs       |
| Process    |   | Assessment  |
 _____     _____
        /                  \
       /                    \
      /                      \
 _____         _____
| Implemen-   |       | Objectives |
| tation      |       | Setting    |
 _____         _____
       \                   /
        \                 /
         \   _____ /
      <-| Design     |<-
        | Process    |
         _____
```
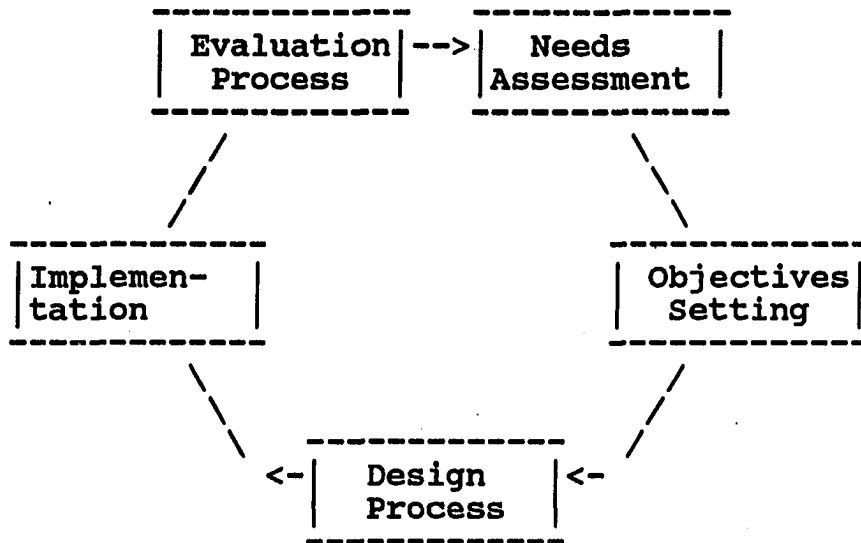
Figure 4   Training model as an integrated process
(adopted from Miller, 1969)

structures. The improvements in such areas as job training, relative to these new approaches, is usually done on a hit and miss basis in both education and industry. Some industries have hit upon a more systematic and critical procedure with which to gain satisfactory return on their investment in training. Warren (1979) suggested that the training system design provides a model for a training operation that can fulfill its functions under any organizational

circumstances. "It provides a structure for identifying

training needs and for creating and developing,

presenting, and evaluating specific training actions"

(p. 41). Renton's model is shown in Figure 5.

```
                        ------------------
                        |Analyze the Job |
            ------>      | or Operation  |  ----->
                |        ------------------        |
                |                                  |
                |                                  |
    -------------------                    ------------------
    | Evaluate and    |                    | Develop the    |
    |Improve Training |                    |Training Course |
    -------------------                    ------------------
            |                                      |
            |            ------------------        |
            <------      | Provide the    |  <----
                        |   Training     |
                        ------------------
```
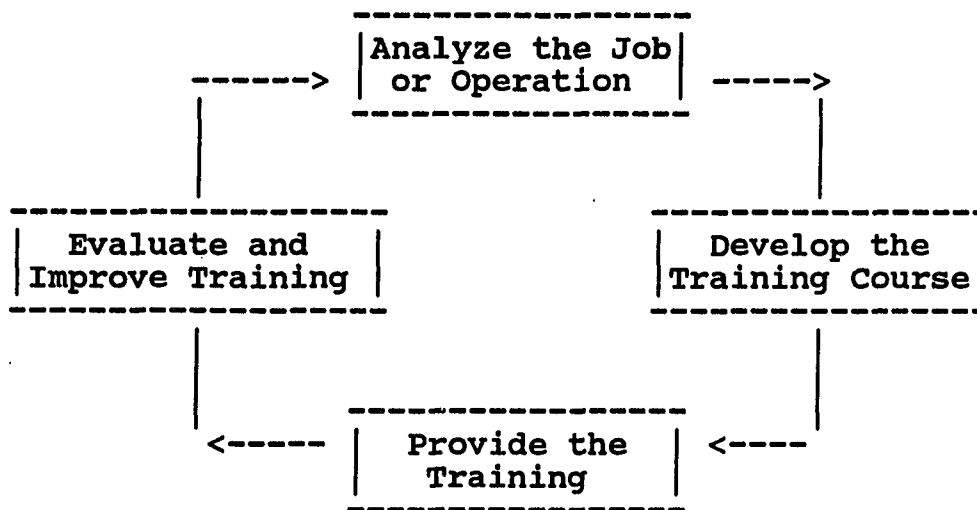
Figure 5   Four-phase training and development cycle
            (adopted from Renton, 1969)

The mere application of these models is not enough

by themselves to assure effectiveness of training. A

training and development checklist can augument the

possibility of gaining a successful training program.

Such a checklist can be seen in Nixon (1981, p. 3) and

in Renton (1969). Renton (1969) for instance,

identified the checklist as follows:

1. Identify priorities for training improvement.

2. Analyze the job or operation.

3. Plan the strategy.

4. Develop the training course.

5. Classify candidates for training.

6. Provide the training.

7. Follow-up the training.

8. Evaluate and improve the training.

A flow chart diagram of the total systems model is shown in the Appendix.

According to Wenig and Wolansky (1972), "this system serves as a valuable decision-making device for directing the new employee to a job performance level comparable to his ability and job requirements. The guide also saves training time, reduces training costs, and maximizes employee self-initiatives because of his exact knowledge of what is required of him to meet company job standards" (p. 14).

Calvert (1985) had stated that service-related businesses, such as banks, are training-intense and that training models are used extensively. He reported that major areas of training for banks are: job skills training, 46.9%; management skills, 18.8%; marketing and

sales, including customer relations, 10.6%; human
relations, 5.5%; new employee orientation, 3.4%; basic
education, 0.9%; and occupational health and safety, 0.8%.

Other training models include the Brinkerhoff
"Six-Stage Evaluation Model, "which derives directly from
the cycle of key training decisions (Figure 6).

Stage I of the model evaluates the value and
importance of problems and/or opportunities that may be
responsive to Human Resource Development (HRD)
interventions, assesses whether an education or training
program might make a difference more worthwhile than
some other intervention, and helps determine whether the
process should proceed further with the selection or
creation of a program design. This stage also seeks
data that will predict whether on-the-job behavior can
and should be changed. The competencies which could be
helpful at this stage include: computer competency,
cost-benefit analysis skill, industry understanding,
library skills, objectives preparation skills,
questioning skills, and personnel/human resource field
understanding, among others.

Stage II aims at the production of a defensible HRD
program design and might assess a given design's

```
                     ┌─────────────────┐
                     │ STAGE I         │
                     │ Evaluate needs  │
           ────>     │ and goals       │   ──────
          /          │                 │          \
         / .         └─────────────────┘           \
        /                                            \
       /                                              V
┌─────────────────┐                          ┌─────────────────┐
│ STAGE VI        │                          │ STAGE II        │
│ Evaluate        │                          │ Evaluate HRD    │
│ Payoff          │                          │ design          │
│                 │                          │                 │
└─────────────────┘                          └─────────────────┘
        ^                                            │
        │                                            V
┌─────────────────┐                          ┌─────────────────┐
│ STAGE V         │                          │ STAGE III       │
│ Evaluate usage  │                          │ Evaluate        │
│ and endurance   │                          │ Operation       │
│ of learning     │                          │                 │
└─────────────────┘                          └─────────────────┘
        ^    \              ┌─────────────────┐      /
         \    \             │ STAGE IV        │     /  .
          \    ─────        │ Evaluate        │ <───/
                            │ learning        │
                            └─────────────────┘
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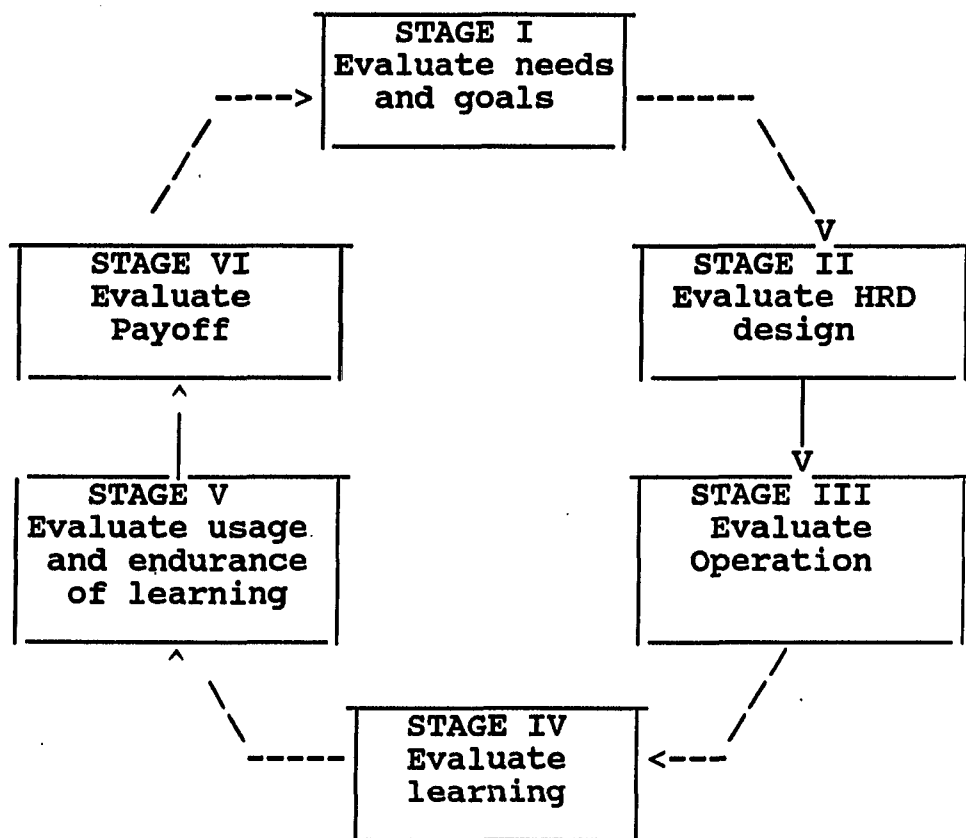
Figure 6   The six-stage evaluation model
            (adopted from Brinkerhoff, 1987)

practicality, theoretical soundness, and responsiveness

or the relative merits of competing alternatives. This

stage determines whether HRD can, finally move beyond

the design stage to implementation. The competencies

which could be useful at this stage include:

intellectual versatility, model building skills,

relationship versatility, research skills, training and development field understanding, and writing skills.

Stage III assumes that the design was good enough to "go", and is concerned with whether the design is, in fact, being installed and operated according to plan. This stage assesses the significance of unplanned departures from the design and helps determine whether departures from the design are necessary. The competencies which could be useful at this stage are computer competence, facilities skills, and group process skills.

Stage IV evaluates the assumption that new skills, knowledge, and attitude did in fact take place and that new SKA was acquired by participants. The competencies of adult learning understanding, audio/visual skills, computer competence, delegation skills, facilities skills, performance observation skill, and presentation skills, among others, will prove helpful.

Stage V assesses how much and how well acquired SKA are being translated into intended on-the-job behavior changes, and the durability of acquired SKA and their translation into the expected intermediary results posited by the logical plan of the program. The

competencies which could be useful at this stage include: career development knowledge, competency identification skills, data reduction skills, delegation skills, group process skills, performance observation skills, presentation skills, and organization understanding, among others.

Stage VI assesses the value of organizational effects and their relationship to training, as documented through Stages III to V, are the focus of Stage VI. This stage presumes that HRD has 'worked' thus far: (i.e., people learned something and are in fact using what they have learned). The competencies of cost-benefit analysis, data reduction skills, library skills, objectives preparation skill, and writing skills, among others will be helpful to the trainer during this stage.

Yet some adult education models can be useful to trainers during training. The Boyd and Apps (1984) model is a typical example (see Appendix). Boyd and Apps identified varied situations or settings or modes where learning can occur for adults. These situations

were categorized into three distinct dimensions, namely, transactional mode, client focus, and systems (Boyd and Apps, 1984, p. 5).

Transactional mode characterizes the nature of the learner's situation and includes individual learning situation (A1), small group learning situation (B1), and community learning situations (C1). This mode connotes the interplay among the environment, the individuals, and the patterns of behaviors in a situation. The transaction between the learner and the educator takes place in their exchanges of instructional resources that enhances the individual knowledge and understanding (Boyd and Apps, 1984).

Here, the individual transaction mode (A1) refers to a situation in which an adult learns by himself, for example, through participation in an independent study course. The adult does not interact with other adult learners and does not have face-to-face contact with the educator (Boyd and Apps, 1984, p. 6). The group transactional mode (B1) describes learning situations in which persons meet together to work on some problem/concern they have. The members of the group interact and may assist one another in learning and

there is a shared common commitment among learners on
the educational goals/purpose. Transaction in this mode
is said to be primarily intragroup.

The community transaction mode (C1) describes
learning situations in which a group of citizens gather
together to resolve a problem faced by the community.
Persons who participate in a community group are vitally
concerned about problems created by individuals or
institutions outside the group. Transaction in this
mode is said to be intergroup.

The second dimension of adult learning, according
to Boyd and Apps, is the client focus. In this
dimension, adult education serves three potential
clients, namely: individuals (A2), groups (B2), and
communities (C2). The client focus seeks to explain the
beneficiary of the educational activity. When the
benefits of the educational activity accrue to the
individual, it is said to be operating in the individual
client focus. When the benefits accrue to the group, it
is said to be operating in group client focus. When the
benefits of the educational activity accrue to the
community, it is said to be operating in the community
client focus (Boyd and Apps, 1984, pp. 8,9).

The third dimension of adult learning is the systems dimension. Boyd and Apps emphasized that all human enterprises participate in three systems, namely: personal (A3), social (B3), and cultural systems (C3). The personal system is the "set of distinguishing qualities or characteristics of an individual that affect his activity in a dynamic enterprise." The traits and patterns of the personal system remains fairly constant in various settings. Systems are created each time a group of individuals form a collective activity; each group's social system is a unique configuration. Social systems include the members patterns of interrelating roles, the status which the individual holds, the group norms and expectations, and other similar variables. The contours of a social system are unique to one setting.

The cultural system according to Boyd and Apps, is "structured upon the sets of beliefs, values, rules, principles, and customs that guide, in a general and pervasive manner, the conduct of persons. It includes shared assumptions about the conduct of human behavior and, as such, ethical, moral, and aesthetic valuations" (Boyd and Apps, 1984, p. 10). The traits and patterns

of the cultural systems also remain fairly constant in various settings. Boyd and Apps concluded that "in any given educational transaction, one system may play a more significant role than the other two" (Boyd and Apps, 1984, p. 10).

