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Madeline Jean Trimby

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Castille G. Gentry
Major professor

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ENTRY LEVEL COMPETENCIES FOR TEAM MEMBERS AND
SUPERVISORS/MANAGERS ON INSTRUCTIONAL DEVELOPMENT TEAMS
IN BUSINESS AND INDUSTRY

By

Madeline Jean Trimby

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ABSTRACT

ENTRY LEVEL COMPETENCIES FOR TEAM MEMBERS AND SUPERVISORS/MANAGERS ON INSTRUCTIONAL DEVELOPMENT TEAMS IN BUSINESS AND INDUSTRY

By

Madeline Jean Trimby

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This study was undertaken to identify the most important entry level instructional development (ID) competencies required in a variety of business and industry settings, as perceived by those responsible for supervising the instructional developers. These essential competencies, carefully selected based on previous studies, were investigated for team members and for supervisors/managers. The identification of such basic competencies should be of value to academic institutions with ID preparation programs whose students are interested in entering business or industrial settings, as well as to the businesses and industries concerned.

In addition to determining the most important competencies for the two specified entry level positions, the study also investigated whether type of business or industry; principal function of the instructional development, training, or human resource development unit; and size of that unit were important factors that were related to the competencies desired. Results showed that these were not important variables, except with regard to equipment in scientific manufacturing organizations.

Questionnaires were sent to three hundred members of the Senior Trainers interest group of the American Society for Training and Development, to gather data. Responses were received from 162 participants (54 percent); 127 of these were useable for analysis.

The data was analyzed by tabulating the mean for the overall importance of each competency, so as to rank order the entire list. Repeated measures analyses of variance were used to determine if any differences between the means were statistically significant. An intraclass correlation was used to estimate reliability of ratings across raters. In addition, a two-way multivariate analysis of covariance, with unit size as the covariate and a priori planned comparisons for the main effects of type of organization and function of unit, was computed.

Analysis of the results showed that the highest ranked competencies dealt with interpersonal communication skills, such as listening effectively, attitude formation, adapting to differing situations, and establishing credibility with a group. Desired competencies were different for team members than for supervisors/managers. Most of the competencies were considered important, as evidenced by high ratings given, and should be considered by preparation programs and employing organizations.

To my parents,
Robert H. and Dorothy E. Trimby

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CHAPTER I

THE PROBLEM

Significance of the Study

Competence involves the skills, knowledge, values, attitudes and abilities necessary for effective performance of a task or activity. It is the demonstrated ability to perform or accomplish a given assignment, task, job or position. Successful functioning in a position or role is viewed as the final test of professional effectiveness, and as such, is used to judge whether the standards of a profession are being upheld. The determination and measurement of such competencies often form the basis of certification programs for professions, and also serve as the basis for many modern job descriptions. The identification of essential job competencies can be of great value to individuals who want to plan their own systematic acquisition of increased competence to prepare themselves for future positions.

Ever expanding technological developments, especially advances in communications technology, coupled with societal needs and demands for accountability, have led to increasing emphasis on competency-based education (Klingstedt, 1972; Burke, et al. circa 1975; Elam, 1971). This emphasis may be seen not only in the education profession, but in the public and private sectors of business/industry and other professions as well. The public cry for accountability and greater relevance in education and

training also calls for minimizing waste in the learning process by clearly defining goals and objectives and developing criterion tests for demonstrating proficiency (Wall/Williams, 1972; AACTE Committee, 1974; Klingstedt, 1972).

Like many other professions, persons in instructional development have been concerned with identifying the most appropriate competencies for practitioners in that field. Various committees, especially within the Association for Educational Communications and Technology (AECT) and the American Society for Training and Development (ASTD), have spent many hours over several years developing lists of competencies (Galey, 1980; McCullough, 1981). For example, in January, 1981, the Division of Instructional Development of AECT surveyed its members regarding "Competencies for the Instructional Development Practitioner." This resulted in a list of functional competencies that respondents felt any experienced ID practitioner should possess (Division of Instructional Development/AECT, 1980).

In a similar but unrelated activity, leaders from instructional development academic preparation programs and business and industry, met in May, 1979, at a Symposium in St. Charles, Illinois to discuss instructional development competencies desired by business and industry and to suggest how these competencies might be acquired by instructional development trainees. These interactions were continued and separated at a follow-up meeting in Los Angeles, California, in March, 1980. A third meeting of the group was held in Florida in November of 1980.

A third parallel, but again unrelated activity was an invitational conference on "Academic Preparation of Practitioners in Training and Development/Human Resource Development," held in Washington, D.C., in December, 1979. The purpose of the conference was to "Identify and discuss current academic programs that either prepare students for employment in a training and development function in the public, private or volunteer sector, or provide professional development for persons already in the field" (Report of the Invitational Conference..., 1979: 6). A second invitational conference of the group was held in February, 1981, in Williamsburg, Virginia. In addition, several individual sessions on similar or related topics have been held or are being planned for future conventions by such organizations as the Association for Educational Communications and Technology (AECT), the American Society for Training and Development (ASTD), and the National Society for Performance and Instruction (NSPI).

Whereas the above-mentioned groups were all interested in identifying core competencies (in one form or another), each meeting had other topics on the agenda as well. It is assumed that because of the various other topics being covered, and because of the amount of time needed to complete a study of the competencies, such lists were not generated by the groups.

The objective of the current study was to determine the competencies needed, especially at an entry level, for instructional developers in business and industrial settings. This study should be of prime importance to professional preparation programs whose graduates wish to be employed within business and

industry. The curriculum, from formal coursework, to projects and internships, and other learning experiences can be coordinated with the skills expected for successfully performing tasks on the job in the future. If the results from the study are utilized in this way, the study should also be of interest to potential employers of these graduates, especially as the graduates are more apt to have the competencies being sought by the employers. In addition, this study should be of interest to committees within the Association for Educational Communications and Technology which are currently in the process of determining competencies for the entire field of educational technology.

Purpose of the Study

This study was undertaken to identify the most important entry level instructional development (ID) competencies required in a variety of business and industry settings, as perceived by those responsible for hiring and/or supervising the instructional developers. Recognizing that each organization would have unique characteristics and requirements, it was the objective of this study to identify common entry level competencies that were considered essential for team members as well as for persons in management or supervisory positions in an instructional development, training, or human resource development unit. The identification of such basic competencies should be of value to academic institutions with ID preparation programs whose students are interested in going into business and

industrial settings. The educational experiences of these students can be coordinated with the identified desired competencies. The study should also be of value to the businesses and industries concerned, in that they will have a better idea of what skills to expect from ID graduates. The unique competencies for each company could then be identified for inclusion in employee orientation programs within the individual firms.

The Research Questions

This study was designed to answer the following questions:

1. From a given list of competencies, which competencies are seen as most important for two entry level positions (team member and supervisor/manager) on instructional development teams in business and industry, as viewed by those who hire and/or supervise personnel in these positions?
2. Does the type of business or industry (i.e. industrial manufacturing, scientific manufacturing, merchandizing, or service organization) make a difference in terms of the entry level competencies desired for either team members or supervisory/management personnel on an instructional development team?
3. Does the principal function (i.e. training, education, or development) of an instructional

development, training, or human resource development unit influence the entry level competencies desired for either team members or supervisory/management personnel in that unit?

4. Is the size of an instructional development, training, or human resource development unit an important variable in the entry level competencies desired for either team members or supervisory/management personnel in that unit?

Hypotheses Tested

In order to investigate the preceding questions, the following null hypotheses were formulated:

H01 There is no difference in the mean ratings among the competencies listed in this study as desired entry level competencies (as perceived by those who hire and/or supervise) for team members on an instructional development team in business and industry.

H02 There is no difference in the mean ratings among the competencies listed in this study as desired entry level competencies (as perceived by those who hire and/or supervise) for supervisors/managers on an instructional development team in business and industry.

H03 There is no significant difference between

entry level instructional development competencies in the areas of: 1) management of the development unit and process, 2) identifying needs for program development, 3) planning program content, 4) designing and producing materials, 5) conducting training programs, 6) evaluation and follow-up, and 7) general competencies desired for team members from one type of business or industrial setting to another.

H04 There is no significant difference between entry level instructional development competencies in the areas of: 1) management of the development unit and process, 2) identifying needs for program development, 3) planning program content, 4) designing and producing materials, 5) conducting training programs, 6) evaluation and follow-up, and 7) general competencies desired for supervisory/management personnel from one type of business or industrial setting to another.

H05 There is no significant relationship between entry level instructional development competencies in the areas of: 1) management of the development unit and process, 2) identifying needs for program development, 3) planning program content, 4) designing and producing materials, 5) conducting training programs, 6) eval-

uation and follow-up, and 7) general competencies desired for team members and the principal function (training, education, or development) of the instructional development, training, or human resource development unit.

H06 There is no significant relationship between entry level instructional development competencies in the areas of: 1) management of the development unit and process, 2) identifying needs for program development, 3) planning program content, 4) designing and producing materials, 5) conducting training programs, 6) evaluation and follow-up, and 7) general competencies desired for supervisory/management personnel and the principal function (training, education, or development) of the instructional development, training, or human resource development unit.

H07 There is no significant relationship between entry level instructional development competencies in the areas of: 1) management of the development unit and process, 2) identifying needs for program development, 3) planning program content, 4) designing and producing materials, 5) conducting training programs, 6) evaluation and follow-up, and 7) general competencies desired for team members and the size of

the instructional development, training, or human resource development unit.

H08 There is no significant relationship between entry level instructional development competencies in the areas of: 1) management of the development unit and process, 2) identifying needs for program development, 3) planning program content, 4) designing and producing materials, 5) conducting training programs, 6) evaluation and follow-up, and 7) general competencies desired for supervisory/management personnel and the size of the instructional development, training, or human resource development unit.

Assumptions

The following were the basic theoretical or conceptual foundations behind this study:

1. That determining if there are common perceptions held by employers or supervisors regarding instructional development competencies that cross business and industry lines, and identifying what these competencies are, is worthwhile.
2. That the persons to be contacted in the study would be able to provide the information needed to determine what those competencies are.
3. That the respondents and researcher would have a mutual

understanding of the terminology, concepts, and competencies being used.

4. That the respondents would answer accurately and that they would take the necessary time to thoughtfully answer the questionnaire.

Limitations

The biggest limitation of the study is that it was a survey, and as such was highly dependent on subjective perceptions of respondents.

In addition, the sample was drawn only from members of one national organization (American Society for Training and Development) and therefore looked at only a selected group in business and industry.

Thirdly, information was requested from those who hire and/or supervise rather than from those who actually perform the work. Thus, the competencies listed by supervisors could be those viewed as ideal, or as assumed to be used, while they in fact may not be the ones used by practitioners. However, since the researcher was interested in the entry level competencies for someone hiring into an organization, the survey was directed at those who do the hiring.

Finally, it is important to note that the researcher chose not to study the areas of educational, health care, military or governmental agencies, which also employ instructional developers.

Definition of Terms

The majority of terms used in the study are based on definitions found in The American Heritage Dictionary of the English Language. Special operational definitions were drawn from the field, and are as follows:

Instructional development - a systematic approach to analyzing instructional problems and the design, production, trial, evaluation and utilization of a complete system of instruction as a solution to a problem.

Instructional developer - a person who utilizes a specific process to analyze and solve an instructional problem, to improve instruction, to work toward educational change, and to improve and facilitate learning. "A skilled professional who is able to organize and manage learning, information, and communication systems" (Ferrington, 1980:16). Also known in the literature as: instructional technologist, instructional designer, educational technologist, media specialist, trainer, training developer, or performance technologist. (Note: there is not common agreement of this term. Some persons may use these terms interchangeably, but may be describing someone quite different.)