In concluding this section, the question posed is whether trainers can use these models in conducting training, and whether their use or familiarity by trainers would improve effectiveness and quality. My contention is that using the models to structure training programs would enhance effectiveness and quality because these models were built on theoretical grounds to evaluate learning outcomes and enhance learning.

If trainers then have all the arsenals of learning dynamics, the ability to select learning activities, and the use of models at their disposal, including the competencies to do effective training, why do some training programs fail? The answer to this question is examined in the next section.

Why training programs fail

Goldstein and Sorcher (1974), in discussing why training programs fail, insisted that "most training programs are not adequately structured about principles that enhance learning, for example, involvement rather than passive listening, imitation of appropriate behavior, reinforcement, practice of new skills, and transfer training" (p. 17). He also indicated that supervisor training also fails because of emphasis on issues that are theoretical, philosophical, and deal with aspects of management that are usually already well accepted by most trainees at the outset of training. According to Nixon (1981), "before people are willing to learn, they must see the need to learn, and the values of applying that learning to making improvements. Readiness to learn starts on the job, based on the person's own awareness of performance level and feedback from others" (p. 20). Newly appointed managers and supervisors see this need while managers and supervisors who have been long on the job do not.

In order to bring all the main ideas from the literature together, the literature review is related to the present study in the next section.

Relationship of the literature to the present study

After reviewing the literature for the basis of
this research study, four specific and important issues
arose from it that led to the design of the study itself
and the design of the research instruments. First, the
literature review showed that there is limited specific
research study dealing with the possession and
application of the competencies in business and
industry, in which case the amount of learning as shown
by the possession of and the importance attached to the
competencies by the trainers becomes a major variable in
the study.

Secondly, the review showed that for learning to be
effective, it must not only end with the process of
learning, but must be applied in the real world
situation. Here the major variable that became
pronounced for this study involved the intended and
actual use of the competencies. Put in another way, the
question of the application of the competencies to
business and industry training becomes another major
variable in this research study.

Thirdly, the literature revealed that it is through learning experience that skills, knowledge, and attitudes are acquired, which in turn leads to the satisfaction of learners as well as the development of value systems and importance attached to the learning itself. This development from the literature led to the identification of the importance attached to the competencies and the value placed upon them by the trainers as another important variable in the research study.

Finally, the review of literature showed that the effects of learning has to be balanced with the purpose and objectives of the learning itself. In this regard, the final major variable that was identified through the literature review was the effects of the use or application of the competencies to the training program by trainers. Models were then used by some scholars such as Brinkerhoff (1986) and Boyd and Apps (1984), and by others who looked at training effectiveness and training efficiency to evaluate training outcomes using the competencies and to evaluate the process itself as well as how it can be structured better respectively.

CHAPTER III. METHODOLOGY

Design of Research

A survey design was adopted in this study. Survey
research is considered by Borg and Gall (1983) and
De Vaus (1986) as "a method of systematic data
collection, that can be used to sample public opinion,
evaluate product acceptance, explore and evaluate many
aspects of a system, and using the results to predict
future needs" (pp. 404, 415).

One value of survey research lies in its ability
to identify the distribution of a sample on a single
variable, and it can also be used to explore
relationships between two or more variables. These
values of survey research are what is intended to be
achieved in this particular research study. Data
collection, instrumentation, and statistical analyses
are explained below.

Population

The sample studied comprised 200 out of 350
trainers in business and industry who hold membership in
the Iowa Chapter of the American Society for Training

and Development (ASTD). This population is unique in
the sense that they are within a specific geographic
region, that has similar industries with regard to
to average size, income level, and the number of
employees. The business and industry found in this
region of the country is typically agricultural
supported manufacturing or a service related industry
such as insurance and financial services.

Specific descriptions of this population's gender,
age, major functional areas, years of experience as
trainers, and relevant descriptive statistics are
covered in the first section of Chapter IV of this
study.

Instrumentation

A questionnaire was developed based on criteria
from appropriate literature. The resulting instrument
was submitted for a validity check to a panel of experts
made up of the students major professor, the student's
program of study (POS) committee members, as well as
the current president of the Iowa Chapter of ASTD, who
is a practicing trainer himself and also serves on the

Board of Governors of the Iowa Chapter. A pilot test
of the instrument was done using 10 selected members
of the local chapter of ASTD, and questionnaire items
were modified based on these processes before the
questionnaire was finally administered to the research
participants.

The 31 competencies used in the survey instrument
were those developed by American Society for Training
and Development (ASTD), as seen in their research
publication "Model for Excellence" (1983). The survey
instrument consists of four major parts, namely, the
competencies section, demographics and work-related
information, purpose and effects of training, and
perception of effectiveness measurement criteria.
Instructions that would help respondents interpret the
questions objectively were developed, and a Likert-type
rating scale as suggested by De Vaus (1986, p. 83-94)
and other research scholars was employed.

For the importance that trainers attach to the
competencies, a five-point scale ranging from "Very
Important = 5" to "Very Unimportant = 1" was applied.
On the application of the competencies to the training
that the trainers do themselves, the scale ranged from

"Often = 3" to "Never = 1." Trainers were then asked to rank any five of the thirty-one (31) competencies according to their importance to them. The scale ranged from "1 = greatest importance" to "5 = least importance." Trainers were also asked to indicate any five competencies they would like to develop further.

The second part of the survey instrument consisted of fourteen items. These items sought to get demographic data as well as information on some related specific work settings, such as top management's attitude towards training, percentage of work time devoted to training, and others.

The third part of the survey instrument focused on the purpose of training in the trainer's company, and asked them to identify their perceptions of the purposes and effects of training in their company.

The final part of the survey instrument assessed the effectiveness of training, and asked trainers to respond to several items relating to their perception of training effectiveness, the goals of training in their organization, and the organization's criteria for measuring effectiveness and quality of training offered by these trainers. An additional comments section was

also included in the instrument to allow the trainers to discuss any specific issue they wanted to add to shed more light on the problems of the study. (See Appendix).

A similar but specific instrument was also sent to those identified by ASTD executives as supervisors and managers of training departments in business and industry. This instrument was meant to compare responses of trainers and supervisors on two critical issues, namely, purpose of training in the organization and the criteria used to measure effectiveness in business and industry.

Validity of the Test Instrument

The validity of a measuring instrument is defined in terms of the degree to which the instrument measures what it purports to measure. Two types of validity are applied to this research study, namely, content validity and construct validity. Content validity was assured by the use of the ASTD's operationalized definitions of the competencies. These operationalized definitions were cross-checked by the researcher's major professor

and by the current president of the Iowa chapter of ASTD for accuracy. Construct validity, which is the extent to which a particular instrument can be shown to measure a hypothetical construct (example, "quality of training") in this research, was cross-checked and approved by the researcher's major professor as well as by the current president of the Iowa chapter of ASTD.

Reliability of the Test Instrument

The reliability of the instrument is the level of internal consistency or stability of the measuring device over time. Since this instrument was developed by the researcher, and was used in a single administration of a single form of a test, the coefficient of internal consistency was applied. This coefficient, also known as Cronbach's alpha, is expressed as follows:

$$a = n/(n-1) \ [1-Eo-2 \ (yi)]/o-2x$$

where: a = Cronbach's alpha

         n = the number of items

Eo-2 (yi) = the sum of item variances

o-2x = the variance of the total composite

Cronbach's coefficient alpha is a general form of the K-R 20 formula that can be used when items are not scored dichotomously. Alpha in most situations provides a conservative estimate of a measure's reliability. Specifically, the covariance matrix method was employed in the analysis, using the SAS package. This method enabled the researcher to control for other differences that may exist in the samples surveyed. Separate reliability tests were done for the "importance" and "application" measurement scales on the competencies.

For the "importance" measurement scale, a reliability coefficient alpha of 0.83 and a standardized item alpha of 0.83 for the thirty-one (31) items were recorded. For the "application" measurement scale, a reliability coefficient alpha of 0.84 and a standardized item alpha of 0.83 were recorded. These coefficients indicate a very high correlation among the test items.

Data Gathering

Data collection was done by mailing a questionnaire to a random sample of 200 business and industry trainers. This sample was drawn from a population of

about 350 trainers, who are members of the Iowa Chapter of ASTD. The five steps in selecting random numbers by De Vaus (1986, p. 53) were adopted in this study. This sample is about 63% of the entire population.

The sample includes two groups of people, namely, ASTD members who do training, and ASTD members who do some training as well as supervise trainers in business and industry. The rationale for this categorization is to enable comparisons on the rankings of the general purpose, effectiveness, and objectives of training, and on the quality/effectiveness of training as perceived by each survey respondent. The two groups were equally divided. Since there were approximately 100 managers or supervisors of training identified from the population, all of them were included in the survey. A second group of 100 trainers were then randomly selected from the remaining population. An alternate list of trainers, as was advised by De Vaus (1986, p. 65), was also compiled in case of unanticipated problems with non-respondents.

Survey participants were given approximately two weeks from the mailing date to return the completed instrument. Those not returning the instrument by the

given deadline were sent a follow-up letter of appeal
with an additional questionnaire. This follow-up helped
increase the total return rate to 58%.

Data Analyses

The first statistical analysis was a descriptive
analysis of the data gathered by the questionnaire,
suggested by research such as De Vaus (1986, p. 5).
Following the descriptive analysis, factor analysis
was applied to the competencies in an effort to reduce
the data to manageable proportions. Factor analysis is
based on the fundamental assumption that some underlying
factors, which are smaller in number than the number of
observed variables, are responsible for the covariation
among the observed variables. Algebraically, this
assumption is shown in the following:

$$X1 = b1F + d1U1$$

$$X2 = b2F + d2U2$$

These equations imply that X1 is a weighted sum of F and
U1, and X2 is a weighted sum of F and U2. Because F is
common to both X1 and X2, it may be called a common
factor; likewise, because U1 and U2 are unique to each

observed variable, they may be referred to as unique

factors. Furthermore, the equation indicates that there

is no covariation between F and U1, between F and U2, or

between U1 and U2. That is,

cov (F,U1) = cov (F,U2) = cov (U1, U2) = 0

An orthogonal rotational method, popularly referred

to as varimax rotation, was applied to arrive at one

factor of importance variables referred to as the

"Leadership" cluster in this study. A similar varimax

rotation was applied to the application variables to

arrive at two factors, referred to as the "Managerial"

and "Analytical" clusters, respectively. (See Appendix

for scree plots, stem and leaf plots, box plots, and

normal probability plots of the factors used in the

analysis.) The stem and leaf plots show overall

patterns or trends in the data and indicate a symmetric

batch. The box plots show where the middle lies, how

spread out the middle is, and possible strays at the

tail, indicating unexpected behavior in the data. The

results of these plots indicate a symmetric batch and

a normal curve for the data used in the study.

Following the factor analysis, each hypothesis was

tested with methods appropriate for the data. In these

cases, the statistics used included: Pearson product moment correlations, analyses of variance (Anova), and chi square tests of independence.

General characteristics of the Sample

Composition of the Sample

Out of one hundred and sixteen (116) returned questionnaires, or a 58% return rate, a total number of one hundred and six (106) respondents, or 53% of the sample, provided information that was useable for the study. The composition of this sample is shown in Tables 2 through 12 below.

Table 2. Distribution of respondents by gender

Sex	Number	%
Male	49	46.2
Female	57	53.8
Total	106	100.0

Table 2 shows that trainers are almost evenly distributed with regard to gender. Therefore the sample is not dominated by one particular sex or the other.

Out of the one hundred and six (106) respondents that provided useable information for this study, fifty-two (52), or 49.1%, were employed or did jobs that pertained to training alone. The remaining fifty-four (54), or 50.9%, were involved as both supervisors or managers and as trainers. The distribution is shown in Table 3 below.

Table 3. Distribution of respondents by major functions

Major Function	Number	%
Trainers Only	52	49.1
Managers/Supervisors	54	50.9
Total	106	100.0

Distribution of respondents by age

The respondents' ages ranged from twenty-four (24) years to fifty-four (54) years. The mean age of the trainers is thirty-nine (39) years. The age distribution is shown in Table 4 below.

Table 4. Distribution of respondents by age

Interval	Frequency	%
50-54	13	13.3
45-49	8	8.2
40-44	24	24.5
35-39	18	18.4
30-34	16	16.3
25-29	16	16.3
20-24	3	3.0
Total	98	100.0

Note: Eight (8), or 7.5%, of the respondents did not respond to this question.

Distribution of respondents by years of experience

The respondents were asked to indicate how many years they have been involved in training. Trainers' years of experience ranged from one (1) year to thirty

(30) years, with a mean of fifteen (15) years. The distribution of the responses is shown in Table 5 below.

Table 5. Years of experience as a trainer

Interval	Frequency	%
30-34	1	1.0
25-29	1	1.0
20-24	8	8.0
15-19	7	6.9
10-14	17	16.8
5-9	28	27.7
0-4	39	38.6
Total	101	100.0

Note: Five (5), or 4.7% of the respondents did not respond to this question.

Table 5 shows that most of the trainers in business and industry have fifteen (15) or fewer years of experience in training, with thirty-nine (39), or 38.6% of the respondents with only one (1) to four (4) years of experience.

Distribution of respondents by educational level

Out of the one hundred and six (106) respondents in this survey, their education levels were distributed as shown in Table 6 below.

Table 6 shows that most trainers have either a bachelor's or a master's degree. One can infer from this distribution that trainers in this survey are highly educated.

Table 6. Educational level of respondents

Educational Level	Number	%
Less than B.S./B.A.	12	11.3
B.S./B.A.	49	46.2
M.S./M.A.	37	35.0
Ph.D	8	7.5
Total	106	100.0

Distribution of respondents by educational background

The educational background of the trainers is distributed as shown in Table 7 below.

Table 7. Educational background of respondents

Educational background	Number	%
Business Administration	25	23.6
Education	58	54.7
Science and Humanities	13	12.3
Other (Psychology, General Studies, Art, OJT)	10	9.4
Total	106	100.0

Table 7 shows that over one-half of the trainers had their educational background in education, while about one-quarter of the trainers had background in business administration.

Distribution of respondents by type of business sector

The respondents were comprised of trainers from different business sectors. This distribution can be seen in Table 8 below.

Table 8. Business sector of respondents

Sector	Number	%
Manufacturing	18	17.0
Retail	9	8.5
Service	77	72.6
Other	2	1.9
Total	106	100.0

Table 8 shows that approximately three-quarters of the respondents were employed in a service-related business, while less than one-quarter were employed in manufacturing.

Distribution of respondents by primary training background

The respondents were asked to identify where they got their training background. The distribution of the responses is shown in Table 9 below.

Table 9. Primary training background

Primary Background	Number	%
Academic	20	18.9
On-the-Job Training (OJT)	66	62.3
Both Academic and OJT	17	16.0
Military	2	1.9
ASTD	1	0.9
Total	106	100.0

Table 9 shows that an overwhelming number of trainers, sixty-six (66) respondents, or 62.3%, got their background through On-the-Job training. The remaining respondents were split on where they got their primary training background.

Distribution of respondents by percentage of total work time devoted to training

The respondents were asked to indicate the percentage of their total work time that is devoted to training. The distribution of the responses is shown in Table 10 below.

Table 10. Percentage of total work time devoted to
          training

Interval %	Frequency	%
80-100	33	32.7
60- 79	16	15.8
40- 59	21	20.8
20- 39	25	24.8
0- 19	6	5.9
Total	101	100.0

Note: Five (5), or 4.7% of the respondents, did not
       respond to this question.

Table 10 shows that approximately one-third of the
trainers devoted most of their total work time to
training other employees. Another one-third devoted at
least one-half of their overall organizational
assignment, if not more, to training other employees.

When the responses were examined according to the
time devoted to different types of training, such as
managerial, technical, clerical, line and staff, and
other types, an interesting result emerged, as shown in
Table 11 below.

Table 11.   Percentage of time devoted to types of
             training

Training types	Number	Raw %	% of Total
Managerial	82	77.4	28.77
Technical	54	50.8	18.95
Clerical	60	56.3	21.05
Line and Staff	68	63.9	23.86
Other	21	19.6	7.37
Total			100.00

Note: Multiple response was requested on this variable.

Table 11 shows that with the exception of
managerial type training, trainers were almost evenly
divided on the amount of the different types of training
they do in business and industry.

Distribution of respondents by size of organization

The respondents were asked to indicate the number
of employees that work for their respective
organizations.   These data were meant to provide a feel
for the size of the organizations.   The distribution of
the responses is shown in Table 12 below.

Table 12. Number of employees in the organization

Interval %	Frequency	%
22,500-25,000	1	1.1
20,000-22,499	3	3.5
18,000-19,999	0	0.0
15,000-17,999	0	0.0
12,500-14,999	0	0.0
10,000-12,499	4	4.7
7,500- 9,999	3	3.5
5,000- 7,499	3	3.5
2,500- 4,999	13	15.1
0- 2,499	59	68.6
Total	86	100.0

Note: Twenty (20), or 18.9% of the respondents, did not respond to this question. Some of these 18.9% might be self-employed trainers.

Table 12 shows that an overwhelming number of the business organizations are of very limited size employing 2,500 or fewer employees. Actually, approximately 84% of the businesses employed 2,500 employees or fewer. One conclusion from this distribution is that the business organizations that

are represented here are of small size with regard to the number of employees in the organization.

CHAPTER IV. ANALYSES AND RESULTS

The major findings of the research are presented in this chapter. These findings include:

1. Results of the tests of hypotheses relating to the questions of the study.

2. Results of other important data regarding training effectiveness in business and industry.

Results of Hypothesis testing

The enormity of the data collected on the competencies made it imperative that a more detailed statistical analysis was desirable. The thirty-one (31) competencies were used to solicit responses from trainers on two critical issues, namely:

1. The importance they attach to the competencies.

2. The application of the competencies to the training they do, and, if they do apply them, whether the training they facilitate is seen as quality and effective training.

A factor analysis was carried out on the competency variables. The first step in factor analysis involved the calculation of appropriate measures of

association for a set of relevant variables. The second step was to explore the data-reduction possibilities by constructing a set of new variables on the basis of inter-relations exhibited in the data. This approach is called the extraction of initial factors, and the principal-component analysis was adopted.

Principal-component analysis is a relatively straightforward method of transforming a given set of variables or principal components that are orthogonal (uncorrelated) to each other. The third step was the rotation to a terminal solution, which is the search for simple and interpretable factors. For this third approach, the orthogonal rotational method (varimax rotation) was adopted to achieve simpler and theoretically more meaningful factor patterns.

A scree plot of eigenvalues, a stem and leaf plot, a box plot, and a normal probability plot was done for each of the derived factors, after the factors became apparent (Appendix).

Scree plots are meant to show visually meaningful factor patterns. Stem and leaf plots are basically histograms with which one can readily see how wide a range of values the data cover; where the values are

concentrated; how nearly symmetric the batch is; whether there are gaps where no values were observed; and whether any values stray markedly from the rest. Box plots give measures of dispersion, and with them one can see how spread out the middle is, and how the tails relate to it. Finally, normal probability plots are graphical representations of the z-scores for the variables. All these graphs show a very good relationship among the factors analyzed and among the competencies that contributed to the grouping of the factors.

Of the importance variables, eleven (11) factors were originally retained by the mineigen criterion. However, after the varimax rotation, only six (6) competencies were loaded sufficiently on the first factor. These six competencies are industry understanding, objectives preparation skills, organization behavior understanding, organization understanding, performance observation skills, and questioning skills. All the six competencies were seen to have one crucial thing in common, which led to the label of "Leadership Cluster". Table 13 shows the factor loadings on the leadership cluster.

Table 13. Factor loadings on leadership cluster

Variable name	Competency	Factor loadings
Imp. 14	Industry understanding	.559
Imp. 19	Objectives preparation skills	.500
Imp. 20	Organization behavior understanding	.642
Imp. 21	Organization understanding	.523
Imp. 22	Performance observation skills	.516
Imp. 25	Questioning skills	.711

Note: Only one factor is considered with regard to the importance variable because of the results of the scree plot and eigenvalue results. This leadership cluster has an eigenvalue of 5.2728. This eigenvalue is the variance explained by the factor.

Of the Application variables, eleven (11) factors were also originally retained by the mineigen criterion. Two factors were predominant with this set of variables, as can be seen from the scree plot for Application eigenvalues (Appendix). However, after varimax rotation, five (5) competencies were sufficiently loaded on Factor 1. These competencies are: cost-benefit analysis, delegation skills, organization behavior

understanding, and personnel/human resource field understanding. All the five competencies were seen to have one crucial thing in common, which led to the label of "Managerial Cluster." Table 14 shows the factor loadings on the managerial cluster.

Table 14. Factor loadings on managerial cluster

Variable name	Competency	Factor loadings
App. 6	Cost-Benefit Analysis	.602
App. 9	Delegation Skills	.605
App. 20	Organization Behavior understanding	.767
App. 21	Organization understanding	.805
App. 23	Personnel/Human Resource field understanding	.500

Note: The eigenvalue for the managerial cluster is 5.519. This is the variance explained by the factor.

Also, four (4) competencies were sufficiently loaded on a second factor (Factor 2). These competencies are: data reduction skills, intellectual versatility, library skills, and performance observation skills. All four of these competencies also have one

crucial thing in common, which led to the label of "Analytical Cluster." Table 15 shows the factor loadings on the analytical cluster.

Table 15. Factor loadings on analytical cluster

Variable name	Competency	Factor loadings
App. 8	Data Reduction Skills	.653
App. 15	Intellectual Versatility	.788
App. 16	Library Skills	.553
App. 22	Performance Observation skills	.562

Note: The eigenvalue for the analytical cluster is 2.537. This is the variance explained by the factor.

The above factor analysis results therefore helped to reduce the data to manageable proportions, and the subsequent analysis in this study was based on these factor analysis results. Hence, the importance variables used were only the leadership cluster variables, while the application variables used were the managerial and analytical cluster variables, respectively.

Hypothesis 1

It was hypothesized that there is a significantly
(p<.05) positive relationship between the frequency of
application of the competencies by trainers and the
reported quality of training they do.

As shown in Table 16, on the reported quality and
effectiveness of training as seen by the trainers,
approximately eighty-seven (87) trainers, or 88%,
indicated that their training program is either
effective or highly effective. Thirteen (13) trainers,
or 12.2%, indicated that their training was ineffective
or that they could not decide whether it was effective
or not.

Two Pearson correlations were done using the two
application clusters, namely, the managerial and
analytical clusters. The analysis revealed that there
were no significant positive relationships between
managerial cluster application ($\bar{x}$ = 2.22) and the
reported effectiveness of their training programs. The
analysis also revealed that there were no significant
positive relationships between analytical cluster
application ($\bar{x}$ = 2.19) and the reported effectiveness of
their training programs (Table 17).

Table 16. Extent of training program effectiveness

Scale	Number	%
Highly Effective	10	15.1
Effective	77	72.6
Cannot Decide	12	11.3
Ineffective	1	0.9
Highly Ineffective	0	0.0

Mean = 4.00 Standard deviation = 0.594

Table 17. Mean ratings, standard deviation, Pearson
correlation, with effectiveness on Factors 1
and 2 (managerial and analytical clusters)

Variable	N	Mean	Std. Dev	Pearson Corr	P Value
Application Factor 1 (Managerial)	106	2.22	0.44	-0.048	0.31
Application Factor 2 (Analytical)	106	2.19	0.42	0.021	0.42

This result implies that trainers who possess and
apply more of these competencies do not necessarily do
quality and effective training.

Hypothesis 2

It was hypothesized that there is a significantly (p<.05) positive relationship between the educational level and application of the competencies by trainers in business and industry.

Four educational levels were used in this hypothesis, as can be seen from Table 6. These educational levels are less than a bachelor's degree, bachelor's degree, master's degree, and doctorate degree.

A one-way analysis of variance procedure was used in the analysis of these data. The analysis revealed that there were significant relationships (F-value = 2.28 and Pr > F = 0.0426) between educational level of trainers and their application of the competencies for the first factor, which is the managerial cluster (Table 18).

Table 18 reveals that educational level increases the possession and application of the managerial cluster competencies by trainers in business and industry. However, Table 19 reveals that there were no significant relationships (F = 0.32 and Pr > F = 0.809) between

educational level of trainers and their application of the second factor, which is the analytical cluster variables.

Table 18. Anova: managerial cluster and competency application

Source	df	SS	MS	F	Pr>F
Model	3	1.553	0.518	2.82*	0.043
Error	102	18.710	0.183		
Corrected Total	105	20.263			

* Significant at the .05 level.

Table 19. Anova: analytical cluster and competency application

Source	df	SS	MS	F	Pr>F
Model	3	0.175	0.058	0.32	0.809
Error	102	18.394	0.180		
Corrected Total	105	18.569			

Table 19 reveals that educational level does not lead to increased application of the analytical competencies by trainers in business and industry. Hence, the hypothesis that there is a significant relationship between educational level and application of the competencies by trainers in business and industry is partially supported by the evidence at hand.

Hypothesis 3

It was hypothesized that there is a significant difference ($p < .05$) in competencies applied during different types of training.

Types of training were given as managerial, technical, clerical, line and staff, and other training, as shown in Table 20. The two application variable factors were used in doing a Pearson correlation procedure. The results are shown in Tables 20 and 21 below.

Table 20. Number of observations, mean, and standard deviation of types of training and application variables

Variables	N	Mean	Std. Dev.
AF1 (Application Factor 1) Managerial	106	2.216	0.439
AF2 (Application Factor 2) Analytical	106	2.191	0.421
PTypeM (Managerial)	82	43.024	26.334
PTypeT (Technical)	54	35.852	26.835
PTypeC (Clerical)	60	27.067	26.681
PTypeL (Line & Staff)	69	43.899	96.699
PTypeO (Other)	21	37.190	20.684

The table shows that the two application factor variables have a mean 2.22 for factor 1 and a mean 2.19 for factor 2. The Table also shows that managerial-type training has a mean 43.02; technical, 35.85; clerical, 27.07; line and staff, 43.89; and other 37.19.

Table 21. Pearson correlation: types of training with
           application variables

Types of training	AF1 Managerial r (pr)	AF2 Analytical r (pr)
PTypeM (Managerial)	0.088 (0.214)	-0.082 (0.232)
PTypeT (Technical)	-0.223 (0.053)*	-0.127 (0.180)
PTypeC (Clerical)	-0.373 (0.002)**	-0.082 (0.265)
PTypeL (Line & Staff)	-0.283 (0.009)**	-0.089 (0.234)
PTypeO (Other)	-0.524 (0.008)**	-0.059 (0.399)

* Significant at the .05 level.
** Significant at the .01 level.

Table 21 reveals that there were significant differences in competencies applied during different types of training. These significant differences occur only in technical-type training (r = -0.223 and prob > r = .053), clerical-type training (r = -0.37 and prob > r = 0.002), line and staff training (r = -0.28 and prob > r = 0.009), and other training (r = -0.52 and prob > r = 0.008) with application variable factor 1 (i.e., the managerial cluster). There were no significant

differences observed in analyzing types of training with application variable factor 2 (i.e., analytical cluster).

This result leads to the conclusion that the managerial factor competencies applied are a function of the type of training, especially clerical, line and staff, and other types of training. However, analytical factor competencies applied is also important to types of training. Hence, the hypothesis that there is a significant difference in competencies applied during different types of training was partially supported by the evidence at hand.

Hypothesis 4

It was hypothesized that there is a significant difference (p < .05) in the importance of competencies among trainers with different educational backgrounds.

Educational background is classified into four categories, as can be seen in Table 7. However, because only three of the categories had entries in them, the three were used for a one-way analysis of variance test.

These three categories include: Business

Administration, Education, and Science and Humanities.

These categories were used with the importance variable

factor, which is the leadership cluster. The result of

the analysis is shown in Table 22 below.

Table 22. Anova: educational background with
leadership cluster variables

Source	df	SS	MS	F	Pr>F
Model	2	0.561	0.280	1.23	0.297
Error	93	21.214	0.228		
Corrected Total	95	21.775			

The analysis presented in Table 22 shows that there

is no significant difference in the importance of

competencies among trainers with different educational

backgrounds. Therefore the research hypothesis of

difference in the importance of the competencies with

educational background was not supported.

Hypothesis 5

It was hypothesized that trainers who see the purpose of training as related to organizational goals will possess and apply significantly greater ($p < .05$) levels of competencies than those who do not see training and organizational goals as closely related.

In addressing this hypothesis, a reliability analysis for the purposes listed was examined. Since the items were not highly correlated with each other, an index could not be constructed meaningfully with all six purposes of training stated in the survey instrument. However, one purpose stood out among the six listed. This purpose is "meeting the objectives of the organization," and was better correlated to the other purposes than all the others. Hence, a Pearson correlation was run using the application variable factors 1 and 2 (i.e., the managerial and analytical clusters) with meeting the objectives of the organization. The results are shown in Table 23.

Table 23.   Pearson correlation: purpose of training
            with application Factors 1 and 2

Variables	N	Mean	Std. Dev.	Pearson Corr.	Prob.
AF1 (Managerial)	106	2.216	0.439	0.170	0.065
AF2 (Analytical)	106	2.191	0.421	0.162	0.076

The results shown in Table 23 indicate that there

is no significant difference between trainers who see

the purpose of training as related to organizational

objectives and their application of the competencies.

Hence, the research hypothesis of difference was not

supported.