Subject matter expert (SME) - a person who is very knowledgeable about the content for a particular instructional unit or area. This person thus provides the content used in the design and development process on an instructional development

team, and also later reviews materials and test items for that team. Also known as: content specialist (CS), content expert (CE).

Team member - an instructional developer who works with other instructional developers and subject matter experts as a group to develop training in an instructional development, training, or human resource development unit.

Supervisor/Manager - a person who is the chief administrator of an instructional development, training, or human resource development team and as such is in charge of the operation of that team. Has overall responsibility for the conceptualization, design and completion of projects, as well as the scheduling of the project, personnel schedules, activity deadlines and budget considerations. Also known as: project manager, program manager.

Business - all gainful activity that involves the buying and selling of commodities or services with the intent to generate profit.

Industry - the production and manufacture of goods and commodities, especially on a large scale.

Training - learning experiences or activities that are designed to facilitate, strengthen or improve performance on the job.

Education - learning experiences or activities that prepare people for new or different jobs in the future, especially within an organization.

Development - learning experiences or activities that prepare employees so they can respond to new organizational needs or goals that arise.

Competency - the skills, knowledge, values attitudes and abilities necessary for effective performance of a task or activity; the capacity to perform this task or activity.

Entry level - the point at which a person comes into or joins a group; the beginning rank in a hierarchy based on ability, achievement and/or experience.

AECT - Association for Educational Communications and Technology. An organization whose goal is "to improve education through the systematic planning, application and production of communications media for instruction" (Akey, 1980: 464).

ASTD - American Society for Training and Development. An "educational society for persons engaged in the training and development of business, industry, education and government personnel" (Akey, 1980: 189).

NSPI - National Society for Performance and Instruction. An international organization "concerned with achieving effective performance analysis and management, system development and implementation" (Akey, 1980: 530).

Overview of the Study

The background for the study was developed in Chapter I. This background included: the significance of the study, its purpose, research questions investigated, hypotheses tested, its

underlying assumptions and limitations, definition of terms, and an overview of the dissertation.

A review of the research literature related to the study is presented in Chapter II. This review is divided into four major areas: (1) Competency-based instruction, (2) Instructional developers in business and industry, (3) Human resource development, and (4) The adult learner. A brief summary concludes the chapter.

In Chapter III the design of the study is presented. It includes descriptions of: the development of the research instrument, the sampling procedure for selection of participants, the collection of data, how the data was treated, and a summary of the chapter.

The results of analyses of the data are presented in Chapter IV. Statistical procedures used are described and the results given.

In Chapter V the summary, conclusions and recommendations are reported. These include recommendations for further studies as well as for use of the data presented.

Following Chapter V are the Bibliography and Appendices.

CHAPTER II

REVIEW OF RELATED LITERATURE

Demands for accountability and relevance in education and training have affected the teaching/learning situation in all types of educational settings, whether they be in the public, private, or higher education sector, or in the business and industrial sector. Emphasis on standards and measurable ways of meeting these standards, especially through certification of competent individuals, also has increased in many professions. Practitioners have found that technological advances are multiplying so rapidly that it is difficult to keep up with even the advances in one's own field. These factors, plus the increasing interest on the part of many instructional developers in exploring career possibilities in business and industry (where such careers are labelled human resource development, with a strong emphasis on the adult learner), formulate the reason for dividing the review of literature in this chapter into the following parts: (1) Competency-based instruction, (2) Instructional developers in business and industry, (3) Human resource development, and (4) The adult learner. A brief summary concludes the chapter.

Competency-Based Instruction

"In the past thirty years a powerful general approach to

instructional development has evolved in the United States. It is known by a number of different names--competency-based instruction, performance-oriented instruction, instructional systems development, and criterion-referenced instruction" (Whitmore, 1981: 9). The basic goal of this type of instruction is the mastery of the material by all qualified trainees, in spite of differences in entry skills and abilities (Shoemaker, 1976). In order to do this, the training has to be learner-centered and provide the flexibility and learning resources so that each learner can achieve the objectives on an individual basis...thus providing the necessary freedom for individual learning styles (Short, 1981; Shoemaker, 1976; Cram, 1975; Whitmore, 1981). In addition, feedback is provided so that the learner knows where s/he is in the system (Cram, 1975; Patton, 1980-81; AACTE Committee..., 1974) and opportunity is provided to practice the skills being taught (Cram, 1975). Measuring the outcomes of such instruction is more difficult than for conventional instruction, especially in terms of the time required to administer the tests, and constraints due to lack of resources (Oliver, 1980). In addition, providing job-like situations for testing and specifying measureable criteria for success may be problems that affect the validity of the performance test development; and such problems as environmental influences, situational influences, test instrumentation, the sampling process and examinee reactive effects may affect the reliability of the tests (Oliver, 1980). The critical incident technique, whereby a critical incident is presented and the learner shows how s/he

would solve that problem by making use of the knowledge and skill a particular competency contains is one device that is being found most appropriate as a criterion-referenced performance test (Knowles, 1977a). The essential element is that the learner's skill or knowledge level is compared to previously clearly specified objectives, which have been made available to all concerned, rather than being compared to other learners (Cram, 1975; Elam, 1971; Burke, et al. circa 1975).

Whitmore (1981) sees the reason for applying modern instructional technology to our instructional programs as simple and straightforward: It is more cost-effective than conventional instruction. He gives the following three characteristics of instructional programs that make them cost-effective:

1. Mastery Progression Standards.
Learners must meet a mastery standard on each skill they learn before they can move on to learn the next skill... There have been some instances in which mastery standards produced so much improvement that the poorest of mastery learners performed better than the best of conventional learners...
2. Self-Paced Progression.
Each learner advances at his own individual rate of learning... Forcing learners to learn on someone else's schedule is not efficient... In a fully self-paced program, some learners finish before others, but all learners learn the same amount, that is, they all meet the same standards...
3. Job Relevance.
Learners learn all the skills and only those skills required for them to perform effectively on the job. This requirement is met by analyzing the job for which training is designed... Graduates of job relevant programs start their job experience at a much

higher level of proficiency and show less growth because they start much closer to the highest possible proficiency level.

(Whitmore, 1981: 9-10)

In fact, he sees job relevance as the characteristic of cost-effective training programs with the biggest payoff. Pruning out the unneeded content produces not only savings in training, but also gains in job performance (the "stuff" on which business growth is built) (Whitmore, 1981).

Instructional Developers in Business and Industry

Employment possibilities for instructional developers in public, private, and higher education settings are tightening, due in part to declining enrollments, rising costs, and reduced resources. Consequently, increasing numbers of graduates are turning to business and industry as a viable employment option (Diamond/Durzo, 1981; Spitzer, 1979; Ferrington, 1980; Nash/-Ducharme, 1978). According to Darryl L. Sink, who annually compiles employment trends for media graduates for the Association for Educational Communications and Technology, this trend first was noticeable in his 1976-1977 study, when he reported "...we may be on the threshold of a new trend: Media positions in business and industry are emerging" (Sink, 1978: 44). His study the next year continued to support the trend; last year's study again confirmed the trend, as one fifth of the graduates in the study took jobs in business and industry. And although he was reporting media graduates in general, this same report

showed an increase of more than 300 percent over the past two years of the media graduates who are performing in instructional development positions (Sink, 1980: 36). The increased acceptance of such graduates on the part of business and industry, as well as the positive experiences of the graduates once they have spent some time on the job will undoubtedly influence future graduates as they consider this option.

One reason for the acceptance of instructional developers by firms in business and industry is the rapid growth experienced by these firms in the size and complexity of their training programs. "It is estimated that business and industry invest over \$100 billion annually in training their employees" (Corrigan, 1980: 328). General Motors now spends over \$1 billion annually on training; AT&T and IBM over \$750 million every year in training programs (Thomas, 1981). Literally millions of employees have participated in industry's education and training programs, whether on company time or after-hours (Schwaller, 1980). Because of this growth the firms are relying to an increasing degree on professionally trained instructional developers to assist their subject matter experts in preparing effective, efficient and relevant instruction (Spitzer, 1979).

In addition, such combinations of personnel also assist in more cost-effective operations for the company, thereby assisting in maintaining the highest possible profit margin, not only in monetary terms but in human potential as well (Hitchens, 1981; Nitsos, 1981; Stein, 1981). Tied in with the profit margin is productivity. Organizations want more productivity from

their employees, and the employees in turn want more satisfaction from their work (White, 1979). Rutt (1981) feels that the increased hiring of instructional developers in industry stems from the following personnel needs, which he claims will affect performance and ultimately productivity: (1) the need to accommodate the turnover of increasingly mobile employees, (2) the need to accommodate changes in knowledge and skills required by a business, (3) the need to improve the skills and knowledge of employees to meet the needs of a particular business. To these general needs, Schwaller (1980) contributes such specific ones as: (1) specific training programs designed to reduce the time taken to learn a new job, thus saving money for the company (with industry allocating approximately 10% of its education budget for this type of training); (2) the need to achieve, maintain, and improve quality standards while improving speed of production; and (3) education and training programs needed to introduce new manufacturing methods or to standardize current ones (with industry spending approximately 74% of its education budget in this area). As pointed out by Luxenberg, "Education as a business tool is becoming increasingly important, a necessary way for companies to maintain their competitive positions (Luxenberg, 1980: 317). And finally, McQuigg (1980) feels that there is a growing tendency among business and industry to view one's employees as a resource, and money spent in training and development as an investment rather than an expense.

Conferences/Meetings Held

That there is interest in exploring the possible interactions between academic programs and business and industry is evidenced by several conferences and meetings that have been held at the national level. For example, a Symposium was held in late May, 1979, in St. Charles, Illinois. In attendance were leaders in business and industry and academic preparation programs, who examined instructional development competencies desired by business and industry and suggested how these competencies might be acquired by instructional development trainees. These interactions were continued at a follow-up meeting held in Los Angeles, California, in March, 1980, where both the list of attendees and topics discussed were expanded. A third meeting of the group was held in Florida in November of 1980. Although a tentative list of desired competencies was generated from the first meeting, as both the size of the group and interest in various topics expanded, the desired competencies were no longer the prime topic for discussion.

A similar invitational conference on "Academic Preparation of Practitioners in Training and Development/Human Resource Development" was held in Washington, D.C., in December, 1979. The purpose of the conference was to "Identify and discuss current academic programs that either prepare students for employment in a training and development function in the public, private or volunteer sector, or provide professional development for persons already in the field" (Report of the Invitational Conference..., 1979: 6). The second invitational conference was held

in February, 1981, in Williamsburg, Virginia, to discuss the theoretical models underlying various college and university programs that have or are planning curricula to prepare human resource development (HRD) practitioners. Of the colleges and universities that accepted the invitation to participate, 222 submitted papers, twenty of which were actually presented and discussed. Basic conclusions of participants at the conference were that: (1) the present, broad and interdisciplinary status of the field across the country is more of an asset than a hindrance (for both students and schools), (2) there is a need for further identification of core competencies for HRD professionals, (3) there is little interest in trying to converge on any kind of curriculum standards, although they did express interest in reducing semantic differences, and (4) they thought that basic philosophy/beliefs/values might be more clearly analyzed and put into writing by schools for this field (Olson, 1981).

In addition to such invitational meetings, several individual sessions on similar or related topics have been held or are being planned for future conventions by such organizations as the Association for Educational Communications and Technology (AECT), the American Society for Training and Development (ASTD), and the National Society for Performance and Instruction (NSPI).

Previous Studies

As for studies completed, there are several national organizations that have sponsored studies in this area. A key, early

study, entitled Jobs in Instructional Media was sponsored by AECT. It used Functional Job Analysis to "analyze jobs and set up guidelines for job structures and training curricula for work performed in the field" (Wallington, et al, 1970: 1).