Hypothesis 6

It was hypothesized that there is no significant

difference (p < .05) between trainers and

supervisor/managers on the criteria for training

effectiveness.

A chi-square (crosstabulation) analysis was done with trainers and supervisor/managers responses recorded into dichotomies. Trainers and supervisors were asked to rank their criteria for measuring effectiveness. The open-ended responses were then recoded and grouped into five major categories. These categories are: product-related, profit-related, employee-related, customer-related, and process-related objectives. The rankings that were the results of this question are shown in Tables 24 through 26.

Table 24. Overall rankings on personal criteria in measuring effectiveness

Rankings	Criteria	Number n=95	%
1	Employee-Related	33	34.8
2	Productivity-Related	31	32.6
3	Training Process-Related	17	17.9
4	Profit-Related	8	8.4
5	Customer-Related	6	6.3
Total		95	100.0

Note: Eleven (11) respondents did not respond to this question.

Table 25. Rankings on personal criteria in measuring
effectiveness by trainers

Rankings	Criteria	Number n=48	%
1	Productivity-Related	20	41.7
2	Employee-Related	15	31.3
3	Training Process-Related	8	16.7
4	Profit-Related	3	6.2
5	Customer-Related	2	4.1
Total		48	100.0

Note: Four (4) trainers did not respond to this
question.

Table 26. Rankings on personal criteria in measuring
effectiveness by managers or supervisors
(assumed to be organizational criteria)

Rankings	Criteria	Number n=47	%
1	Employee-Related	18	38.3
2	Productivity-Related	11	23.4
3	Training Process-Related	9	19.1
4	Profit-Related	5	10.6
5	Customer-Related	4	8.6
Total		47	100.0

Note: Seven (7) supervisor/managers did not respond
to this question.

Table 24 shows the overall rankings for criteria in the measurement of effectiveness by both trainers and supervisor/managers. The table indicates that criteria which relate to the skills and satisfaction of the employee being trained ranked first, with 31.3%, followed by criteria that are productivity-related, with 29.25%. Training process criteria ranked third, with 16.04%, profit-related criteria ranked fourth, with 7.65%, customer-related criteria ranked fifth, with 5.66%.

Tables 25 and 26 show the rankings by trainers and supervisor/managers respectively. One critical result in their rankings is that trainers ranked productivity-related criteria as the most important, followed by employee-related criteria, while supervisor/managers ranked employee-related criteria as the most important, followed by productivity-related criteria. All the other rankings remain exactly the same for both groups.

In doing the chi-square analysis, some of the criteria were collapsed because of small cell entries. Hence, productivity was collapsed with profit, and employee was collapsed with customer, while training process and the "not sure" entries were left intact. The chi-square result is shown in Table 27.

The chi-square analysis revealed no significant difference, with a value of 1.95 and probability value of 0.43. Hence, the null hypothesis of no difference between trainers and supervisor/managers on the criteria for training effectiveness could not be rejected at the .05 level of significance.

Table 27. Distribution of respondents by major function types and effectiveness criteria

Criteria	Trainers Only Number (%)	Supervisor/Managers Number (%)	Total Number (%)
Product/ Profit	22 (20.75)	16 (15.09)	38 (35.85)
Employee/ Customer	17 (16.03)	22 (20.75)	39 (36.79)
Process	8 (7.55)	9 (8.49)	17 (16.03)
Not Sure	5 (4.72)	7 (6.60)	12 (11.32)
Total	52 (49.06)	54 (50.94)	106 (100.00)

Chi-square = 1.95   Significance = 0.43

Hypothesis 7

It was hypothesized that there is no significant difference ($p < .05$) between supervisor/managers and trainers on the purpose of training in business and industry.

A chi-square (crosstabulation) analysis was done with trainers and supervisor/managers' responses recorded into dichotomies. Trainers and supervisors were asked to identify the purpose of training in their organization. A single index was used for the responses received from the six purposes listed in the questionnaire based on reliability tests. The results of this analysis are shown in Table 28 below.

Table 28 shows that there was no significant difference (chi-square = 2.232, $p = 0.526$). Hence, results failed to provide needed evidence to reject the null hypothesis that there is no difference between supervisor/managers and trainers on the purpose of training in business and industry.

Table 28. Distribution of respondents by major function types and purpose of training

Criteria	Trainers Only Number (%)	Supervisor/Managers Number (%)	Total Number (%)
Not Sure	11 (20.00)	10 (18.18)	21 (38.18)
Not Applicable	7 (12.73)	11 (20.00)	18 (32.73)
Applicable	7 (12.73)	9 (16.36)	16 (29.09)
Total	25 (45.45)	30 (54.55)	55 (100.00)

Chi-square = 0.73   Significance = 0.53

Note: Fifty-one (51) respondents did not respond to this question because approximately one-half of the respondents were self-employed entrepreneurs.

Results of the analysis of other important data

concerning trainer competencies and training

effectiveness

Where the training opportunities are in business and industry in Iowa

From the responses received on the questionnaire,

it is evident that most business sectors in Iowa that

employ trainers or operate a training department are

either in the service or manufacturing sectors. The service sector contributes to 72.6% of total trainer employment, while manufacturing contributes to 17.0% of total trainer employment.

The service sector includes financial institutions such as banks, credit unions, and savings and loans, as well as real estate and insurance. The manufacturing business sector in Iowa is not difficult to explain, since Iowa is an agricultural state. The agricultural products will have to be processed and equipment used for agricultural production has to be made.
It is therefore worth noting that the manufacturing business sector in Iowa is predominantly agricultural.

The implication of this result is that those who wish to seek employment as trainers in business and industry are more likely to be successful if they concentrate their search efforts in either service or manufacturing sectors.

Trainer's role (proficiency) in business and industry

The respondents were asked to identify the best description of the role they play as trainers in the organization. The distribution of the responses is shown in the Appendix.

An examination of the Appendix, shows the trainer's role in business and industry as a Marketer/Transfer Agent/Instructor/Group Facilitator with 59.4% of the trainers expressing this view. This role is followed by the role of Manager/Strategist with 14.2% of the trainers expressing this view.

However, an examination of the Appendix shows that trainers, while agreeing that the trainer's role should be that of Marketer/Transfer Agent/Instructor/Group Facilitator (63.2%), also felt that the trainer's role should be more of a potpourri (everything to everyone) involving a little bit of everything.

From these observations, one can conclude that the best role for trainers to perform in business and industry is that of Marketer/Transfer Agent/ Instructor/Group Facilitator. Therefore, efforts should be concentrated on making potential trainers competent in these areas so as to be effective and productive. This situation will help limit the belief by some trainers that they ought to be everything to everybody. This will also help to streamline the training profession as a regulated and licensed profession.

This conclusion gives credence to the fact that, when asked what makes trainers effective, fifty (50), or 47.2%, of the trainers indicated that it is when participants have learned something from the training. Forty-seven (47) respondents, or 44.3%, indicated that their training will be considered effective if it contributes to organizational payoff. Only nine (9) respondents, or 8.5% of the trainers, indicated that their training will be seen as effective if the business or industry has a satisfied work force.

Since learning by the employees, and teaching by the trainers is an important aspect of the questions analyzed here, a licensed profession is thus recommended where those to be involved in training will have to meet certain criteria in their efforts to help employees learn and produce results from the learning experience.

Cooperation by organization's top management

The respondents were asked to characterize top management's attitude toward training in their organization. This questionnaire item was meant to find out if the claims in some literature that there is a lack of top management support for training was

justified. The distribution of the responses from the trainers is shown in the Appendix, and does contradict the belief that organization's top management is not supportive of training efforts.

In fact, the figures in the Appendix show that ninety-one respondents, or 85.8% of the trainers felt that top management's attitude towards training in their organization is either high or very high. Only fifteen (15) respondents, or 14.1% of the trainers, indicated that top management's attitude towards training in their organization is either low, very low, or indifferent.

The five most important competencies for trainers

Realizing that trainers in business and industry vary in educational backgrounds and levels, respondents were asked to indicate how well their educational discipline prepared them for being effective trainers. Fory-nine (49) respondents, or 46.2% of the trainers, indicated that they were either well prepared or prepared with regard to the competencies needed. Twenty-nine (29) respondents, or 27.3% of the trainers, indicated that they were either very ill-prepared or

ill-prepared, while twenty-eight (28) respondents, or 26.4% of the trainers, either were not sure or had no response to the question.

They were also asked to identify and rank the five most important competencies according to their order of importance to them. The following competencies emerged as the top pick among trainers in business and industry, as shown in the Appendix.

1. Presentation skills

2. Adult learning understanding

3. Training and development techniques understanding

4. Writing skills

5. Group process skills

Presentation skill is defined as the verbal presentation of information in a manner such that the intended purpose is achieved. Adult learning understanding is defined as knowing how adults acquire and use knowledge, skills, and attitude, and understanding individual differences in learning. Training and development techniques understanding is defined as knowing and understanding the techniques and methods used in training. Writing skills is defined as

preparing written materials which follow generally accepted rules of style and form, is appropriate for the audience, and accomplishes its intended purposes. Finally, group process skill is defined as influencing groups to both accomplish tasks and fulfill the needs of their members.

However, when trainers were asked to indicate and rank the five competencies that they need to develop more, the following list resulted, as shown in the Appendix.

1. Presentation skills

2. Computer competency

3. Writing skills

4. Group process skills

5. Cost-Benefit analysis

6. Adult learning understanding

Two new competencies emerged here as compared to the ones indicated and ranked as the most important. These two competencies are: computer competency, defined as familiarity with and being able to use computers; and cost-benefit analysis, defined as assessing alternatives, in terms of their financial, psychological, and strategic advantages and disadvantages.

This response on the importance and ranking of the competencies and the competencies that trainers need to develop more does not mean that the rest of the competencies are not important. All that these data show is that the competencies listed above will help trainers to be more effective and do more quality training as compared to the rest of the competencies.

It is noteworthy however, that some of the trainers did not see some of the competencies as important to the training they do, and have never applied them to any of the training they facilitated. The competencies not seen as important, and not applied by at least 10% of the responding trainers include:

1. Computer competency

2. Cost-Benefit analysis skill

3. Delegation skills

4. Futuring skills

5. Library skills

6. Model building skill

7. Personnel/Human resource field understanding

8. Research skills

9. Training and development field understanding

Computer competency is defined as familiarity with, and the ability to use computers. Cost-benefit analysis skill is defined as assessing alternatives in terms of their financial, psychological, and strategic advantages and disadvantages. Delegation skill is defined as assigning task responsibility and authority to others. Futuring skill is defined as projecting trends and visualizing possible and probable futures and their implications.

Library skill is defined as knowing how to use library resources. Model building skill is defined as developing theoretical frameworks which describe complex ideas in understandable and useable ways. Personnel/Human resources field understanding is defined as understanding issues and practices in other human resources areas. Research skill is defined as the knowledge of systematic techniques for a formal inquiry. Finally, Training and development field understanding is defined as the familiarity with issues such as technology, social, economic, professional, and regulatory trends in the training and development field.

Some of these competencies that were not seen as important can be explained by the fact that they are not

directly related to the effectiveness of an actual training program. Others, such as cost-benefit analysis is not given much attention by trainers because of the belief that the benefits of training in an organization is difficult to quantify on a short term basis, when periodic budget allocations are being evaluated.

Yet, some of the competencies such as research skills and model building skills might not be seen as important because these skills are acquired through advanced degrees, which most of the responding trainers in this study do not have.

CHAPTER V. SUMMARY, CONCLUSIONS/DISCUSSIONS, AND RECOMMENDATIONS

Summary

This study was designed to get information on the perception of trainers and managers/supervisors in business and industry on what can be used by the training profession to conduct and evaluate effective and quality training. The training competencies proposed by ASTD were used as a major tool in defining the skills that trainers need in order to be effective.

The first chapter dealt with the importance of training in business and industry, its historical background and uses, the focus of training, and who benefits from training. This led to the development of certain assumptions and procedures for the study.

The second chapter dealt with a review of available literature regarding training. Since training involved adult learning, some relevant adult learning theories were reviewed. Other areas covered in this chapter included a comparison of the historical and current perspectives of training in business and industry; effectiveness and efficiency in business and industry training; factors affecting job training in business

and industry; and a review of some training models to see how they fit into the total picture of training, learning, and quality. Based on this review, some hypotheses were advanced to be tested.

The third chapter dealt with a description of the methods and procedures used in gathering the data. The chapter also dealt with the statistical/analytical techniques used in analyzing the data that was gathered for the study. This included validity and reliability checks and estimates.

The fourth chapter focused on the presentation of the descriptive statistics in tabular and graphical formats with explanations of key distinguishing points. The chapter also presented the results obtained from the analyses of the data.

The fifth and present chapter summarizes the results of the hypotheses tested, and conclusions are drawn based on these results. This chapter also discusses the conclusions and proposes certain recommendations based on the results of the research hypotheses, as well as other information gathered from analyzing the data.

In order to re-focus attention to the central issue of this research, the questions of the study are

re-stated below to guide the reader through answers
provided by the study.

1. Do trainers actually have the ASTD-required
   competencies, and do they apply them in the
   training they do?

2. Are these competencies perceived as essential
   to training?

3. Are different competencies applied in
   different types of training and what is the
   deciding factor?

4. Are some of the competencies seen as more
   important than others, and, if so, which ones
   and why?

5. Does the application of the competencies by
   trainers impact the quality and effectiveness
   of a training program?

6. Do differences exist between the perceptions
   of trainers and supervisor/managers on the
   criteria for measuring effectiveness, as
   well as on the purpose of training in business
   and industry?

Based on these questions, results of the hypothesis tests were given and conclusions drawn from these results as shown below.

Conclusions/Discussions

The conclusions of this study are presented in two parts, namely: (1) results relating to the questions of the study and the hypotheses tested, and (2) results of pertinent information gathered from the data which may help the training profession in general, and especially training in business and industry. Discussions of the results are also presented along with each result analyzed.

Conclusions relating to the Hypotheses of the study

Conclusion of Hypothesis 1

The findings in Chapter IV of this study show that there was no significant positive relationship between the two application variable clusters (managerial and analytical) and the reported quality of training done.

Based on these findings, there was insufficient evidence to reject the null hypothesis of no positive relationship.

Discussion 1

The quality/effectiveness measurement index of response categories and frequencies shown in Table 26a indicates that 72.6% of the trainers saw the training in their organization as effective, while 15.1% saw the training as highly effective. Only 11.3% could not decide on this question. One can safely conclude that an overwhelming number of trainers (87.7%) saw the training in their organization as either highly effective or effective in assuring that participants learned something and in contributing to organizational payoff. When asked what makes trainers effective, 47% of the respondents indicated that it is when participants have learned something from the training, 44.3% of the respondents indicated that it is when training contributes to organization payoff, and only 8.5% of the respondents indicated that it is when an organization has a satisfied work force.

This result supports MacDonald's claim that primary evaluation criteria for effectiveness involve the amount of learning. However, the result did not support his claim that satisfaction of participants at the end of the training workshop would be an important factor in this evaluation.

The managerial application variable cluster received a mean score of 2.22 and a standard deviation of 0.44, while the analytical application variable cluster received a mean score of 2.19 and a standard deviation of 0.42. Despite this result, it seems that application by trainers does not necessarily relate positively to the extent of quality and effectiveness of training.

Referring back to the question of the study, as to whether trainers actually have the competencies, the answer is that they do have them based on the fact that they apply them. One does not apply what one does not have; hence application in this study infers possession. However, as to the question whether their application of the competencies impacts the quality of a training program, the answer is that we could not determine this point based on the evidence at hand. However, the literature review revealed that business and industry

want training to result in improved job performance, which in turn is an indicator of effectiveness and quality training.

So, why the competencies? It does seem that the competencies should be part of an educational curriculum for aspiring trainers (a broad-based knowledge) instead of a required skill for the professional practitioner. Possession and application of the competencies assures what Kearsley (1982) called efficiency and effectiveness criteria, through the use of cost-benefit analysis. Kearsley indicated that the cost-benefit analysis helps trainers justify existing programs, achieve better understanding and control over a training system, reduce training expenditures and increase efficiency, improve training results through increased effectiveness, and evaluate payoff.

Trainers should be able to distinguish effectiveness from efficiency, as suggested by Reddin in Sork (1984) if they have the required competencies. This situation also supports Davies (1973) claim that effectiveness can be learned, and that it is something consciously done or achieved by learning how to manage the learning situation. Also, the possession and application of the

competencies, when done correctly, should fit into Brinkerhoff's (1987) model on how training can lead to organization payoff.

Marsick (1988) and McKenzie (1985) advised that under the expectation of employee participation in training, productivity must be redefined if learning is to take place.

Conclusion of Hypothesis 2

The findings in Chapter IV indicate that there is significance in the relationship between educational level and the application of the competencies by trainers in business and industry. However, this significance is obtained with the managerial variable cluster and not with the analytical variable cluster.

Based on these findings, we reject the null hypothesis of no relationship and accept the fact that indeed those with higher educational levels do see the importance of the competencies and apply the managerial cluster variables more in the training they do. The managerial cluster variables include: cost-benefit

analysis, delegation skills, organization understanding, organization behavior understanding, and personnel/human resources field understanding.

However, with regard to the analytical cluster variables, there was insufficient evidence/information to make a similar conclusion, hence the research hypothesis of a relationship between analytical cluster variables and the educational level of trainers was not supported.

Discussion 2

The important question evaluated here is whether the competencies are seen as essential to training, and, if so, whether more or less education affects this perception. The answer to this question is that, despite the fact that competencies are seen as essential to training, the only application variable that could claim strict adherents/followers based on educational level is the managerial cluster of variables.

The reason for this result might lie in the fact that most of the manager/supervisors in the survey are more interested in those variables than in the analytical cluster variables. In fact, their managerial

duties involve most of the individual items on the cluster on a daily basis. The above result supports Davies (1973) claim that among the four primary skills that a trainer needs to be effective are diagnostic ability and professional expertise, among others. Diagnostic ability is enhanced by higher educational level and may be a contributing factor to the significant result found for this hypothesis.

Conclusion of Hypothesis 3

The findings in Chapter IV indicate that there is significance when evaluating differences in competencies applied during different types of training, especially with clerical, line and staff, and "other" training types. We therefore reject the null hypothesis of no significant difference and conclude that indeed trainers apply different competencies for different types of training, especially when managerial cluster variables are the yardstick.

Discussion 3

The question of the study relevant to this hypothesis is whether different competencies are applied in different types of training, and what is the deciding factor.

The answer to this question is yes. This implies that different competencies are applied for different types of training and the deciding factor is whether the competencies relate to managerial cluster variables or analytical cluster variables. If they relate to managerial cluster variables, then it is obvious that clerical, line and staff, and "other" training types might not need the application of some competencies for the trainers to assure that employees (here training participants) have learned something from the training.

This condition also means that employees certainly do not need managerial cluster variables to ensure organizational payoff for these three training types. Trainers who are versed in Adult Education theories will realize the importance of the three classes of domains, namely, the cognitive, affective, and psychomotor domains. Training objectives should be matched with the particular domain in question in order to produce good

results. This suggests that those involved in technical training ought to adopt psychomotor domain and apply competencies to reach the desired objective. Managerial training on the other hand ought to be better with the cognitive domain approach, involving intellectual response. Hence, the adult education theory which stipulates that different teaching and learning styles help adults learn is supported by the results of this hypothesis. Also supported is the interactive training approach as suggested in the literature review by those who advocated McGregor's Theory Y approach.

Conclusion of Hypothesis 4

The findings in Chapter IV show that the observed difference in the importance of competencies among trainers with different educational background is not significant. We therefore fail to reject the null hypothesis of no significant difference in the importance of competencies among trainers with different educational backgrounds.

Discussion 4

One of the questions of the study asked whether some competencies are seen as more important than others, and, if that was the case, which ones, and why.

The descriptive statistical analysis revealed that some of the competencies were seen as more important than the others by virtue of the rank they received by the trainers. These important competencies are: presentation skills, adult learning understanding, training and development techniques understanding, writing skills, and group process skills. Trainers also reported that they needed to have more expertise in all of the above-listed competencies in addition to computer competency and cost-benefit analysis skills.

There is no doubt the above-listed competencies are the core and central emphasis of theories in adult teaching and learning. Computer competency is a technological event that peaked with current trends in technological advancement. Cost-benefit analysis is the result of recent calls in the literature by both businesses and researchers for trainers to justify their existence, in view of the fact that over $40 billion is spent annually on training.

However, the results of the statistical analysis show that no particular group of trainers can claim ownership of valuing of the importance of the competencies. All groups of trainers see the competencies as important, especially when they are categorized by educational background.

The results of the data, however, uphold the belief that most trainers come from Education and Business backgrounds. The question as to why would be an interesting research topic for those interested in exploring this relationship further. The results may be suggesting to business and industry to continue the current practice of hiring trainers from any educational background. No specific educational background has a monopoly on the importance trainers attach to the competencies in trying to meet the organizational objective, and no educational background has an advantage over the other in this regard.

An examination of Table 7 shows that over one-half (54.7%) of the trainers who responded to this survey have backgrounds in Education. If this is the case, the important question to ask is which academic disciplines prepare people well in their role as trainers, since

there seems to be no difference in the importance
attached to the competencies with different educational
background. This question should make an interesting
study for researchers wishing to pursue it further, and
is encouraged by the present researcher.

Conclusion of Hypothesis 5

The findings in Chapter IV indicates no
significance in this relationship. Insufficient
evidence led to the lack of support for the research
hypothesis suggesting a difference among trainers who
see the purpose of training as necessarily related to
organizational goals and the possession or application
of the competencies and the trainers who do not see them
as necessarily related.

Discussion 5

This hypothesis is intended to help answer some
part of the question of the study as to whether trainers
have the ASTD-required competencies, and whether they
apply them in the training they do (assuming that the
training they do is to benefit the organization).

Since organizational goals center on productivity and profitability, and since these goals blend well with some of the goals that trainers themselves have, the results of the data showed that trainers indeed have the competencies. However, having the competencies or not does not say much about whether the goals of the organization are met or not met in training sessions.

Conclusion of Hypothesis 6

The findings in Chapter IV indicate no significance. Insufficient evidence led to the failure to reject the null hypothesis. Hence, the null hypothesis of no significant difference between trainers and manager/supervisors on the criteria for training effectiveness is retained.

Discussion 6

The question of the study that this hypothesis is meant to answer is the question whether differences exist between the perception of trainers and manager/supervisors on the criteria for measuring effectiveness of training in business and industry.

It is apparent that we could not find sufficient evidence to establish significance at the set alpha level of .05. When a criterion is present, most manager/supervisors and trainers use mostly similar criteria in their evaluation of the effectiveness of a training program. It is to be noted, however, that despite the fact that their rankings on these criteria might be slightly different, they are generally similar with the major criteria used. These major criteria include: increased productivity, increased profit, increased quality of performance, and feedback or evaluation from participants among others.

For most respondents, there was a general feeling that effectiveness of training is not currently measured or monitored by either the trainers themselves or the corporate staff. Those who indicated that they or their organization did not have any formal effectiveness measure had the following comments to justify their stance.

"Training in our organization will not become effective until management moves from lip service to support for the time necessary to train for human results, as well as productivity goals."

"We need to do a better job following up with training tools to help measure its effectiveness."

"Most corporations look at training as important, but only give it a lot of lip service and not actual support. Training itself is a great motivator, so why have companies not used it to their advantage?"

"Perhaps the most significant factor is that trainers need to experience the jobs themselves as much as possible. Whether performance skills or technical skills, you as a trainer cannot develop an effective program and implement it without expecting the reaction based on your own experience as a worker or manager."

"Our company does not have a formal training program. That decentralization may reduce effectiveness."

"I often find it very difficult to measure effectiveness of training in 'soft skill' areas such as management development, communication, etc."

"Production needs still outweigh training needs. I often am given too many new people at one time. Management says 'be flexible'- which means they will hire as many as they want, and have little regard for the reduced effectiveness of the training. They don't want to hear my troubles."

All the above statements focus on the need for image building and enhancement, management support, trainer experience on the job, and ability to differentiate different types of training. These form the critical mass for the development of standard measurement criteria for training effectiveness and quality.

Conclusion of Hypothesis 7

The findings in Chapter IV indicate no significance. Insufficient evidence led to the failure to reject the null hypothesis that there is no significant difference between trainers and manager/supervisors on the purpose of training in business and industry.

Discussion 7

The question of the study that this hypothesis is meant to answer is the question whether differences exist between trainers and manager/supervisors on the purpose of training in business and industry. The answer to this question is that we did not find enough evidence to establish that there was a significant difference between the two groups involved.

This result infers that trainers and supervisor/
managers think of similar purposes when they are
involved in training or training decisions.

Recommendations

Based on the results of the hypotheses, as well as
other results from the data, it is important for ASTD to
continue emphasizing the competencies proposed. However,
a more realistic goal would be to define clusters of
variables such as was done in this study, for example,
the Managerial, Leadership, and Analytical Clusters.
This definition should be done so that it creates
criteria for establishing a formal professional body.
Expertise in the cluster variables would then be
required of current and prospective trainers.
Accountability will thus be easy, and the long sought
recognition would be enhanced.

However, there seem to be some regional
differences with regard to the educational level of
trainers, when compared to the national ASTD. There
also seem to be some difference in the trainers' years
of experience. The similarity among the trainers who

responded to the national survey and those who responded to the present research study (which is regional in nature) can only be seen when one examines the sector that employs the majority of trainers, and, the percentage of time the trainers devoted to training.

These regional differences might also explain the difference between the competencies clusters as well as the number of competencies clustered on the factors. The existence of these regional differences makes it essential for the national ASTD to conduct more regional studies before making definite policy statements on the competencies required of trainers.

Since educational level affects application of the competencies for effective training, trainers should be made to be involved in Continuing Education Units (CEU) on part-time basis. This will help keep them current with trends in the profession. ASTD seminars should be more education oriented so as to offer credits to participants who may wish to use such credits as a stepping stone towards their pursuit of advanced degrees.

Trainers can come from any educational background. This means that the practice of hiring trainers from

any educational background is supported by the results of this study. Since no particular educational background can claim sole ownership of valuing the importance of the competencies, or even to doing effective training because of their acquisition of the competencies, On-the-Job Training (OJT) can be used to train trainers to do effective and quality training. However, there are also questions as to its effectiveness and efficiency.

Different types of training need different competencies. So, the practice of mixing managerial and clerical employees for a training session, for example, should be avoided. Also, the practice of trying to train technical staff to be experts in human relations techniques should be done with a high degree of caution. This is because technical staff spend most of their work time with machines and equipment, and not much time with people. It will therefore be unproductive to concentrate on teaching technical staff uncessary human relations skills. Trainers should be familiar with Adult Education theories to be able to use developed models to add spice to the training they do,

in order to maintain quality through the use of appropriate teaching and learning styles.

ASTD should emphasize the competencies listed as important and needed by trainers, when conducting seminars and workshops for trainers. These competencies include: presentation skills, computer competency, writing skills, group process skills, cost-benefit analysis, adult learning understanding, and training and development techniques understanding.

ASTD, through its membership, should encourage business organizations that do not have any effectiveness measurement criteria to work on developing some. These measurement criteria will be the litmus test for the quality of the job they are doing in the organization. This will also help top management understand the role of trainers and be able to appreciate them more when evaluating and promoting business and industry's top executive personnel.

For further research, it is suggested that a study be done, pairing the trainers with the employees being trained to see if the training they received helped improve their performance and productivity. It is also suggested that a study be done to find out the reason

why most trainers have academic background in education and to see if this is a way for educators to abandon the low-paying teaching profession. A further study might also look into the reason why managerial cluster competencies affect the type of training done in business and industry, and examine whether those types of training are more effective than the rest of them. Last but not the least, further research is suggested for any one interested in exploring the reasons behind the results of this particular study. A probable hint would be for the researcher to do a comparative analyses of the hypotheses studied here, with trainers and supervisors or managers as two distinct groups.

ACKNOWLEDGEMENTS

I want to use this opportunity to express my appreciations to all those who in any way helped me through this program. To the Department of Residence, thanks for giving me the opportunity to serve as an Area Advisor. This opportunity made it financially possible for me to undertake the program. Thanks to Dr. Dick Deems, President of the Iowa Chapter of ASTD, who saw the need for the Chapter as well as his consultancy firm to help defray the cost of this research study, and whose encouragement helped the survey participants to respond in a timely manner.

To Dr. Irene Beavers, and the late Dr. Carol Kay, thanks for steering me into this direction of study, and for all the encouragement and advice. To my program of study committee members, Professors John P. Wilson (major professor), William Wolansky, James McCormick, Donald Goering, and Mack Shelley, many thanks for all your patience and direction.

To my brother Dr. Martinianus C. Igbokwe, my mother Mrs. Roseleen Igbokwe, and my sisters Daa Terry, Dam Justi, Dam Kaa, Euna, Monique, and Julieth, thanks for

the support and for the encouragement especially after the death of our beloved father Chief Boniface N. Igbokwe and our beloved sister Mrs. Anthonia U. Kekeh, to both of whom I have dedicated this work. Last but not the least, to my wife Veronica and children Chika and Ngozi, thank you for being supportive and patient with me during the entire program.