A more recent study supported by ASTD, entitled A Study of Professional Training and Development Roles and Competencies, aimed "to define the basic skills, knowledge, understanding, and other attributes required of professionals for effective performance of training and development activities" (Pinto, Walker, 1978: 2). The list of activities developed was given to national ASTD members who were asked to rate the activities for frequency and importance. A statistical factor analysis was used to determine common dimensions of trainer behavior, which were later grouped into nine basic categories or major activity areas (see White, 1979). The information generated was then developed into a self-assessment program (see ASTD, A Self-Development Process..., 1979) to enable the practitioner to continue his/her professional growth.

In 1980, a subcommittee within the Division of Instructional Development (DID) of AECT conducted a pilot study of an inventory of competencies desired for business and industry instructional developers. It is that pilot study, the results of which were reported to the subcommittee at the AECT national convention on April 23, 1980, that partially formed the basis of this present study. This researcher assisted the chairperson of that project with compilation of statistics from that survey and also attended the committee meeting where the committee members

agreed that the present study would be an appropriate follow-up to their deliberations.

Other studies include a survey conducted in late 1978 by personnel at Ferris State College of the technical and development skills requested by various industrial organizations that employ graduates of their four year Learning Resources Careers Program (Jorgensen, 1979). The results from the Ferris State study correspond to results reported at a session of the AECT Convention on March 6, 1979, of a study conducted by personnel from San Diego State University (Rossett, 1979).

A more recent study of industry in the greater San Francisco Bay area also yielded results similar to the ASTD study (Deden-Parker, 1981). "Specifically the three competencies rated most highly on the national survey--design of specific programs to meet specific needs, establishment and maintenance of good relationships with clients, and determination of program content--were congruent with our fifth-, first-, and seventh-rated competencies respectively... The congruence of our results with those of the more exhaustively researched and literature-derived ASTD study suggests that our findings have some validity and generalizability over both a variety of sites and at least a few years" (Deden-Parker, 1981: 25-26). She also points out that "at the bottom of both lists come the use of computer programming skills or any form of computer-assisted instruction (p.25).

Another study completed was a follow-up study of Instructional Systems doctoral graduates from Florida State University,

in order to identify the competencies used by alumni from that program (Florida State University, 1979).

In 1979, Leslie Streit studied and analyzed competencies needed by educational technologists in six occupational settings as he attempted to identify what skills educational technologists need for job mobility (Streit, 1979; Streit, 1980). He found that technologists, whatever their jobs, in whatever occupational setting, are more alike than different in the skills and competencies they need. According to Streit:

They have a common goal: to facilitate human learning. And they all need a high level of organizational and personnel management skills. Additionally, business and industry technologists are very active in the design and production of materials to assist management in developing human resources. Most business training centers do not place a high priority on the logistics of media, but do expend a great deal of effort in evaluating and selecting resources. Business and industry also stress the importance of keeping management, the public, and training content specialists informed.
(Streit, 1981: 28)

And finally, another AECT subcommittee recently surveyed Division of Instructional Development members regarding "Competencies for the Instructional Development Practitioner" -- a list of functional competencies that any experienced ID practitioner should possess. "These competencies apply to Instructional Development Specialists, regardless of their professional training, experience, or current level or type of employment" (Galey, 1980: 27). The competencies were divided into twenty-three basic areas, with knowledge, performance, and evaluation

components identified for each area (Galey, 1980). Thus, there obviously is interest in identifying competencies that should be possessed by instructional developers.

Below are reported the basic differences between the present study and those cited previously: (1) The present study deals with a specific job or role (that of instructional developer), rather than media jobs or roles in general, as with the JIM study or the Pinto/Walker study. And whereas some of the other studies do deal specifically with instructional developers, the target population surveyed in those studies differed from the respondents identified here. For example, the Deden-Parker study dealt only with respondents from the San Francisco Bay area, and the San Diego study was similarly geographically limited, whereas the present study was national in scope. The Florida State University study was only of graduates from their instructional development program; whereas the present study surveyed members of the ASTD Senior Trainers interest group who are working in business and industry. (2) The present study surveyed persons in a position to hire and/or supervise instructional developers to determine the competencies that they saw as relevant entry level skills for success on the job. The Florida State University study surveyed only doctoral graduates from their program as to what competencies existed in the alumni's work; AECT surveyed current practicing instructional developers to determine competencies needed for experienced developers; and Streit surveyed practicing educational technologists to determine competencies in a number of occupational settings.

The present study is similar to the others in that the instrument generated for the DID pilot study formed the basis for the questionnaire used in this study. In addition, the lists of competencies generated by the Business and Industry Symposium, the JIM study, the Pinto/Walker study, Streit's study, the California studies, the Ferris State College study, and the AECT Subcommittee were all examined and analyzed in order to determine which competencies should be included.

Factors to Consider in Moving from Academia to Business and Industry

Besides the competencies necessary in order to enter business and industry as an instructional developer, the graduate of a professional preparation program should be aware of other potential differences between academia (or "formal education") and business and industry (or "training situations"). The reader is referred to the chart in Figure 1 for an enumeration of these differences.

There is always a danger in making sweeping generalizations, and so it must be remembered that while the factors in the chart may be true of many or even most educational settings and training settings, there will obviously be "exceptions to the rule." However, in reviewing the literature, these factors were the ones most often mentioned as being representative of and the "greatest differences in" those settings, by the authors indicated. It is strongly recommended that the factors be con-

sidered and weighed at some point before making the decision to enter business and industry (or an educational setting).

In addition to the factors discussed in the chart the prospective business and industry instructional developer might do well to ask him/herself the following major questions posed by Rosenberg (1981):

1. Do I understand the nature of the business world and the differences between business and academia (training and education)?
2. Am I well trained to work in a non-school setting?
3. Can I work independently and in groups?
4. Can I communicate effectively, both in the verbal and written form?
5. Have I resolved my position along the media-instructional development continuum?
6. Am I willing to accept increased supervision?
7. Am I willing to work an eight hour day, fifty weeks a year?
8. Have I researched the job market accurately so that I know what I am looking for?
9. Have I developed a resume which is short and to-the-point; which reflects my abilities and accomplishments?
10. Can I convince an employer of my abilities and value in an interview of less than one-half hour?

FIGURE 1

CHART COMPARING VARIOUS FACTORS BETWEEN
EDUCATION (ACADEMIA) AND TRAINING (BUSINESS/INDUSTRY)

	<u>Education</u> (Academia)	<u>Training</u> (Business/Industry)	<u>Primary Sources</u> <u>of Information</u>
1) Primary function of organization	Training and education (traditional teaching/learning situation).	Manufacturing; services; distribution of goods; sales; profit. Priorities may not be educationally oriented.	Rosenberg (1980) Wallington (1980) Spitzer (1979) Rossett/Sharpe (1981)
2) Concerned with:	Classroom behaviors; educational problems with an educational solution.	On-the-job performance problems; solution may or may not be training.	Spitzer (1979)
3) Approach to instruction:	Long-term proposition. (Education is long-term, covering various life skills, even though learners are short-term in the sense that they are in an academic program for a relatively short time.)	Short-term proposition. (Training is immediate and job-related, even though learners are continuing employees and may have additional training needs in their continued work with the company over time.)	Wallington (1980) Rosenberg (1980)

	<u>Education</u> (Academia)	<u>Training</u> (Business/Industry)	<u>Primary Source</u> <u>of Information</u>
4) Use of skills learned by the student:	Instruction is more broad (related to "a family of jobs"), so skills learned may or may not be used, depending on students' jobs after instruction.	Instruction is job-related, so skills learned are usually put to use soon after the training.	Wallington (1980)
5) Audience:	Varied age levels.	Deal almost exclusively with the adult learner.	Rosenberg (1980) Patton (1980)
6) Motivation of learner:	Educational "curiosity;" grades; recognition; etc.	Salary increases; job security; promotion; productivity; to learn a specific task; etc. (can see payoffs more readily).	Rosenberg (1980) Ricks (1981) Spitzer (1979)
7) Cost to learner and Implication for Instruction:	Learner usually pays for training. Little incentive to shorten a course; in fact, students may resent reduced hours.	Learners are often paid while learning. Time literally is money, so if course is shortened can save salary as well as per diem and other trainee costs.	Wallington (1980)

	<u>Education</u> (Academia)	<u>Training</u> (Business/Industry)	<u>Primary Source</u> <u>of Information</u>
8) Size of student contact/impact:	Usually maximum of 100-200 students at one time (depending on grade level and subject).	Instructional program may be for thousands of workers over a wide geographical area, which forms challenge for delivery mode.	Rosenberg (1980)
9) Learner involvement:	Often passive "receiver".	Generally more "process"-oriented; active learner involvement, drawing on past experiences of learners; role-plays; discussions; experiential learning.	Spitzer (1979) Ricks (1981)
10) Course content:	More general topics that are developmentally and culturally relevant; may be based more on what instructor plans to teach than what students need to learn.	Instruction is based on task analysis; content is usually technical in nature or concerned with sales or management issues.	Patton (1980) Stolovitch (1981) Ricks (1981)
11) Subject-matter expertise:	Traditional teacher is usually quite well versed in the subject matter.	Training specialist may be more of an instructional specialist (consultant) and will rely on subject-matter experts for the subject content.	Rosenberg (1980)

	<u>Education</u> (Academia)	<u>Training</u> (Business/Industry)	<u>Primary Source</u> <u>of Information</u>
12) Decision-making powers:	Decisions more apt to be made by committees; developer may have little or no formal authority.	Decisions more apt to be made by fewer people; often decisions "come-down" from definite lines of authority.	Spitzer (1979) Durzo (1981)
13) Tempo (time constraints):	Change is slow (organizations are structured to resist change); timelines may not really be adhered to.	Tight timelines; organize and accomplish a lot in a short time.	Diamond/Durzo (1981) Rossett/Sharpe (1981) Durzo (1981)
14) Allocation of resources:	Often limited budgets (can't compare to business/industry).	Technical and financial resources usually readily available, especially as long as training is contributing to overall profitability.	Spitzer (1979) Diamond/Durzo (1981)
15) Creativity:	Inertia of tradition, lack of developer authority, and lack of resources may dampen creativity.	Challenge of working with adult learners and availability of resources often forces creativity.	Durzo(1981)

	<u>Education</u> (Academia)	<u>Training</u> (Business/Industry)	<u>Primary Source</u> <u>of Information</u>
16) Attitude towards research:	Research is encouraged ("inquiry-oriented culture"); in many organizations it is expected--credibility and careers are based on research and scholarly publication.	Research is not likely to be highly valued unless it directly increases productivity, maximizes the organization's financial position, or in some other way helps the organization meet its goals ("outcomes-oriented culture").	Diamond/Durzo (1981) Durzo (1981)
17) Dissemination of results of activities:	Rewarded (often highly) for disseminating information regarding development projects.	Often little concern (or reward) for disseminating results of efforts beyond organizational boundaries.	Spitzer (1979)
18) Credentials needed:	Formal academic credentials usually required.	More weight usually is placed on relevant experience than on formal credentials.	Diamond/Durzo (1981)
19) Working conditions:	More relaxed environment; freedom to come and go; longer vacations.	More regimentation; definite hours; short vacations.	Nitsos (1981)
20) Salary and benefits:	"Education...cannot compete with industry in salary and benefits."		Diamond/Durzo (1981, p. 14) Nitsos (1981)

Human Resource Development

The terms "education" and "training" mean quite different things to different people (Phillips, 1981), leading many organizations to use a combination of the terms (i.e. "education and training" or "education-training") to avoid having to differentiate between the two. However, some authors do try to specify the differences, as they define the terms in the following ways:

education

"...is the activity (or process) that permits us to 'know about' something... education leads to comprehension and understanding" (Billings, 1981)

"...is concerned with cognitive skills" (Harmon, 1981)

"...is generally applied to the development of information, concepts, and intellectual abilities" (Schwaller, 1980)

"...encompasses all those activities which prepare an individual to function in a wide range of situations at some point in the future" (Phillips, 1981)

whereas training

"...is the activity (or process) that permits us to 'do something'... training leads to competence, to the ability to do something, to manipulative skill" (Billings, 1971)

"...is concerned with modifying observable behavior" (Harmon, 1981)

"...suggests skills acquisition through repetition in performance" (Schwaller, 1980)

"...is primarily concerned with the improvement of immediate on-the-job performance" (Phillips, 1981).

Nadler has taken these two activities (education and training) and combined them with a third activity, development, to define a newer, more inclusive term, "human resource development." To him, human resource development (HRD) means a series of organized activities, conducted within a specified time, and designed to produce behavioral change (Nadler, 1979). His definitions for the three major activities are as follows:

Training - "those activities which are designed to improve performance on the job the employee is presently doing or is being hired to do" (Nadler, 1979:40).

Education - "those HRD activities which are designed to improve the overall competence of the employee in a specific direction and beyond the job now held" (Nadler, 1979: 60). (For a predetermined different position in the organization.)

Development - "is concerned with preparing the employee so he can move with the organization as it develops, changes and grows. The result could be a new job at a higher level or an expansion of the current activities of the employee into new fields which are as yet undetermined" (Nadler, 1979: 88).

In both training and education, the directions of the individual and the organization are identifiable, whereas the directions of development are not as clearly defined--and cannot be stated in specific behavioral terminology--since the job is in the future and will evolve as the organization develops and moves through its life cycle. The focus of both training and education is on the learner as an individual, whereas development focuses on the organization as well as on the individual.

In order to perform the three activities listed above, three generalized roles are identified by Nadler. These are: specialist in solving learning problems, consultant, and administrator. Sub-roles within these categories are:

Learning Specialist

Instructor
Curriculum Builder
Methods and Materials Developer

Consultant

Advocate
Expert
Stimulator
Change Agent

Administrator

Developer: Personnel
Supervisor: On-Going Programs
Maintainer: Community Relations
Arranger: Facilities, Finance

(Nadler, 1979: 151)

Thus, as a learning specialist, the trainer must be able to employ all the techniques associated with the systematic design of instruction, and also know the strengths and limitations of, as well as being able to utilize, a variety of instructional techniques. Being able to adapt instructional procedures to the level of sophistication of the learners, and effective use of appropriate media also are necessary.

As a consultant, the trainer must: take a position on learning resources and HRD programs, be able to answer questions and have definite responses to an identified problem, and be able to support his/her opinions with evidence and justification. In addition, the trainer must be able to serve as an instigator in getting management to explore HRD directions and as a change agent by assisting management in diagnosing and planning for change (identifying appropriate goals for change and in developing a strategy for change.)

And finally, as an administrator, the trainer is involved with managing and guiding the functioning and development of a HRD program. This involves the ability to select and train personnel as trainers, to supervise the HRD activity, to maintain lines of communication with individuals to whom the administrator relates (both inside and outside the organization), and to plan, develop, budget for, and operate (or arrange for) appropriate facilities.

The Adult Learner

Since the instructional developer working in business and industry is dealing primarily with the adult learner, a brief review of some of the more important considerations about adult learners that trainers need to know and practice is in order.

The underlying principles of andragogy (the art and science of helping adults learn), as formulated by Knowles, are:

As a person matures (1) his self-concept moves from one of being a dependent personality toward one of being a self-directing human being; (2) he accumulates

a growing reservoir of experience that becomes an increasing resource for learning; (3) his readiness to learn becomes oriented increasingly to the developmental tasks of his social roles; (4) his time perspective changes from one of postponed application of knowledge to immediacy of application, and accordingly his orientation towards learning shifts from one of subject-centeredness to one of problem-centeredness.

(Knowles, 1970: 39)

Important considerations about adult learners presented and elaborated upon by Grabowski (1980), are the following:

1. Adult learners differ in ability.
 - a) Adults differ in ability to learn as well as in the rate at which they learn.
 - b) This implies that no single method or technique of instruction will effectively reach all the learners.
 - c) Approaches which provide for active learner participation work best because learners normally prefer active involvement in learning.
 - d) Active involvement gives the learner a sense of autonomy.
 - e) Active sharing in the responsibility for learning will give the learner a feeling of commitment towards it.
2. Adult learners possess rich and relevant backgrounds and experiences.
 - a) Adult learning must take these experiences

into consideration as they are a resource for learning as well as a foundation for new learning.

- b) Adults generally see themselves as having control or being self-directed and want to be treated accordingly.
 - c) Many adults have some misgivings about their ability to learn, especially if they have been away from formal schooling for some time.
 - d) Many adults have a fear of taking tests. Consequently, the kinds of tests they prefer are the kind they can correct and grade themselves.
 - e) Whatever techniques of instruction are used, it is important to provide adults with immediate feedback and reinforcement, particularly at the start of a new learning activity.
3. Motivation is important in adult learning.
- a) Usually there is no single reason why an adult participates in learning, but a combination of reasons.
 - b) Kinds of reasons for learning are closely connected to the needs of the adults as well as the developmental cycle stage in their lives.

c) The adult may be:

Goal-oriented -- specific objectives in mind when undertaking learning.

Activity-oriented -- participate for the opportunity of being involved in the learning process.

Learning-oriented -- participate for the sake of knowledge itself.

d) Knowing why an adult is participating can be helpful to an instructor (it will make a difference in the approaches used).

With some overlap to the considerations listed above, studies cited by Hull/DeSanctis (1979) list the following considerations about the adult as a learner:

1. About 80 percent of American adults are involved annually in one or more organized learning activities (seven hours or more in length); 15 percent initiate their own learning.
2. Adults are goal-oriented (that is, intentionality is a major characteristic of their learning).
3. Adults prefer to pace and control the character of their learning experiences.
4. Adults have varied learning patterns.
5. Adults devote up to 900 hours on a single learning project, averaging 156 hours.
6. Most adults prefer to study at home, although numerous other settings and arrangements are used including colleges and universities, public schools, public agencies, business and industry, voluntary organizations, and so on.
7. Adult learners are more likely to be members of organizations.
8. Adult learners who participate in institutionally sponsored programs

have as their objective a job or increased income.

9. Adult learners are found with all kinds of demographic characteristics.
(Hull/DeSanctis, 1979: 14)

In addition to his underlying assumptions for andragogy, Knowles has developed a theoretical framework for the continuing education of adults, contrasting six traditional assumptions about education with what he perceives as required new modern assumptions. This framework is presented in Figure 2.

Summary

Demands for accountability and relevance in education and training have led to increased emphasis on the competence of practitioners in a number of professions. Competency-based instruction, with its goal of mastery of material by all qualified learners, in spite of their differences in entry skills and abilities, has been one result of this emphasis. A learner-centered approach, clearly specified objectives, flexibility, a variety of learning resources, feedback, the opportunity to practice the skills being taught, and performance tests to measure the outcome are all characteristics of this approach to instructional programs.

Declining enrollments, rising costs and reduced resources in public, private and higher education settings have led many instructional developers to turn to business and industry for employment. Such factors as the rapid growth in the size and complexity of training programs, emphasis on cost-effective operations, the profit motive, interest in productivity, rapid

Figure 2:

CONTINUING EDUCATION: THE ROLE OF THE PROFESSIONAL ORGANIZATION A THEORETICAL FRAMEWORK By Malcolm S. Knowles, Ph.D.		
Traditional Assumptions	Modern Assumptions	Implications for a Professional Organization
1. The purpose of education is to produce a "knowledgeable person."	1. The purpose of education is to produce a competent person — one who can apply knowledge and skill in performance.	1. It has responsibility to see that models of required competencies are developed for the various roles in the profession.
2. Education is a process of transmission of knowledge and skills from a teacher to student.	2. Education is a process of acquisition of knowledge, skills, and attitudes by a learner with help from a facilitator and resource person.	2. It has responsibility to provide learning experiences to help professional workers acquire the skills of self-directed learning and help teachers acquire skills as facilitators of learning.
3. Learning takes place most efficiently in a formal classroom or clinical instructional setting.	3. Learning takes place most efficiently when learning resources of a wide variety are accessible to learners at their convenience in time and place.	3. It has responsibility to stimulate or operate delivery systems (non-traditional study programs, workshops, in-service programs, contract learning, multi-media packages, etc.) that make resources accessible to working professionals.
4. A professional person is fully developed when he/she is awarded a degree.	4. With rapidly changing technology, a professional person becomes obsolete unless he/she engages in a continuous program of professional self-development.	4. It has a responsibility to raise the consciousness of its members regarding the need for continuing professional development and to reward self-development efforts.
5. The education of children is the responsibility of the state; the Continuing Education of adults is their own personal responsibility.	5. Our society has as great a stake in the Continuing Education of adults in a world of accelerating changes as it had for the education of children in a stable world.	5. It has a responsibility to assure that its members are engaging in continuing professional development, preferably voluntary but under compulsion if necessary.
6. The learning process is the same in adults as in children; the pedagogical model of education is appropriate for both.	6. Adults are different from children as learners in important respects; an <i>andragogical</i> model of education is more appropriate for adults.	6. It has responsibility to inform its members about modern concepts of adult learning — the <i>andragogical model</i> — and to apply them in its own educational activity.

technological advances, and viewing employees as investments instead of expenses, are only some of the factors that have contributed to the acceptance of instructional developers in business and industry. A careful comparison of the differences between the educational setting and the industrial setting should be made by the developer who is contemplating entering either academia or business and industry.

The terms education, training, and development are all differentiated and discussed by Nadler in his elaboration of the field of human resource development. He also outlines the generalized roles, as well as the sub-roles within these categories, used to perform the three activities. These roles, along with various considerations about the adult learner, should all be considered by the instructional developer who enters business and industry.

The above factors, as well as a basic interest in which competencies are needed for instructional developers in business and industry, formed the basis and impetus for this study. The research questions and hypotheses were formulated as a result of this review of literature, and the competencies were generated from examining the previous studies reviewed and discussed in this chapter.

CHAPTER III

METHODOLOGY AND PROCEDURES

Discussion in this chapter outlines the methods and procedures used in addressing the four major research questions of this study:

1. From a given list of competencies, which competencies are seen as most important for two entry level positions (team member and supervisor/manager) on instructional development teams in business and industry, as viewed by those who hire and/or supervise personnel in these positions?
2. Does the type of business or industry (i.e. industrial manufacturing, scientific manufacturing, merchandizing, or service organization) make a difference in terms of the entry level competencies desired for either team members or supervisory/management personnel on an instructional development team?
3. Does the principal function (i.e. training, education, or development) of an instructional development, training, or human resource development unit influence the entry level competencies desired for either team members or super-

visory/management personnel in that unit?

4. Is the size of an instructional development, training, or human resource development unit an important variable in the entry level competencies desired for either team members or supervisory/management personnel in that unit?

The chapter is divided into the following sections: (1) Development of the instrument, (2) Sampling procedure, (3) Data collection, (4) Treatment of data, and (5) Summary.

Development of the Instrument

Although a number of ways of collecting the data were investigated, the decision to use a questionnaire was based on the following reasons: they can be given to many people simultaneously, providing data that can be more easily tabulated, analyzed and interpreted than data received from oral responses; they permit a considerable amount of time for the respondent to think about his/her answers before responding; the expense of printing questionnaires and distributing them to large numbers of people is much less than trying to personally visit, observe and interview similar numbers of people in such a national survey; and they provide a greater uniformity across measurement (each question is presented in exactly the same way to each respondent without interviewer bias or contamination) (Berdie, 1974). In addition, most people are familiar with questionnaire format and structure, which may make completion easier. Questionnaires also permit anonymity, which may be important to some

respondents; and they allow a large geographic area to be covered in search of data.