APPENDIX

TOTAL SYSTEMS MODEL
Training route to experienced worker standards
in the job
(adopted from Renton, as reproduced in Davies 1973)
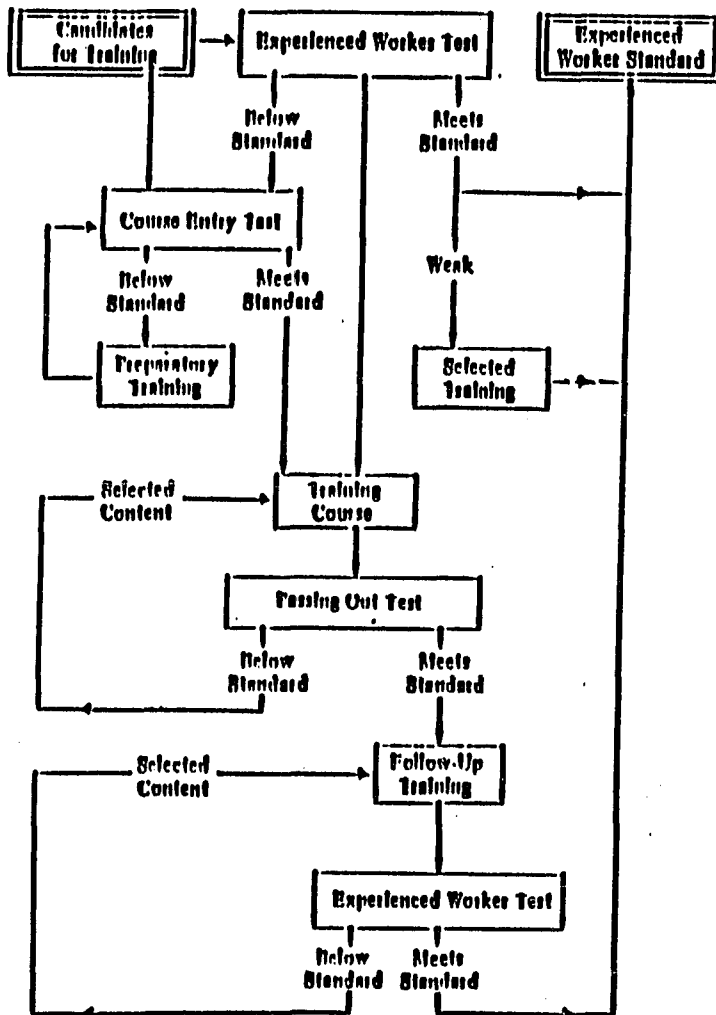
The Boyd and Apps Model
(adopted from Boyd and Apps, 1984)
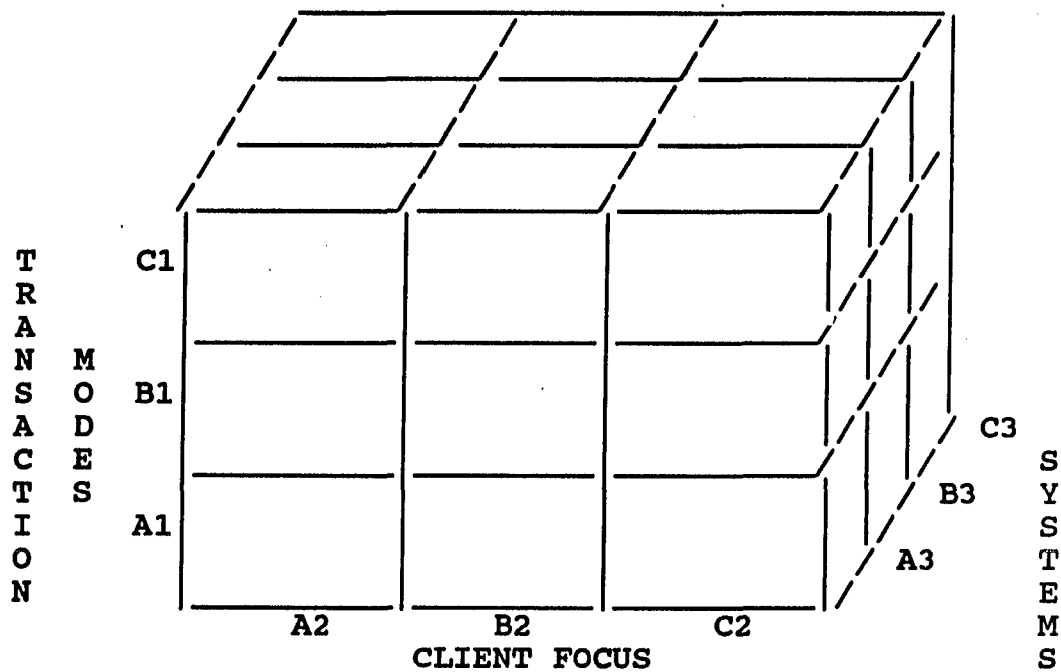
AMERICAN SOCIETY FOR
TRAINING AND DEVELOPMENT

IOWA CHAPTER

To:	Iowa Chapter ASTD Members,	March 1, 1989
From:	Jude E. Igbokwe	
Re:	Research Project	

You have been randomly selected to participate in a research project focusing on Training Competencies and training Effectiveness.

There are four parts to the enclosed survey:

Part 1 focuses on the 31 Competencies identified by national ASTD in their Models For Excellence, and asks you to identify your perceived level of importance, and the use of the competencies in the training you do;

Part 2 asks you to provide information on your specific work setting, as well as other demographic information;

Part 3 focuses on the purpose of training in your company, and asks you to identify your perceptions of the purposes and effects of training in your company;
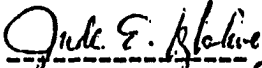
Part 4 focuses on the effectiveness of training and asks you to respond to several items relating to your perceptions of measuring effectiveness;

This research has been approved by the Board of Directors of the Iowa Chapter ASTD and the Professional Studies Department, College of Education, Iowa State University.

You will note a code number on the survey, which will be used to record the percentage of returns. Please be assured that no one other than the researcher will be able to identify your name with your response, and there will be no connection between the individual response and the conclusions and summary of the research.

Please complete the survey and return it in the enclosed stamped and addressed envelope within five days. Your help is greatly appreciated. Results of the research study will be printed in a future edition of Iowa Chapter ASTD's newsletter.

Sincerely,

Jude E. Igbokwe
Researcher

Prof. John P. Wilson
Major Professor

Dr. Dick Deems
President, Iowa ASTD

• Membership Your Improvement
• Service to the HRD Profession

Department of Professional Studies
N243 Lagomarcino Hall
Iowa State University
Ames, Iowa 50011
April 10, 1989

Dear ASTD Member,
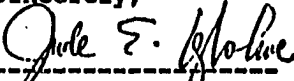
Recently, I sent a questionnaire to you, asking for your help in
completing the survey. Since the research study has a dual
purpose of contributing to training in business and industry as
well as to meet requirements for my graduation, I sincerely need
your input.

I have noticed that you have either forgotten to return the
questionnaire or you are currently busy with job related
assignments.

I am appealing that you help me conclude the research by
returning the completed questionnaire by April 20, 1989.
If you have misplaced the original questionnaire, I will be glad
to send another one to you.

Once again, thank you for your support.

Sincerely,

Julie E. Igbokwe
Researcher

Research Questionnaire

Part 1: Competencies of Trainers.
Please indicate your perceptions about each of the following
competencies that you have as a trainer. In the first column by
the left, please circle the number which represents your
perception of the _importance_ of this competency to you _as a_
trainer. In the second column by the right, please circle
the number which represents the _frequency_ with which you
apply this competency. Use the following response categories.

Very Important......5
Important...........4   Often......3
Cannot Decide.......3   Sometimes..2
Unimportant.........2   Never......1
Very Unimportant....1

IMPORTANCE   APPLICATION
----------   -----------

5 4 3 2 1... ADULT LEARNING UNDERSTANDING: (Knowing &
             understanding how adults learn)........... 3 2 1

5 4 3 2 1... AUDIO/VISUAL SKILL: (Adopting audio/
             visual hardware and software to
             appropriate situations)................... 3 2 1

5 4 3 2 1... CAREER DEVELOPMENT KNOWLEDGE: (Understan-
             ding the personal and organizational
             issues & practices relevant to
             individual careers)...................... 3 2 1

5 4 3 2 1... COMPETENCY IDENTIFICATION SKILL:
             (Identifying the knowledge and skill
             requirements of jobs, tasks, roles)....... 3 2 1

5 4 3 2 1... COMPUTER COMPETENCY: (Familiarity with
             and use of computers)..................... 3 2 1

5 4 3 2 1... COST-BENEFIT ANALYSIS SKILL: (Assessing
             alternatives in terms of their financial
             psychological, and strategic advantages
             and disadvatages)......................... 3 2 1

5 4 3 2 1... COUNSELING SKILL: (Helping individuals
recognize & understand personal needs,
values, problems, alternatives & goals)...　3 2 1

5 4 3 2 1... DATA REDUCTION SKILL: (Summarizing and
drawing conclusions from data)............　3 2 1

5 4 3 2 1... DELEGATION SKILL: (Assigning task res-
ponsibility & authority to others)........　3 2 1

5 4 3 2 1... FACILITIES SKILL: (Managing logistics in
an efficient and cost effective manner)...　3 2 1

5 4 3 2 1... FEEDBACK SKILL: (Communicating relevant
information such that they are understood)　3 2 1

5 4 3 2 1... FUTURING SKILL: (Projecting trends and
visualizing possible & probable futures
and their implications)...................　3 2 1

5 4 3 2 1... GROUP PROCESS SKILL: (Influencing groups
to both accomplish tasks & fulfill the
needs of their members)...................　3 2 1

5 4 3 2 1... INDUSTRY UNDERSTANDING: (Knowing the key
concepts & variables that define an indus-
try [e.g., critical issues, economic vul-
nerabilities, measurements, distribution
channels, inputs, outputs, information
sources]).................................　3 2 1

5 4 3 2 1... INTELLECTUAL VERSATILITY: (Familiarity
with varieties of ideas and practices
and their logic, without undue influence
from personal biases).....................　3 2 1

5 4 3 2 1... LIBRARY SKILLS: (Knowing how to use
library resources)........................　3 2 1

5 4 3 2 1... MODEL BUILDING SKILL: (Developing theore-
ractical frameworks which describe complex
idesa in understandable, usable ways).....　3 2 1

5 4 3 2 1... NEGOTIATING SKILL:(Securing win-win agree-
ments while successfully representing a
special interest in a decision situation).　3 2 1

5 4 3 2 1... OBJECTIVES PREPARATION SKILL: (Preparing
clear statements which describe desired
outputs)................................ 3 2 1

5 4 3 2 1... ORGANIZATION BEHAVIOR UNDERSTANDING:
(Knowing how organizations function and
using this larger perspective as a frame-
work for understanding and influencing
events and change)..................... 3 2 1

5 4 3 2 1... ORGANIZATION UNDERSTANDING: (Knowing the
strategy, structure, power networks,
financial position, systems of a specific
organization).......................... 3 2 1

5 4 3 2 1... PERFORMANCE OBSERVATION SKILLS: (Tracking
& describing behaviors & their effects)... 3 2 1

5 4 3 2 1... PRESONNEL/HR FIELD UNDERSTANDING: (Under-
standing issues and practices in other
HR areas [eg., organization development,
organization job design, human resource
planning, selection and staffing, personnel
research and information systems, compensa-
and benefits, employee assistance, union/
labor relations])...................... 3 2 1

5 4 3 2 1... PRESENTATION SKILLS: (Verbally presenting
information such that the intended
purpose is achieved)................... 3 2 1

5 4 3 2 1... QUESTIONING SKILL: (Gathering information
from individuals and groups through the
use of interviews, questionnaires and
other probing methods)................. 3 2 1

5 4 3 2 1... RECORDS MANAGEMENT SKILL: (Storing data
in easily retrievable form)............ 3 2 1

5 4 3 2 1... RELATIONSHIP VERSATILITY: (Adjusting beha-
vior in order to establish relationships
across a broad range of people & groups).. 3 2 1

5 4 3 2 1... RESEARCH SKILLS: (Knowledge of systema-
tic techniques for a formal inquiry)...... 3 2 1

5 4 3 2 1... TRAINING & DEVELOPMENT FIELD UNDER-
STANDING: (Familiarity with issues such
as technology, social, economic, profe-
ssional, & regulatory in T&D field)....... 3 2 1

5 4 3 2 1... TRAINING & DEVELOPMENT TECHNIQUES UNDER-
STANDING: (Knowing and understanding the
techniques & methods used in training).... 3 2 1

5 4 3 2 1... WRITING SKILLS: (Preparing written mate-
rial which follows generally accepted
rules of style & form, is appropriate for
the audience, creative, and accomplishes
its intended purposes).................... 3 2 1

c. Please rank 5 of the above competencies according to their
    order of importance to you. (1=greatest importance; 5=least
    importance)

               1._____
               2._____
               3._____
               4._____
               5._____

d. Please indicate other competencies you feel that trainers
    need to develop more.

               1._____
               2._____
               3._____
               4._____
               5._____

Part 2: Demographic Information.
Please in each of the following items, check one of the responses
as they apply to you.

a. Gender

    1._____Male
    2._____Female

b. Age: _____

c. Years of experience as a Trainer:_____

d. What is the highest academic degree awarded to you?

    1._____Less than BS/BA
    2._____BS/BA
    3._____MS/MA
    4._____PhD
    5._____Other (please specify)_____

e. From which of these educational disciplines did you get your
background in training supervision? (check one only please)

    1._____Business Administration
    2._____Education
    3._____Engineering
    4._____Science and Humanities
    5._____Other (please specify)_____

f. What sector of business/industry are you associated with?

    1._____Manufacturing
    2._____Retail
    3._____Service
    4._____Other (please specify)_____

g. How would you characterize your organizations' top
management's attitude towards training in general?

    1._____Very High
    2._____High
    3._____Indifferent
    4._____Low
    5._____Very Low

h. Based on your experience as a trainer, do you think that
your educational discipline prepared you for being an
effective Trainer?

    1._____Well Prepared
    2._____Prepared
    3._____Not Sure
    4._____Illprepared
    5._____Very Illprepared

i. Where did you primarily get your background in training?

    1._____Academic
    2._____On the Job
    3._____Other (please specify)_____

j. What percentage of your time do you devote to the
following types of training? (total should equal 100%)

    1._____Managerial
    2._____Technical
    3._____Clerical
    4._____Line and Staff
    5._____Other·(Please specify)_____

k. Which among the following best describes how you consider
a trainers role?. Please check only one response.

    1._____Marketer/Transfer Agent/Instructor/Group Facilitator
    2._____Evaluator/Needs Analyst/Task Analyst
    3._____Program Designer/Instructional Writer/Theoretician
    4._____Manager/Strategist
    5._____Other (Please specify)_____

l. What percentage of work time do you devote
to training in general? _____%

m. How would you classify your involvement as a trainer?