The actual survey instrument (Appendix A) was an adaptation of the questionnaire used by AECT's Division of Instructional Development (DID) subcommittee, mentioned earlier. Their questionnaire was examined in light of feedback received from their pilot study, as well as from having examined other previous studies and lists of competencies generated by other organizations. The number of competencies included was reduced from eighty-one to seventy, partially by combining a few that were similar in content and partially by eliminating ones that were less important or more specific to certain situations. The answer choices for each statement of the competency were expanded from "1. Entry level, 2. Desired, 3. Not important" to a five-point Likert scale type response which gave a broader range of responses (more differentiation) in order to determine the most important competencies. The categories of the scale used in this study were: 5. Essential, 4. Important, 3. Somewhat important, 2. Of little importance, 1. Of no importance.

The demographic portion of the questionnaire, asking for name of organization, principal product/service offered, number of employees in the unit, and the respondent's primary responsibility in the training development function all remained the same as on the DID questionnaire. A question regarding type of organization was changed from six possible response categories (merchandizing, social science, government, education, scientific manufacturing, and industrial manufacturing) to four

(merchandizing, service organization, scientific manufacturing and industrial manufacturing), due to the target population selected for the present study. In addition, a description of each of the categories was included (which had not been included on the DID instrument) to clarify what was meant by the category (since these had caused some confusion in their pilot study.)

The descriptions used in this study were as follows:

- 1) Merchandizing (or Retail Trade)
(i.e. department stores, hotels, restaurants, sales to homes, etc.)
- 2) Service Organization
(i.e. transportation, insurance or financial institutions, newspapers, social service agencies, etc.)
- 3) Industrial Manufacturing
(i.e. automotive, steel, parts, etc.)
- 4) Scientific Manufacturing
(i.e. foods, pharmaceuticals, chemicals, electronics, computers, etc.)

An expansion was also made of the description of the functions of training, education, and development for a question regarding principal function of the development unit, since these three words also caused some confusion in their pilot study. The description used in the present study were as follows:

- 1) Training (to improve performance on present job, or with new hires)

- 2) Education (to improve competence for specific higher position; upward mobility)
- 3) Development (to prepare employee for movement in organization as it grows and changes).

Other demographic data included on the DID questionnaire was eliminated because it did not pertain to this study. One other demographic question was asked, however, requesting the number of instructional developers/training developers supervised by the respondent. Thus, the final demographic portion of the present questionnaire asked for: the name of the organization of the respondent, the principal product/service offered, the type of organization (indicated by a check mark next to one of the choices of: merchandizing, service organization, industrial manufacturing or scientific manufacturing), a rank ordering of three possible principal functions of the instructional development or training development unit (training, education, and development), the number of employees in the unit, the number of developers supervised by the respondent, and the primary responsibility of the respondent in the training development function.

The physical size of the questionnaire also was changed (from five legal size sheets to five 8 1/2 by 11 pages), since length was identified as a basic problem in the DID pilot study. This reduction was accomplished by the elimination of some of the demographic data and the number of competencies included (as described above) and by re-formatting the questionnaire. The researcher would have preferred a shorter questionnaire, but the

expansion of the response scale size, the inclusion of clarifying descriptive information, the necessity of gathering certain data, etc., made it impossible to reduce the questionnaire any further.

The adapted instrument was given to experts in evaluation and measurement (i.e. personnel in the Michigan State University Learning and Evaluation Services). The instrument also was pilot-tested by giving it to five members of the AECT/DID subcommittee that had worked on the earlier study, as well as to seven persons who were in job situations similar to the population to be sampled (i.e. people from organizations such as: Eagle Technology, McDonnell Aircraft, the Raymond Corporation, Data General, Bell Telephone, etc.) Other persons, representing more of the formal education background, also assisted in the pilot study, for a total of sixteen participants. These persons were asked to respond to the questionnaire, as well as to the possible cover letter to be used, in order to verify that the response scales would give the needed distribution and that there were no difficulties in interpretation due to wording or format. Appropriate revisions, such as rewording the statement of a competency, or the substitution of one word for another, and a few slight alterations in the forming of the questionnaire were made as a result of the pilot test.

Sampling Procedure

Three hundred subjects were selected at random from business and industry members of the "Senior Trainers" interest

group of the American Society for Training and Development (ASTD). The Senior Trainers group, which had a membership of 2,849 at the time the researcher talked with staff members at ASTD about obtaining a list of names and addresses, is comprised of persons "experienced in advanced HRD techniques and applications" (qualifying statement regarding the group on the Direct-Mail Marketing brochure from ASTD.) This group was chosen, rather than any of the other special interest groups, because it was felt that the members would most likely fit the stipulation, specified by the study, of being responsible for hiring and/or supervising instructional developers. These administrators were asked to identify the entry level competencies desired for team members and also the competencies desired for supervisory/management personnel within the instructional development, training, or human resource development unit. The type of business or industry represented, the primary function of the instructional development, training, or human resource development unit, and the size of that unit also were identified in the survey, in the interest of determining whether these factors influenced the competencies desired.

Data Collection

The first mailing of the questionnaire (Appendix A), with a cover letter (Appendix B) and a stamped, self-addressed, return envelope took place on April 16, 1981. A reply was requested by

April 28, 1981. The questionnaires were coded, to allow for follow-up mailings. The initial mailing yielded responses from sixty-four participants (21.3%). The first follow-up was a postcard reminder (Appendix D-1), dated April 30, 1981, mailed to those who had not responded, and yielded another twenty-three responses. Two-and-one-half weeks later, a second copy of the original questionnaire, with a new cover letter (Appendix C) and a stamped, self-addressed return envelope was sent out. This stimulated another fifty-two responses. A final reminder postcard (Appendix D-2) was mailed on June 9, 1981, after which another twenty-three responses were received. A total of 162 responses was received.

Information from the returned questionnaires was coded onto mark sense data sheets, which were then used to key punch the data onto cards for the statistical analyses described below.

Treatment of Data

Dependent/Independent Variables

The dependent variables in the study were the various competencies for entry level positions of either team member or supervisor/manager on an instructional development, training, or human resource development team.

The independent variables in the study were: (1) type of organization (industrial manufacturing, scientific manufacturing, merchandizing, or service), (2) principal function (training, education, or development) of the instructional develop-

ment, training, or human resource development unit, and (3) the size of the instructional development, training, or human resource development unit.

Analysis Procedures

The following procedures were used to analyze the data collected:

For research question number one (represented by hypotheses H01 and H02), a mean was tabulated for each competency to determine the overall importance rating for that particular skill. These means were then used to rank-order the entire list of competencies, to illustrate the relative importance of the various competencies in terms of the entry level positions in the study. Repeated measures analyses of variance were then conducted to determine if any differences between the means were significant (since numerical differences between the means would be expected, but due to the amount of variance the differences might not be statistically significant.)

In addition, in order to estimate the reliability of the rating across raters, an intraclass correlation analysis was applied. This procedure for estimating the reliability of sets of ratings, based upon analysis of variance, may be used "to obtain either a unique estimate or a confidence interval for the reliability of either the component ratings or their averages" (Ebel, 1951:407). The resulting coefficient indicates how well the raters discriminate between what they are rating (in this study, between the competencies), and how well they agree on a

particular item (in this study, on an individual competency) that they are rating.

For research questions two through four (represented by hypotheses H03 through H08) the statistical technique used was two-way multivariate analysis of covariance, with unit size as the covariate and a priori planned comparisons for the main effects of type of organization and function of unit. This technique was chosen because the many procedures for analysis of variance allow a wide range of research designs involving one, two, or more independent variables to be studied simultaneously (Hopkins, 1980).

In order to run the multivariate analyses of covariance, the competencies were placed into sets corresponding to the way they were grouped on the questionnaire. For example, competencies 8a through 8m dealt with "Management of the Development Unit and Process," 9a through 9f with "Identifying Needs for Program Development," 10a through 10j with "Planning Program Content," 11a through 11h with "Designing and Producing Materials," 12a through 12e with "Conducting Training Programs," 13a through 13h with "Evaluation and Follow-Up," and 14a through 14h with "General Competencies." This grouping into sets was done for the following reasons:

- 1) The competencies within each set were similar in content and represented a basic underlying skill or ability area. Therefore it seemed more logical to compare related items for significance than to contrast them to unrelated

entities. It is also probable that the respondents to the questionnaire viewed the competencies as sets, since that is the way the competencies were physically presented on the questionnaire.

- 2) Fewer cases were lost than by looking at all seventy competencies at once. Since the Statistical Package for the Social Sciences (SPSS) used for analysis does not allow for missing data on even one item, the number of useable cases would have dropped to 87 for team members and 78 for supervisors/managers if all seventy competencies had been considered at once. Table 1 shows the actual number of useable cases analyzed by grouping the seventy competencies into the seven sets.

TABLE 1.--USEABLE CASES BY GROUPING COMPETENCIES INTO SETS

TEAM MEMBERS			SUPERVISORS/MANAGERS		
Set	Competencies	Useable Cases	Set	Competencies	Useable Cases
1	TEM 01 to 13	108	1	SUP 01 to 13	110
2	TEM 14 to 19	109	2	SUP 14 to 19	107
3	TEM 20 to 29	105	3	SUP 20 to 29	102
4	TEM 30 to 44	103	4	SUP 30 to 44	101
5	TEM 45 to 49	110	5	SUP 45 to 49	110
6	TEM 50 to 57	109	6	SUP 50 to 57	106
7	TEM 58 to 70	98	7	SUP 58 to 70	98

- 3) The MANOVA (multiple analysis of variance) program within SPSS would not handle all seventy competencies at once. System parameters have been set at fifty variables.
- 4) The results were more interpretable. First, the statistical test is more powerful if the researcher is trying to come up with a linear combination of 5 to 15 variables instead of 70. It is much more difficult for any one variable to come through as being significant when it is imbedded in a set of 70 and it is necessary to determine a linear combination of all 70. Secondly, if significance is found for one of the smaller sets (the sets of five to fifteen competencies instead of seventy) it is easier to determine which variable(s) is (are) causing that significance when the total possible variables are fifteen instead of seventy.

Analysis of covariance was used since it allows a researcher to test for mean differences between two or more intact groups while compensating for initial differences between the groups with respect to relevant variables (Popham, 1967). In other words, since it was highly unlikely that the distribution of size (number of employees) would be the same amongst all four types of organizations, or equally distributed among the three functions of the training unit, this technique could compensate for those differences. It could also take all of these vari-

ables into account at the same time in terms of their effect on the dependent variables (the competencies.) Size of unit (number of employees) was chosen as the covariate since it was thought that the larger a unit was, the more it might be apt to tend towards "specialization" in terms of the competencies (whereas persons in a smaller department might have to "be able to do everything")--and thus, it could be a confounding variable. Since it was expected that size would be a linear trend it was used as the covariate to determine if there was a linear relationship, and then to adjust for initial differences. In addition, as pointed out by Borg and Gall, "the effect of analysis of covariance is to make the two groups equal with respect to one or more control variables. If a difference is still found between the two groups, one cannot use the control variable to explain the effect of one's research variable" (Borg/Gall, 1971:310).

The a priori orthogonal planned comparisons for the main effect of type of organization were to compare and contrast responses in the following three groups:

- 1) merchandizing versus service organizations
- 2) industrial manufacturing versus scientific manufacturing
- 3) merchandizing + service organizations versus industrial manufacturing + scientific manufacturing.

Thus, before even running the tests, comparisons were planned in terms of where the researcher thought differences might lie and

which types of organizations should be contrasted with each other. And, knowing that there were three degrees of freedom (because there were four groups), these three degrees of freedom were partitioned into three specific orthogonal tests, each one corresponding to one of the planned comparisons indicated above.