    1._____Corporate/Company Employee
    2._____Entrepreneurial/Self Employed (If you checked this,
        skip all of Part 3, and go to Part 4).

n. If you are a Corporate employee, how many people work for the
your organization? _____

Part 3: **Purpose** **and** **Effectiveness** **of** **Training.**
Please circle on the first column by the left, the purpose of
training in relation to your organization. In the second column
by your right, indicate your perception of the effects of the
training you provide on these purposes by circling the
appropriate response. Use the following response categories.

	Highly Effective.......5
	Effective..............4
	Cannot Decide..........3
Applicable..........3	Ineffective............2
Not Applicable......2	Highly Ineffective.....1
Not Sure............1	Not Applicable.........N

PURPOSE		EFFECTS
3 2 1 ...Increased productivity...................		5 4 3 2 1 N
3 2 1 ...Meeting the skill needs of your organization...........................		5 4 3 2 1 N
3 2 1 ...Meeting the objectives of the training program........................		5 4 3 2 1 N
3 2 1 ...Meeting the objectives of the org......		5 4 3 2 1 N
3 2 1 ...Incentive and reward to employees......		5 4 3 2 1 N
3 2 1 ...Serving as a competitive edge..........		5 4 3 2 1 N

Part 4: **Standard** **Measures** **of** **Effectiveness**
Please check only one response in each of the items below.

a. What makes trainers effective trainers?

      1._____Participants learned something from training
      2._____Contributing to organizational payoff
      3._____Having a satisfied work force

b. To what extent is the training program(s) that you
deliver effective?

      1._____Highly Ineffective
      2._____Ineffective
      3._____Cannot Decide
      4._____Effective
      5._____Highly Effective

c. What role should trainers perform?

     1.____Marketer/Transfer Agent/Instructor/Group Facilitator
     2.____Evaluator/Needs Analyst/Task Analyst
     3.____Program Designer/Instructional Writer/Theoretician
     4.____Manager/Strategist
     5.____Other (Please specify)

d. What criteria do you use to measure the effectiveness of training? (e.g., increased productivity, etc.)

     1._____
     2._____
     3._____

e. What criteria does your organization use to measure the effectiveness of training?

     1._____
     2._____
     3._____

f. Please write additional comments you might have about the competencies and training in general below.

Thank you for your time and effort in completing this questionnaire.

Scree Plot of Eigenvalues — Importance
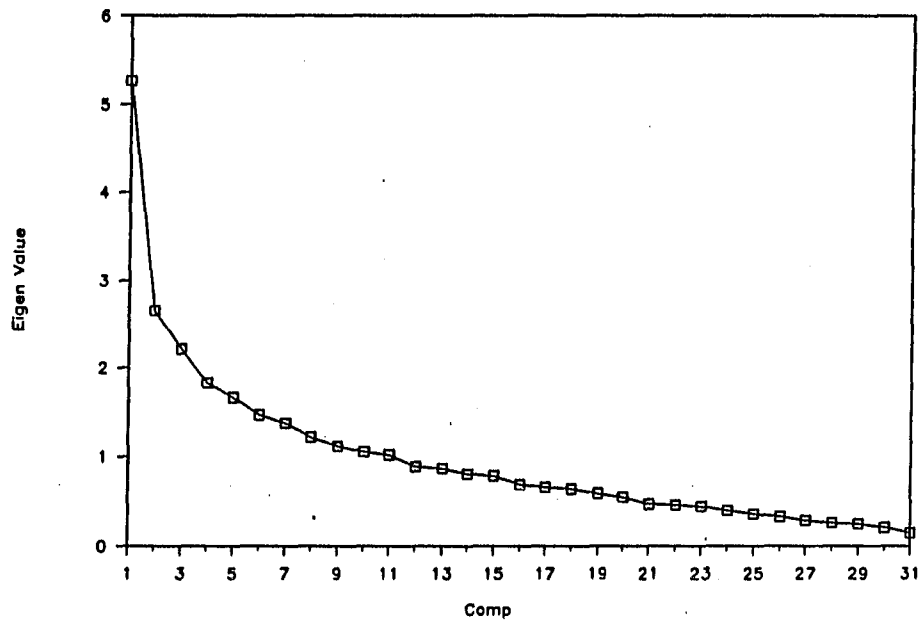
Stem and Leaf plot for Importance Factor

```
STEM LEAF                                    #

50  000000                                   6
48  3333333                                  7
46  777777777777777                          15
44  0000000000000000000                      19
42  333333333333333333                       18
40  0000000007777777777                      19
38  333333333                                9
36  7777                                     4
34  0                                        1
32  333                                      3
30  7777                                     4
28
26
24
22  3                                        1
    ----|----|----|----|-
```

Multiply Stem Leaf by 10**-01

MOMENTS

N	106	SUM WGTS	106
MEAN	4.27044	SUM	452.667
STD DEV	0.484387	VARIANCE	0.234631
SKEWNESS	-1.08037	KURTOSIS	1.7514
USS	1957.72	CSS	24.6363
CV	11.3428	STD MEAN	0.0470479
T:MEAN=0	90.768	PROB>$\|T\|$	0.0001
SGN RANK	2835.5	PROB>$\|S\|$	0.0001
NUM = 0	106		
D:NORMAL	0.164861	PROB>0	<.01

Box plot for Importance Factor

```
                  |
                  |
      +-----------------------------+
      |                             |
      |                             |
      |                             |
      |                             |
      *-----------------+-----------*
      |                             |
      +-----------------------------+
                  |
                  |
                  |
                  |

                  0
```
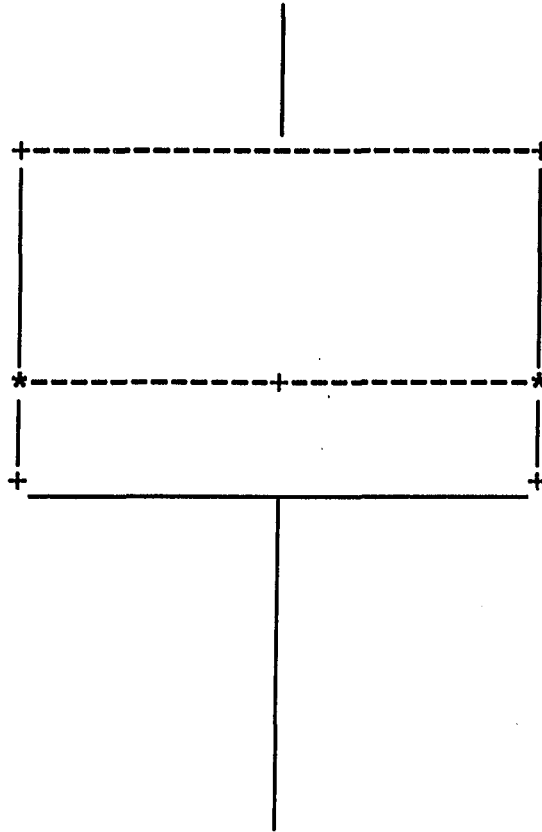
QUANTILES (DEF=4)

100% MAX	5	99%	5
75% Q3	4.66667	95%	5
50% MED	4.33333	90%	4.83333
25% Q1	4	10%	3.66667
0% MIN	2.33333	5%	3.225
		1%	2.39167

RANGE	2.66667
Q3-Q1	0.666666
MODE	4.5

Normal Probability plot for Importance Factor

```
5.1+                                              **********
    |                                        +****
    |                                     +*****
    |                                  *****
    |                             *****+
    |                          ******+
    |                       ****++
3.7+                    **++
    |                 +++*
    |             +++  **
    |        +++******
    |
    |
    |
2.3+*
    +----|----|----|----|----|----|----|----|----|----|
       -2        -1         0         +1        +2
```
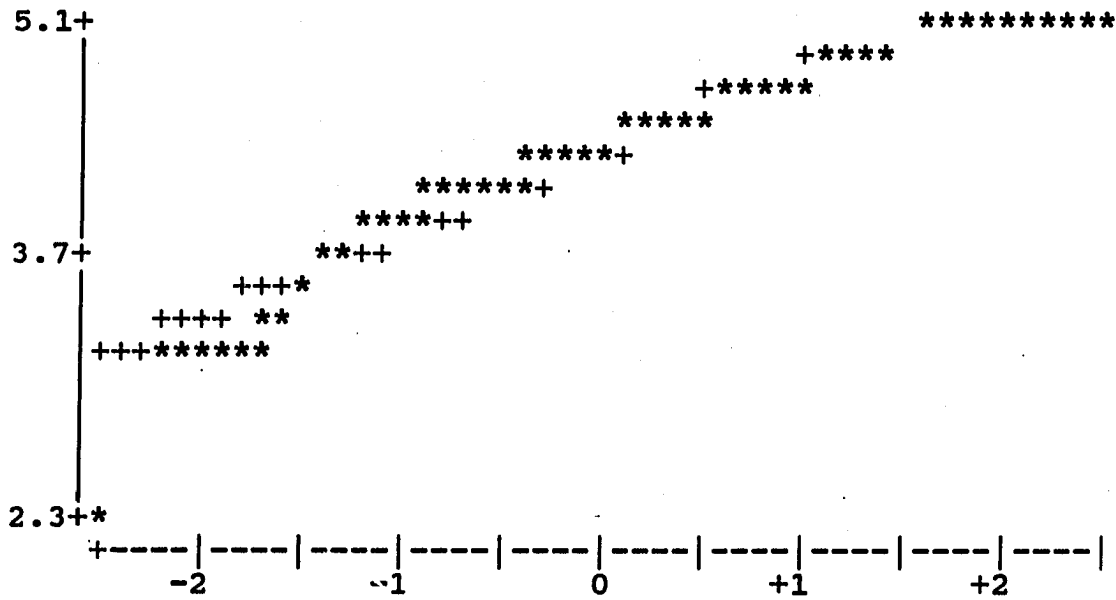
EXTREMES

LOWEST	HIGHEST
2.33333	5
3.16667	5
3.16667	5
3.16667	5
3.16667	5

Scree Plot of Eigenvalues — Application
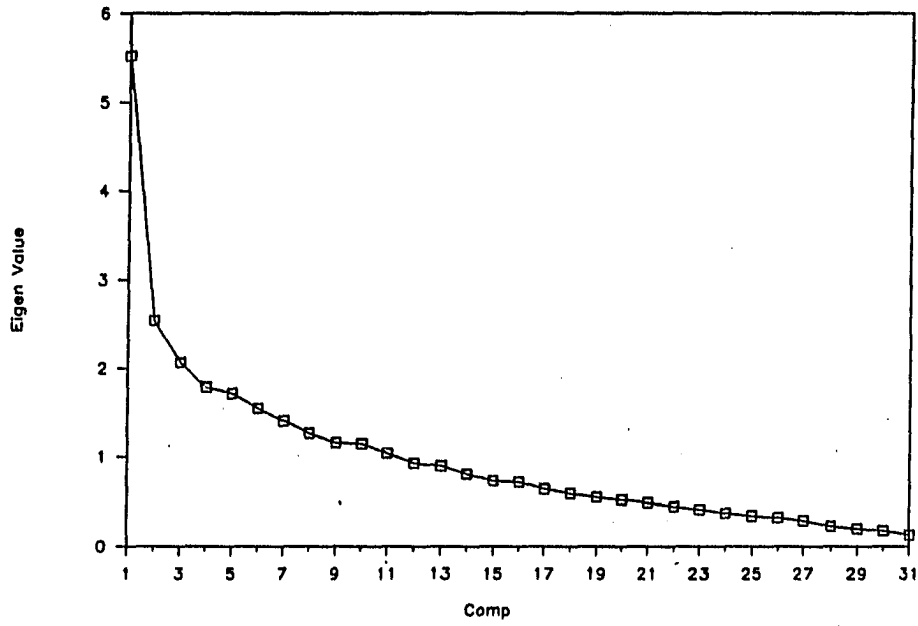
Stem and Leaf plot for Application Factor 1

```
        STEM LEAF                                      #

        30 0000                                        4
        29
        28 0000000000                                 10
        27
        26 00000000000000000                          17
        25 0                                           1
        24 00000000000                                 11
        23
        22 00000000000000000000000000 26
        21
        20 0000000000000000                           16
        19
        18 00000000                                    8
        17
        16 000000                                      6
        15
        14 000                                         3
        13
        12 00                                          2
        11
        10 00                                          2
         9
           ----|----|----|----|-
        Multiply Stem Leaf by 10**-01
```

MOMENTS

N	106	SUM WGTS	106
MEAN	2.21604	SUM	234.9
STD DEV	0.439293	VARIANCE	0.192978
SKEWNESS	-0.514393	KURTOSIS	0.171474
USS	540.81	CSS	20.2627
CV	19.8234	STD MEAN	0.0426679
T:MEAN=0	51.9369	PROB>$|T|$	0.0001
SGN RANK	2835.5	PROB>$|S|$	0.0001
NUM = 0	106		
D:NORMAL	0.136382	PROB>0	<.01

Box plot for Application Factor 1

```
                        |
                        |
                        |
          +-------------------------------+
          |                               |
          |                               |
          |                               |
          |                               |
          *---------------+---------------*
          |                               |
          |                               |
          |                               |
          +-------------------------------+
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                        |
                        0
```
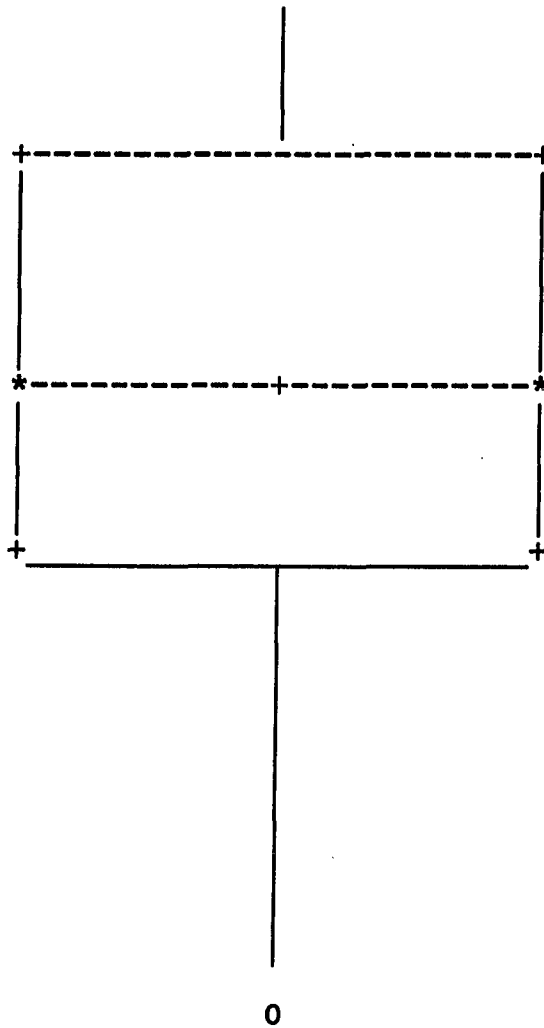
QUANTILES (DEF=4)