Summary

The research method chosen for gathering the data was a questionnaire. The actual instrument used was an adaptation of a questionnaire from an AECT/DID subcommittee. A Likert scale type response, with five categories, was used to determine the most important competencies. The instrument was validated by personnel in the Michigan State University Learning and Evaluation Services and was pilot-tested by administration of the instrument to sixteen individuals. The actual participants (300) for the study were randomly chosen from the Senior Trainers interest group of the American Society for Training and Development. A total of four mailings (two mailings of the questionnaire, with different cover letters, and two different reminder postcards) was used to collect the data. The data was then analyzed by tabulating the mean for the overall importance of each competency, so as to rank-order the entire list. Repeated measures analyses of variance were then conducted to deter-

mine if any differences between the means were statistically significant. An intraclass correlation was used to estimate the reliability of ratings across raters. In addition, a two-way multivariate analysis of covariance, with unit size as the covariate and a priori planned comparisons for the main effects of type of organization and function of unit, was computed. The results of the analysis of the data are presented in Chapter IV.

CHAPTER IV

ANALYSIS AND DISCUSSION OF RESULTS

Introduction

This chapter presents an analysis and discussion of the data collected. An attempt is made to identify findings of particular interest which may assist in identifying the basic instructional development competencies needed in business and industry settings. Four major areas of concern were addressed:

1. To determine the most important competencies for two entry level positions (team member and supervisor/manager) on instructional development teams in business and industry.
2. To determine whether the type of business or industry made a difference in terms of the entry level competencies desired for either team members or supervisory/management personnel on an instructional development team.
3. To determine whether the principal function of an instructional development, training, or human resource development unit influenced the entry level competencies desired for either team members or supervisory/management personnel in that unit.
4. To determine whether size of an instructional

development, training, or human resource development unit was an important variable in the entry level competencies desired for either team members or supervisory/management personnel in that unit.

Results are presented for each of the four major areas of concern in an attempt to answer specific questions. The basic question revolves around the attempt to identify the most essential entry level instructional development competencies for both team members and supervisors/managers in business and industry.

Questionnaires Received

Questionnaires were mailed to three hundred (out of a membership of approximately 2,850), randomly-chosen, members of the Senior Trainers interest group of the American Society for Training and Development. Of the 300, responses were received from 162 participants (54 percent). Four questionnaires were returned as undeliverable; the person no longer worked at that institution. Data were analyzed from 127 of the responses received. Thirty-five of the questionnaires were not included in the data analysis due to either incomplete responses or the fact that the person who filled out the questionnaire did not actually supervise anyone else (one of the basic stipulations of the study.) It is interesting to note that fourteen of the thirty-five indicated that they did not supervise anyone else because they are

"one-person" departments (that person literally performs everything in the education or training function for the company or organization to which the department is attached.)

Characteristics of the Population

The participants were asked to answer several demographic questions regarding their organization, such as: name of the organization, the principal product/service offered, the type of organization (indicated by a check mark next to one of the choices of: merchandizing, service organization, industrial manufacturing or scientific manufacturing), a rank-ordering of three possible principal functions of the instructional development or training development unit (training, education, and development), the number of employees in the unit, the number of developers supervised by the respondent, and the primary responsibility of the respondent in the training development function. Respondents also were asked if credit could be given to them for assisting in the study. Those indicating a yes response to this last question are listed, alphabetically by name of organization, in Appendix E.

The response frequencies and percentages were calculated for each question, where appropriate. In some instances not all subjects responded to all of the questions. Therefore, the percentage of responses reported may not total 100 percent. An analysis of the data revealed the following information about the employing organizations of the respondents.

In terms of type of organization, the 127 useable responses are categorized as shown in Table 2.

TABLE 2.--NUMBER OF RESPONDENTS BY TYPE OF ORGANIZATION

<u>Type of Organization:</u>	<u>Number of Respondents (Total: 127)</u>	<u>Percent</u>
1. Merchandizing	16	12.6
2. Service Organization	59	46.5
3. Industrial Manufacturing	25	19.6
4. Scientific Manufacturing	27	21.3

It should be noted that a number of the respondents chose the category of "other" for type of organization. However, it was felt by the researcher, in consultation with committee members, that from examining the types of products listed by the respondents in question two of the questionnaire, all could be placed in one of the four categories. Thus, for example, the five respondents from utility companies and the nine respondents who wrote in "consulting," were all placed in the service organization category; a soft-drink bottler was placed under scientific manufacturing, as were the two manufacturers of computer software and three dealing with petroleum products; two with mineral mining were placed under industrial manufacturing, etc. Those six having diversified activities were placed in the category of their prime activity or the product for which they are most known, since there were not enough of these organizations to create a separate "diversified" category.

Primary Function of Unit

By far (87 percent), the majority of respondents ranked training as the primary function of their instructional development or training development unit. Education was rated as the primary function by 7.5 percent, with 4.7 percent reporting development as their primary function. (See Tables 3-5 for exact figures.)

TABLE 3.--TRAINING AS PRIMARY FUNCTION

<u>Function Category:</u>	<u>Number of Respondents</u>	<u>Adjusted Frequency (Percent)</u>
Training	97	87.0
Education	7	6.5
Development	7	6.5
Just checked (without ranking)	15	Missing
Missing data	4	Missing

TABLE 4.--EDUCATION AS PRIMARY FUNCTION

<u>Function Category:</u>	<u>Number of Respondents</u>	<u>Adjusted Frequency (Percent)</u>
Training	8	7.5
Education	53	49.5
Development	46	43.0
Just checked (without rating)	8	Missing
Missing data	12	Missing

TABLE 5.--DEVELOPMENT AS PRIMARY FUNCTION

<u>Function Category:</u>	<u>Number of Respondents</u>	<u>Adjusted Frequency (Percent)</u>
Training	5	4.7
Education	47	43.9
Development	55	51.4
Just checked (without rating)	6	Missing
Missing data	14	Missing

Number of Employees in Unit

The number of employees in the instructional development or training development unit ranged from one to ten thousand, with the median being 6.5 employees. (See Table 6 for exact figures.)

The number of instructional developers/training developers supervised by respondents varied from one to forty, with the average being 5.7 persons; the median was 3 persons. (Table 7 shows the exact figures.)

Ranking of Competencies

In order to determine the most important competencies for the entry level positions of team member and supervisor/manager on an instructional development team (research questions one and two), each respondent was asked to rate each of the competencies for each of the two positions. The rating choices were: 5 - Essential, 4 - Important, 3 - Somewhat Important, 2 - Of Little Importance, and 1 - Of No Importance. A mean was determined for

TABLE 6.--NUMBER OF EMPLOYEES IN UNIT

<u>Number of Employees</u>	<u>Number Responding</u>	<u>Number of Employees</u>	<u>Number Responding</u>
1	7	28	1
2	11	29	-
3	8	30	3
4	18	:	:
5	8	40	1
6	11	:	:
7	8	50	2
8	3	:	:
9	3	60	1
10	3	:	:
11	2	62	1
12	9	:	:
13	1	73	1
14	1	:	:
15	4	133	1
16	1	:	:
17	-	150	2
18	1	:	:
19	-	200	3
20	1	:	:
21	1	500	1
22	1	:	:
23	1	800	1
24	1	:	:
25	2	1200	1
26	-	:	:
27	-	10000	1

TABLE 7.--NUMBER OF DEVELOPERS SUPERVISED

<u>Number of Developers Supervised</u>	<u>Number Responding</u>	<u>Number of Developers Supervised</u>	<u>Number Responding</u>
1	27	21	1
2	26	22	-
3	19	23	1
4	7	24	-
5	10	25	-
6	5	26	-
7	2	27	1
8	4	28	-
9	7	29	-
10	4	30	2
11	1	31	-
12	4	32	-
13	1	33	-
14	-	34	-
15	1	35	-
16	1	36	-
17	-	37	-
18	-	38	-
19	-	39	-
20	1	40	2

each competency from the ratings. The mean was then used to rank order the competencies by order of importance. Table 8 shows these results for team members; Table 9 shows the results for supervisors/managers.

Repeated measures analyses of variance were then conducted to determine if any differences between the means were significant (since numerical differences between the means would be expected, but due to the amount of variance the differences might not be statistically significant.) For team members there was no significant decrease in importance in the rankings except between the third and fourth ranked competencies (.00052 significance at the .05 level) and the fifty-eighth and fifty-ninth ranked competencies (.02711 significance). (See Table 10). For supervisors/managers, significance was found between the competencies ranked fourth and fifth (.00892 significance), sixty-third and sixty-fourth (.00735 significance), sixty-fourth and sixty-fifth (.04047 significance), and sixty-seventh and sixty-eighth (.01950 significance). (See Table 10). This suggests that whereas there was not that much difference in importance between the first three competencies for team members, it appears that the respondents felt that these three competencies were more important than the rest of the competencies on the list. The same was true for the first four competencies for supervisors/managers, and then for those competencies that were at the bottom of each of the ranked lists. For the remainder of the competencies there appeared to be no significant difference

TABLE 8.--COMPARATIVE RANKING OF COMPETENCIES BASED ON TEAM MEMBER RANKINGS

<u>FOR TEAM MEMBERS</u>				<u>FOR SUPERVISORS/MANAGERS</u>			
<u>Rank</u>	<u>Mean</u>	<u>Standard Deviation</u>	<u>Competency</u>	<u>Rank</u>	<u>Mean</u>	<u>Standard Deviation</u>	
1	4.840	.410	14g-To listen effectively.	3	4.823	.495	
2	4.736	.494	14f-To adapt to differing situations.	6	4.702	.570	
3	4.680	.655	12e-To establish credibility with the group.	13	4.584	.825	
4	4.357	.843	10g-To apply concepts of adult learning to program planning.	39	4.129	.971	
5	4.352	.944	12d-To use equipment effectively.	57	3.736	1.123	
6	4.344	.934	10c-To develop objectives which specifically identify intended outcomes.	33	4.238	.872	
7	4.294	.964	12c-To conduct group presentations.	41	4.119	1.032	
8	4.192	.859	10f-To identify appropriate presentation strategies for a task.	42	4.105	.909	
9	4.183	.907	13d-To use evaluation data for program revision.	35	4.220	.815	
10	4.159	.794	10a-To identify relevant audience characteristics.	48	3.904	.817	
11	4.159	.814	10b-To describe prerequisite skills for a task.	52	3.816	.919	
12	4.152	.959	10h-To apply theories to motivate participants.	51	3.829	1.099	
13	4.152	1.078	11d-To write for effective communication, i.e. scripting, technical writing, etc.	56	3.760	1.073	
14	4.112	1.002	14d-To consult effectively with subject matter experts.	30	4.282	.933	
15	4.087	.996	13b-To gather data to validate programs after program has been presented (summative evaluation.)	40	4.121	.925	
16	4.063	.936	11b-To make appropriate decisions regarding the use of audio or visual media.	55	3.764	1.064	
17	4.040	.991	13a-To gather data describing program effectiveness during developmental stages (formative evaluation.)	44	4.088	.907	
18	4.032	.903	8b-To establish communication among members of the training development team.	2	4.824	.403	

TABLE 8.--Continued

FOR TEAM MEMBERS				FOR SUPERVISORS/MANAGERS			
Rank	Mean	Standard Deviation	Competency	Rank	Mean	Standard Deviation	
19	3.984	.894	8a-To promote a favorable attitude toward training, education, and development among decision makers in the organization.	1	4.841	.408	
20	3.952	.902	12a-To prepare specifications for organizing the physical environment.	60	3.643	1.054	
21	3.912	.951	14h1-To function at awareness level with corporate goals and objectives.	4	4.806	.454	
22	3.905	.959	9f-To identify nature of problems, i.e. instructional, motivational, environmental.	24	4.365	.744	
23	3.889	.982	10d-To identify relevant existing resources for program development.	34	4.232	.805	
24	3.841	1.106	13f-To design instruments to measure participants' accomplishments.	50	3.847	.955	
25	3.833	1.015	10i-To specify structural and environmental requirements for a program.	49	3.883	.972	
26	3.817	1.031	11a-To prepare specifications for the production of materials.	59	3.697	1.067	
27	3.795	1.120	11e8-To produce simulations, role plays, group activities.	62	3.314	1.276	
28	3.762	1.127	13e-To design evaluation instruments to assess the effectiveness of a program.	46	4.008	.958	
29	3.744	1.077	14b-To keep abreast of current theoretical thought and research directions.	29	4.288	.771	
30	3.667	.980	9a-To assess needs for the development of programs.	22	4.368	.778	
31	3.648	1.018	9e-To analyze performance needs.	36	4.192	.830	
32	3.613	1.065	11c-To plan and monitor production schedules.	43	4.101	1.028	
33	3.587	1.060	13c-To plan a comprehensive program evaluation process.	26	4.341	.771	
34	3.585	1.078	13g-To evaluate the training development process.	17	4.500	.704	
35	3.579	1.162	9c-To interact as a consultant with clients.	28	4.296	.871	
36	3.571	.959	8d-To communicate with other sections of the organization.	5	4.706	.507	

TABLE 8.--Continued

<u>FOR TEAM MEMBERS</u>				<u>FOR SUPERVISORS/MANAGERS</u>			
<u>Rank</u>	<u>Mean</u>	<u>Standard Deviation</u>	<u>Competency</u>	<u>Rank</u>	<u>Mean</u>	<u>Standard Deviation</u>	
37	3.508	1.086	12b-To prepare specifications for the acquisition of appropriate hardware.	53	3.810	1.071	
38	3.476	1.101	9b-To design instruments for conducting needs assessment (questionnaires, interview schedules, etc.)	58	3.728	1.003	
39	3.472	1.168	14e-To possess subject matter expertise in content area to be developed.	63	3.185	1.157	
40	3.390	1.121	10j-To use organizational development (OD) principles and practices.	45	4.074	1.022	
41	3.389	1.073	10e-To determine whether to use an existing program, purchase an external program, or design a new program.	18	4.496	.679	
42	3.333	1.121	14h3-To function at awareness level with concepts of marketing and sales.	37	4.189	.921	
43	3.312	1.027	14a-To analyze development/training research data.	38	4.136	.874	
44	3.306	1.264	14h4-To function at awareness level with concepts of production and manufacturing.	47	3.959	1.167	
45	3.260	1.093	14h6-To function at awareness level with concepts of profit and loss.	25	4.352	.826	
46	3.183	1.054	13h-To determine the cost benefits of training programs.	10	4.611	.645	
47	3.024	1.093	9d-To establish program priorities.	11	4.608	.671	
48	2.984	1.241	11e3-To produce video tapes.	65	2.598	1.118	
49	2.976	1.201	11h-To evaluate the effectiveness of hired consultants.	9	4.616	.727	
50	2.966	1.203	14h2-To function at awareness level with types of business ownership.	54	3.793	1.138	
51	2.944	1.173	8k-To train others to function as instructional developers.	31	4.264	.774	
52	2.944	1.090	8m-To project future training needs of the organization.	12	4.592	.752	
53	2.895	1.306	11e6-To produce pamphlets and brochures.	64	2.770	1.177	

TABLE 8.--Continued

<u>FOR TEAM MEMBERS</u>				<u>FOR SUPERVISORS/MANAGERS</u>			
<u>Rank</u>	<u>Mean</u>	<u>Standard Deviation</u>	<u>Competency</u>	<u>Rank</u>	<u>Mean</u>	<u>Standard Deviation</u>	
54	2.895	1.103	14h5-To function at awareness level with concept of corporate budgeting.	27	4.339	.835	
55	2.889	1.045	8h-To set time and budget parameters for projects.	14	4.579	.624	
56	2.877	1.230	11e2-To produce audio tapes.	67	2.492	1.130	
57	2.877	1.224	11e4-To produce slide-tapes.	66	2.537	1.096	
58	2.774	1.209	81-To prepare long and short term goals for the development unit.	7	4.667	.632	
59	2.734	1.148	11f-To locate outside consultants when needed.	19	4.488	.667	
60	2.627	1.218	14c-To design research studies to test existing and new instructional systems.	61	3.437	1.170	
61	2.579	1.038	8j-To arrange for the adoption of projects.	23	4.365	.744	
62	2.568	.986	8c-To mediate differences among staff.	16	4.500	.701	
63	2.533	1.287	11e1-To produce still photographs.	69	2.279	1.070	
64	2.532	1.009	8f-To coordinate activities of the development unit.	15	4.548	.615	
65	2.463	1.191	11e5-To produce multi-image visual displays.	68	2.339	1.037	
66	2.452	1.055	8g-To acquire and manage appropriate facilities and equipment for the unit.	32	4.246	.826	
67	2.435	1.170	11g-To supervise hired outside consultants.	21	4.440	.856	
68	2.114	1.256	11e7-To produce programs for computers.	70	2.190	1.011	
69	2.000	.933	8i-To administer the budget for the development unit.	8	4.619	.691	
70	1.833	.837	8e-To establish appropriate staffing patterns for the development unit.	20	4.476	.616	

TABLE 9.--COMPARATIVE RANKING OF COMPETENCIES BASED ON SUPERVISOR/
MANAGER RANKINGS

<u>FOR SUPERVISORS/MANAGERS</u>				<u>FOR TEAM MEMBERS</u>		
<u>Rank</u>	<u>Mean</u>	<u>Standard Deviation</u>	<u>Competency</u>	<u>Rank</u>	<u>Mean</u>	<u>Standard Deviation</u>
1	4.841	.408	8a-To promote a favorable attitude toward training, education, and development among decision makers in the organization.	19	3.984	.894
2	4.824	.403	8b-To establish communication among members of the training development team.	18	4.032	.903
3	4.823	.495	14g-To listen effectively.	1	4.840	.410
4	4.806	.454	14h1-To function at awareness level with corporate goals and objectives.	21	3.912	.951
5	4.706	.507	8d-To communicate with other sections of the organization.	36	3.571	.959
6	4.702	.570	14f-To adapt to differing situations.	2	4.736	.494
7	4.667	.632	8l-To prepare long and short term goals for the development unit.	58	2.774	1.209
8	4.619	.691	8i-To administer the budget for for the development unit.	69	2.000	.933
9	4.616	.727	11h-To evaluate the effectiveness of hired consultants.	49	2.976	1.201
10	4.611	.645	13h-To determine the cost benefits of training programs.	46	3.183	1.054
11	4.608	.671	9d-To establish program priorities.	47	3.024	1.093
12	4.592	.752	8m-To project future training needs of the organization.	52	2.944	1.090
13	4.584	.825	12e-To establish credibility with the group.	3	4.680	.655
14	4.579	.624	8h-To set time and budget parameters for projects.	55	2.889	1.045
15	4.548	.615	8f-To coordinate activities of the development unit.	64	2.532	1.009
16	4.500	.701	8c-To mediate differences among staff.	62	2.568	.986
17	4.500	.704	13g-To evaluate the training development process.	34	3.585	1.078
18	4.496	.679	10e-To determine whether to use an existing program, purchase an external program, or design a new program.	41	3.389	1.073

TABLE 9.--Continued

<u>FOR SUPERVISORS/MANAGERS</u>				<u>FOR TEAM MEMBERS</u>		
<u>Rank</u>	<u>Mean</u>	<u>Standard Deviation</u>	<u>Competency</u>	<u>Rank</u>	<u>Mean</u>	<u>Standard Deviation</u>
19	4.488	.667	11f-To locate outside consultants when needed.	59	2.734	1.148
20	4.476	.616	8e-To establish appropriate staffing patterns for the development unit.	70	1.833	.837
21	4.440	.856	11g-To supervise hired outside consultants.	67	2.435	1.170
22	4.368	.778	9a-To assess needs for the development of programs.	30	3.667	.980
23	4.365	.744	8j-To arrange for the adoption of projects.	61	2.579	1.038
24	4.365	.744	9f-To identify nature of problems, i.e. instructional, motivational, environmental.	22	3.905	.959
25	4.352	.826	14h6-To function at awareness level with the concepts of profit and loss.	45	3.260	1.093
26	4.341	.771	13c-To plan a comprehensive program evaluation process.	33	3.587	1.060
27	4.339	.835	14h5-To function at awareness level with the concept of corporate budgeting.	54	2.895	1.103
28	4.296	.871	9c-To interact as a consultant with clients.	35	3.579	1.162
29	4.288	.771	14b-To keep abreast of current theoretical thought and research directions.	29	3.744	1.077
30	4.282	.933	14d-To consult effectively with subject matter experts.	14	4.112	1.002
31	4.264	.774	8k-To train others to function as instructional developers.	51	2.944	1.173
32	4.246	.826	8g-To acquire and manage appropriate facilities and equipment for the unit.	66	2.452	1.055
33	4.238	.872	10c-To develop objectives which specifically identify intended outcomes.	6	4.344	.934
34	4.232	.805	10d-To identify relevant existing resources for program development.	23	3.889	.982
35	4.220	.815	13d-To use evaluation data for program revision.	9	4.183	.907
36	4.192	.830	9e-To analyze performance needs.	31	3.648	1.018

TABLE 9.--Continued

<u>FOR SUPERVISORS/MANAGERS</u>				<u>FOR TEAM MEMBERS</u>		
<u>Rank</u>	<u>Mean</u>	<u>Standard Deviation</u>	<u>Competency</u>	<u>Rank</u>	<u>Mean</u>	<u>Standard Deviation</u>
37	4.189	.921	14h3-To function at awareness level with the concepts of marketing and sales.	42	3.333	1.121
38	4.136	.874	14a-To analyze development/training research data.	43	3.312	1.027
39	4.129	.971	10g-To apply concepts of adult learning to program planning.	4	4.357	.843
40	4.121	.925	13b-To gather data to validate programs after program has been presented.	15	4.087	.996
41	4.119	1.032	12c-To conduct group presentations.	7	4.294	.964
42	4.105	.909	10f-To identify appropriate presentation strategies for a task.	8	4.192	.859
43	4.101	1.028	11c-To plan and monitor production schedules.	32	3/613	1/065
44	4.088	.907	13a-To gather data describing program effectiveness during developmental stages (formative evaluation.)	17	4.040	.991
45	4.074	1.022	10j-To use organizational development (OD) principles and practices.	40	3.390	1.121
46	4.008	.958	13e-To design evaluation instruments to assess the effectiveness of a program.	28	3.762	1.127
47	3.959	1.167	14h4-To function at awareness level with the concepts of production and manufacturing.	44	3.306	1.264
48	3.904	.817	10a-To identify relevant audience characteristics.	10	4.159	.794
49	3.883	.972	10i-To specify structural and environmental requirements for a program.	25	3.833	1.015
50	3.847	.955	13f-To design instruments to measure participants' accomplishments.	24	3.841	1.106
51	3.829	1.099	10h-To apply theories to motivate participants.	12	4.152	.959
52	3.816	.919	10b-To describe prerequisite skills for a task.	11	4.159	.814
53	3.810	1.071	12b-To prepare specifications for the acquisition of appropriate hardware.	37	3.508	1.086