100% MAX	3	99%	3
75% Q3	2.6	95%	2.8
50% MED	2.2	90%	2.8
25% Q1	2	10%	1.6
0% MIN	1	5%	1.4
		1%	1

RANGE	2
Q3-Q1	0.599999
MODE	2.2

Normal Probability plot for Application Factor 1

```
3.05+                                                      *****
     |                                                   ++
     |                                              ******
     |                                            ++
     |                                    ******
     |                                  * ++
     |                                ****
2.35+                            +++
     |                      *******
     |                    ++
     |                *****+
     |              +++
     |            ++
     |          ***
1.65+        +++
     |      +****
     |    ++
     |  ++  ***
     | +++***
     |++
     |***
0.95+
     +----|----|----|----|----|----|----|----|----|----|
        -2        -1         0        +1        +2
```
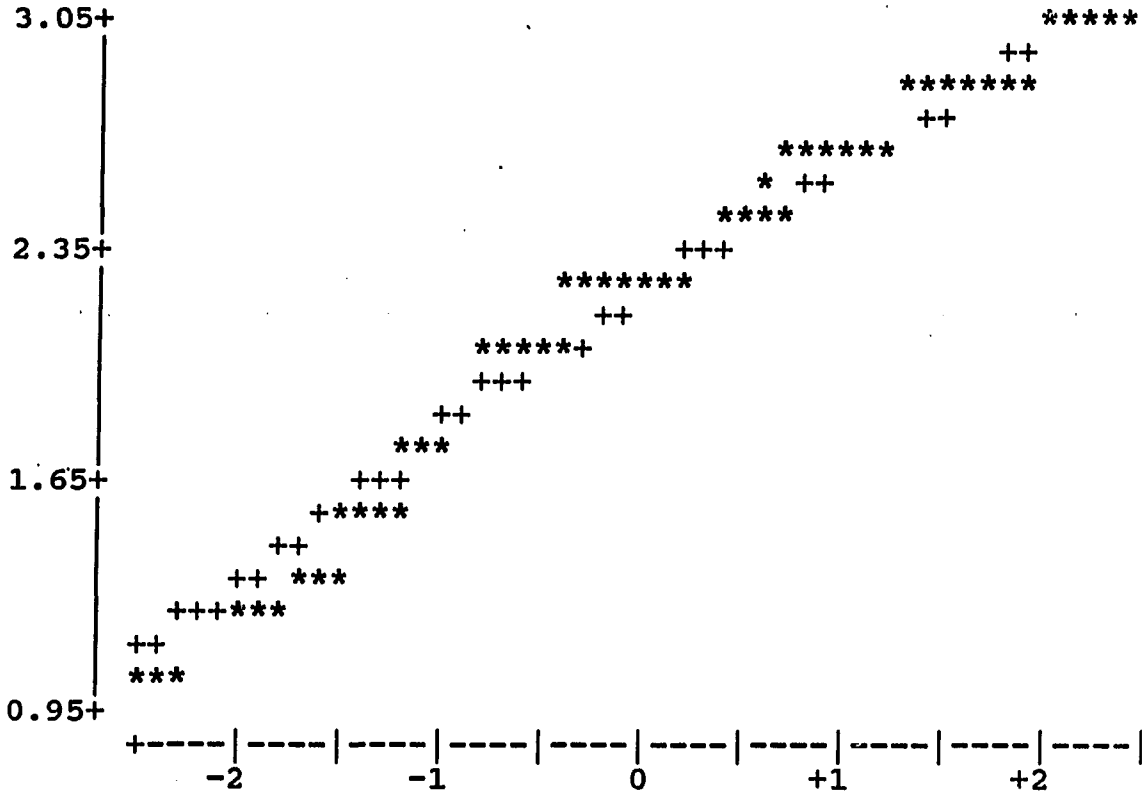
EXTREMES

LOWEST	HIGHEST
1	2.8
1	3
1.2	3
1.2	3
1.4	3

Stem and Leaf plot for Application Factor 2

```
        STEM LEAF                                   #

        30 0000                                     4
        29
        28
        27 5555555555555                            13
        26
        25 000000000000000000                       18
        24
        23
        22 5555555555555555555555555                25
        21
        20 00000000000000000000000000               26
        19
        18
        17 55555555555                              11
        16
        15 00000                                    5
        14
        13
        12 55                                       2
        11
        10 00                                       2
         9
           ----|----|----|----|-
        Multiply Stem Leaf by 10**-01
```

MOMENTS

N	106	SUM WGTS	106
MEAN	2.19104	SUM	232.25
STD DEV	0.420532	VARIANCE	0.176847
SKEWNESS	-0.378096	KURTOSIS	0.243185
USS	527.437	CSS	18.569
CV	19.1933	STD MEAN	0.0408457
T:MEAN=0	53.6418	PROB>$\|T\|$	0.0001
SGN RANK	2835.5	PROB>$\|S\|$	0.0001
NUM = 0	106		
D:NORMAL	0.136136	PROB>0	<.01

Box plot for Application Factor 2

```
                               |
                               |
                               |
                +---------------------------------+
                |                                 |
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                *---------------------------------*
                |                                 |
                |                                 |
                |             +                   |
                +---------------------------------+
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                               |
                               |

                               0
```
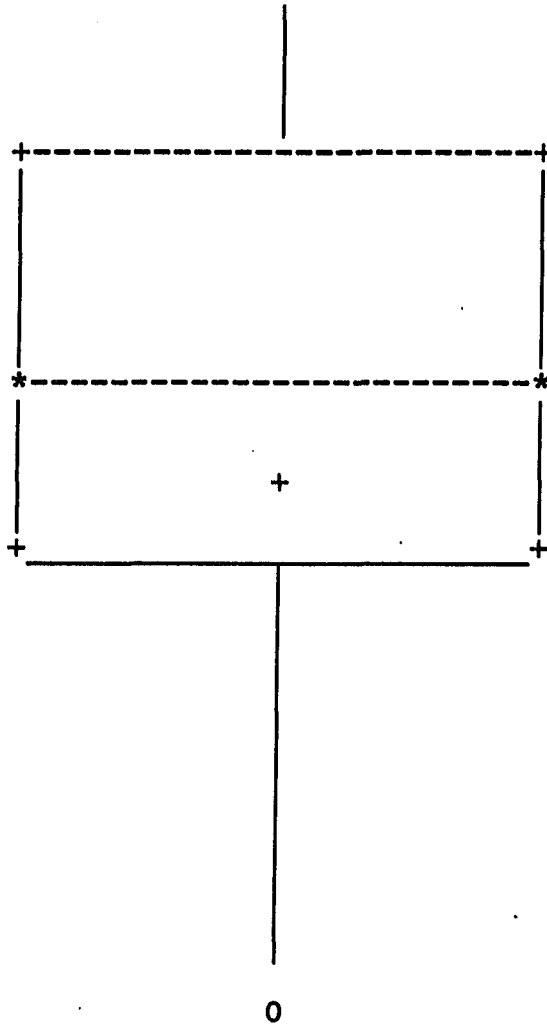
QUANTILES (DEF=4)

100% MAX	3	99%	3
75% Q3	2.5	95%	2.75
50% MED	2.25	90%	2.75
25% Q1	2	10%	1.75
0% MIN	1	5%	1.5
		1%	1
RANGE	2		
Q3-Q1	0.5		
MODE	2		

Normal Probability plot for Application Factor 2


```
3.05+                                              *****
     |                                            ++
     |                                         *******
     |                                          ++
     |                                     ******
     |                                   *  ++
     |                                 ****
2.35+                              +++
     |                        *******
     |                       ++
     |                   *****+
     |                 +++
     |               ++
     |             ***
1.65+           +++
     |          +****
     |        ++
     |      ++ ***
     |    ++++***
     |  ++
     | ***
0.95+
     +----|----|----|----|----|----|----|----|----|----|
        -2        -1         0        +1        +2
```
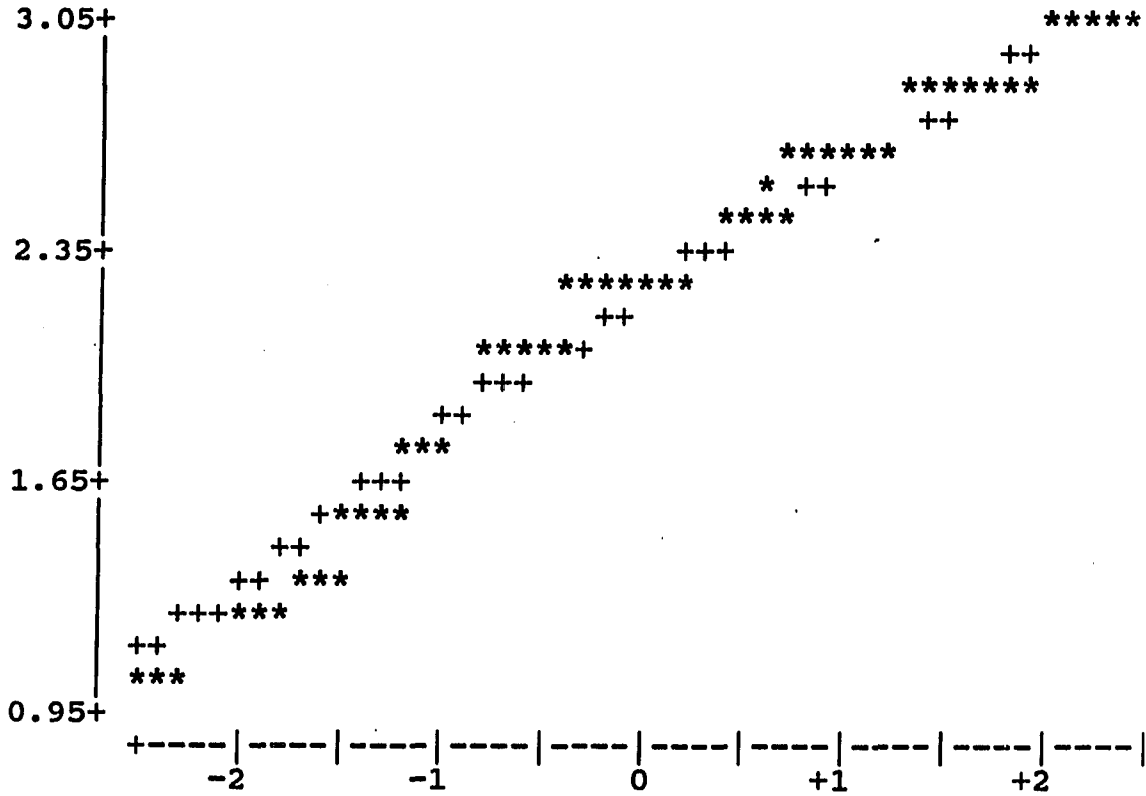
EXTREMES

LOWEST	HIGHEST
1	2.75
1	3
1.25	3
1.25	3
1.5	3

Role of trainers in the organization

Role	Number	%
Marketer/Transfer Agent/Instructor/ Group Facilitator	63	59.4
Evaluator/Needs Analyst/ Task Analyst	8	7.5
Program Designer/Instructional Writer/Theoretician	8	7.5
Manager/Strategist	15	14.2
Combination of 1 and 2	2	1.9
Mixed Combination (Potpourri)	8	7.5
Motivator	1	0.9
Backup	1	0.9
Total	106	100.0

Role trainers should perform in the organization

Role	Number	%
Marketer/Transfer Agent/Instructor/ Group Facilitator	67	63.2
Evaluator/Needs Analyst/ Task Analyst	7	6.6
Program Designer/Instructional Writer/Theoretician	7	6.6
Manager/Strategist	7	6.6
Combination of 1 and 2	1	0.9
Mixed Combination (Potpourri)	17	16.0
Total	106	100.0

Top management's attitude towards training

Scale	Number	%
Very High	28	26.4
High	63	59.4
Indifferent	13	12.3
Low	1	0.9
Very Low	1	0.9
Total	106	100.0

Rank of competencies on the importance scale

Rank	Competency	Number	%
1	Presentation Skills	68	64.2
2	Adult Learning Understanding	63	59.4
3	Training and Development Techniques Understanding	40	38.0
4	Writing Skills	34	32.1
5	Group Process Skills	34	32.1

Rank of needed competencies by trainers

Rank	Competency	Number	%
1	Presentation Skills	30	28.3
2	Computer Competency	27	25.5
3	Writing Skills	24	22.6
4	Group Process Skills	23	21.7
5	Cost-Benefit Analysis	22	20.8
6	Adult Learning Understanding	22	20.8

ABBREVIATIONS

AGE = Age

APP = Application of Competencies
(Ranges from 1-31)

AT&T = American Telephone and Telegraph Company

ASTD = American Society for Training and Development

CBT = Computer Based Training

EDBACK = Educational Background

EDPREP = Educational Preparation

EFFECT = Effects of Training (Ranges from 1-6)

HAD = Highest Academic degree

IBM = International Business Machines

INVOLVE = Involvement as a Trainer

IMP = Importance of Competencies
(Ranges from 1-31)

MATT = Managements Attitude towards Training

NCOMP = Needed Competencies

OCRIT = Organization's Criteria for Effectiveness
(Ranges from 1-3)

OEBACK = Other Educational Background

OJT = On the Job Training

OHAD = Other Highest Academic degree

OPBKGRD = Other Primary Background in Training

OPROLE = Other Roles Trainers should perform

OROLE = Other Roles

OSECTOR = Other Sector

OTYPE = Other Type of Training done

PBKGRD = Primary Background in Training

PCRIT = Personal Criteria for Effectiveness
(Ranges from 1-3)

PROGEXT = Extent of Program

PROLE = Roles Trainers should perform

PTIME = Percentage of Work Time devoted to Training

PTYPEC = Percentage of Time in Clerical Training

PTYPEL = Percentage of Time in Line and Staff
Training

PTYPEM = Percentage of Time in Managerial Training

PTYPEO = Percentage of Time in Other Training

PTYPET = Percentage of Time in Technical Training

PURP = Purpose of Training (Ranges from 1-6)

PWORK = Number of people working in the
Organization

R&D = Research and Development

ROLE = Role of Trainers

SECTOR = Sector of Business

SEX = Sex/Gender of Respondent

TEFFECT = Trainer Effectiveness

VCOMP = Very Important Competencies
(Ranges from 1-6)

YEXP = Years of Experience as a Trainer

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