TABLE 9.--Continued

<u>FOR SUPERVISORS/MANAGERS</u>				<u>FOR TEAM MEMBERS</u>		
<u>Rank</u>	<u>Mean</u>	<u>Standard Deviation</u>	<u>Competency</u>	<u>Rank</u>	<u>Mean</u>	<u>Standard Deviation</u>
54	3.793	1.138	14h2-To function at awareness level with types of business ownership.	50	2.966	1.203
55	3.764	1.064	11b-To make appropriate decisions regarding the use of audio or visual media.	16	4.063	.936
56	4.760	1.073	11d-To write for effective communication, i.e. scripting, technical writing, etc.	13	4.152	1.078
57	3.736	1.123	12d-To use equipment effectively.	5	4.352	.944
58	3.728	1.003	9b-To design instruments for conducting needs assessment (questionnaires, interview schedules, etc.)	38	3.476	1.104
59	3.697	1.067	11a-To prepare specifications for the production of materials.	26	3.817	1.031
60	3.643	1.054	12a-To prepare specifications for organizing the physical environment.	20	3.952	.902
61	3.437	1.170	14c-To design research studies to test existing and new instructional programs.	60	2.627	1.218
62	3.314	1.276	11e8-To produce simulations, role plays, group activities.	27	3.795	1.120
63	3.185	1.157	14e-To possess subject matter expertise in content area to be developed.	39	3.472	1.168
64	2.770	1.177	11e6-To produce pamphlets and brochures.	53	2.895	1.306
65	2.598	1.118	11e3-To produce video tapes.	48	2.984	1.241
66	2.537	1.096	11e4-To produce slide-tapes.	57	2.877	1.224
67	2.492	1.130	11e2-To produce audio tapes.	56	2.877	1.230
68	2.339	1.037	11e5-To produce multi-image visual displays.	65	2.463	1.191
69	2.279	1.070	11e1-To produce still photographs.	63	2.533	1.287
70	2.190	1.011	11e7-To produce programs for computers.	68	2.114	1.256

TABLE 10.--REPEATED MEASURES ANALYSES OF VARIANCE OF RANKED COMPETENCIES

Comparison of Competen- cies Ranked:	TEAM MEMBERS	SUPERVISORS/ MANAGERS	Comparison of Competen- cies Ranked:	TEAM MEMBERS	SUPERVISORS/ MANAGERS
	Signif. of F	Signif. of F		Signif. of F	Signif. of F
1-2	.05845	1.00000	36-37	.52020	.39993
2-3	.34803	.85840	37-38	.46663	.85621
3-4	.00052*	.87362	38-39	.28226	.85252
4-5	.85838	.00892*	39-40	.80724	.28871
5-6	.24301	.89710	40-41	.57222	.41212
6-7	1.00000	1.00000	41-42	1.00000	.62468
7-8	.14433	.43734	42-43	.70173	.52982
8-9	.59519	.83227	43-44	.24685	.67884
9-10	.81485	.73071	44-45	.76596	.59553
10-11	.73510	.65675	45-46	.18797	.30798
11-12	.62010	.88480	46-47	.66912	.88428
12-13	.68193	.53034	47-48	.55127	.60536
13-14	.16652	.78814	48-49	.95192	.90203
14-15	.12718	.89147	49-50	.51415	.76238
15-16	1.00000	.47576	50-51	.92558	.39567
16-17	.88771	.74648	51-52	.84845	.41203
17-18	.76953	.79062	52-53	.78196	.73092
18-19	.81866	.80960	53-54	.50155	.88725
19-20	.44819	.80960	54-55	.63842	.88428
20-21	.55861	.83931	55-56	.94550	.68828
21-22	.51602	.83931	56-57	.46361	.73347
22-23	.93909	.81229	57-58	.59107	.44134
23-24	.80835	.91615	58-59	.02711*	.54952
24-25	.85487	.76452	59-60	.46361	.49727
25-26	.92810	.83945	60-61	.33627	.05753
26-27	.73088	.77135	61-62	.86172	.89888
27-28	.12775	.72352	62-63	.90084	.28730
28-29	.85618	.28531	63-64	.68088	.00735*
29-30	.65435	.82216	64-65	.50851	.04047*
30-31	.71510	.59447	65-66	.89714	.72559
31-32	.66387	.42729	66-67	.46841	.64962
32-33	.59249	.69971	67-68	.07051	.01950*
33-34	.54008	.23511	68-69	.44269	.43764
34-35	.60343	.49408	69-70	.07348	.33711
35-36	.75502	.64869			

*Significant at the .05 level

among their judged importance, except among those judged to be least important. Thus, for hypotheses one and two:

H01 There is no difference in the mean ratings among the competencies listed in this study as desired entry level competencies (as perceived by those who hire and/or supervise) for team members on an instructional development team in business and industry.

H02 There is no difference in the mean ratings among the competencies listed in this study as desired entry level competencies (as perceived by those who hire and/or supervise) for supervisors/managers on an instructional development team in business and industry,

there was a difference in the rank order among the competencies listed in the study, and therefore, hypotheses one and two are rejected.

Reliability of Raters

In order to estimate the reliability of the ratings across raters, an intraclass correlation analysis was applied. The coefficient obtained indicates how well the raters discriminate between what they are rating (in this study, between the competencies), and how well they agree on any particular item (in this study, on an individual competency) that they are rating. This procedure for estimating the reliability of sets of ratings,

based upon analysis of variance, may be used "to obtain either a unique estimate or a confidence interval for the reliability of either the component ratings or their averages" (Ebel, 1951: 407). The reliability of average ratings, as shown in Table 11, was used in this study, rather than the component ratings, due to the large number of raters (too large a group to expect close agreement on a component rating, and yet it was a large enough number to give stability to the average rating.)

TABLE 11.--INTRA-CLASS CORRELATION COEFFICIENTS

<u>Set</u>	<u>Competencies</u>	<u>Reliability of Average Ratings</u>	<u>Set</u>	<u>Competencies</u>	<u>Reliability of Average Ratings</u>
1	TEM 01 to 13	.987	1	SUP 01 to 13	.933
2	TEM 14 to 19	.944	2	SUP 14 to 19	.964
3	TEM 20 to 29	.963	3	SUP 20 to 29	.918
4	TEM 30 to 44	.982	4	SUP 30 to 44	.992
5	TEM 45 to 49	.981	5	SUP 45 to 49	.973
6	TEM 50 to 57	.966	6	SUP 50 to 57	.953
7	TEM 58 to 70	.985	7	SUP 58 to 70	.975

The closer the coefficient is to 1.0, the greater the agreement of the judges. As shown in Table 11, all the coefficients in this study were quite close to 1.0.

Results of Type of Business or Industry Effect

In order to determine whether the type of business or industry made a difference in terms of the entry level competencies desired for either team members or supervisory/management personnel on an instructional development team, a two-way multivariate analysis of covariance, with size as the covariate, was conducted. The Statistical Package for the Social Sciences (SPSS) was used to do this analysis.

The four types of business or industry used in the study were:

- 1) Merchandizing (or Retail Trade)
(i.e. department stores, hotels, restaurants, sales to homes, etc.)
- 2) Service Organization
(i.e. transportation, insurance or financial institutions, newspapers, social service agencies, etc.)
- 3) Industrial Manufacturing
(i.e. automotive, steel, parts, etc.)
- 4) Scientific Manufacturing
(i.e. foods, pharmaceuticals, chemicals, electronics, computers, etc.)

The a priori planned comparisons for the main effect of type of organization were to compare and contrast responses in the following three groups:

- 1) Merchandizing versus service organizations
- 2) Industrial manufacturing versus scientific manufacturing
- 3) Merchandizing + service organization versus industrial manufacturing + scientific manufacturing.

In order to run the multivariate analyses of variance, the competencies were placed into sets corresponding to the way they were grouped on the questionnaire. For example, competencies 8a through 8m (or the first thirteen competencies) dealt with "Management of the Development Unit and Process," 9a through 9f (competencies fourteen through nineteen) with "Identifying Needs for Program Development," 10a through 10j (competencies twenty through twenty-nine) with "Planning Program Content," 11a through 11h (competencies thirty through forty-four) with "Designing and Producing Materials," 12a through 12e (competencies forty-five through forty-nine) with "Conducting Training Programs," 13a through 13h (competencies fifty through fifty-seven) with "Evaluation and Follow-Up," and 14a through 14h (competencies fifty-eight through seventy) with "General Competencies." These seven sets were used to run the analysis for team members and then for supervisors/managers. Note: Although space was allowed on the questionnaire at the end of each of the groupings for respondents to add additional competencies, so few were added that they were not included in the analysis. However, these additions can be found in Appendix F.

For hypothesis three, dealing with team members, no significant difference was found between entry level instructional development competencies in any of the seven areas for any of the three planned comparisons. (See Table 12 for results.) For hypothesis four, dealing with supervisors/managers, no significant difference was found between entry level competencies in the areas of identifying needs for program development (Set 2), planning program content (Set 3), designing and producing materials (Set 4), evaluation and follow-up (Set 6), or general competencies (Set 7) from one type of business or industry to another.

However, there was found to be a significant difference between industrial manufacturing and scientific manufacturing industries in the areas of management of the development unit and process (Set 1), and conducting training programs (Set 5). (See Table 13 for results.) Examination of the analysis results for the competencies within these two sets, as well as of the types of business or industry involved, showed that the significance resulted from competencies seven ("to acquire and manage appropriate facilities and equipment for the unit") in Set 1 and forty-eight ("to use equipment effectively") in Set 5. However, there was no main effect for either of the other two planned comparisons for these two sets of competencies.

Separate t-tests were then run to determine whether there was anything within the number of employees being different by type of organization or by function of the development unit or

TABLE 12.--SIGNIFICANT DIFFERENCES OF TEAM MEMBER ENTRY LEVEL COMPETENCIES BY TYPE OF ORGANIZATION

	SET 1 Signif. of F	SET 2 Signif. of F	SET 3 Signif. of F	SET 4 Signif. of F	SET 5 Signif. of F	SET 6 Signif. of F	SET 7 Signif. of F
Size of Unit							
(Within cells regression)	.09	.60	.15	.95	.88	.63	.79
Type of Business or Industry	.48	.55	.53	.62	.38	.58	.99
Ind. Manuf. vs Sci. Manuf.	.62	.65	.08	.96	.57	.83	.99
Merchandizing vs Service	.64	.78	.41	.53	.73	.32	.43
Merchandizing + Service vs							
Ind. Manuf. + Sci. Manuf.	.77	.64	.18	.23	.39	.37	.28
Primary Function of Unit	.85	.92	.19	.69	.39	.45	.12

TABLE 13.--SIGNIFICANT DIFFERENCES OF SUPERVISORS/MANAGERS ENTRY LEVEL COMPETENCIES BY TYPE OF ORGANIZATION

	SET 1 Signif. of F	SET 2 Signif. of F	SET 3 Signif. of F	SET 4 Signif. of F	SET 5 Signif. of F	SET 6 Signif. of F	SET 7 Signif. of F
Size of Unit	.99	.56	.16	.61	.30	.06	.08
(Within cells regression)	.95	.86	.89	.31	.55	.70	.99
Type of Business or Industry	.02*	.33	.84	.21	.04*	.70	.99
Ind. Manuf. vs Sci. Manuf.	.26	.16	.43	.48	.94	.38	.71
Merchandizing vs Service							
Merchandizing + Service vs							
Ind. Manuf. + Service	.25	.16	.43	.44	.94	.73	.31
Primary Function of Unit	.68	.24	.93	.99	.99	.97	.14

*Significant at the .05 level

there being a relationship between function of the unit and type of organization that might assist in explaining why those particular competencies were significantly different between industrial and scientific manufacturing. However, these did not shed any light. Since it wasn't a confounding of function or size of unit, it was concluded that it must be something specific to the type of organization. It was hypothesized that the cause might be the fact that persons in scientific manufacturing had some very specific scientific equipment, unique to that field, in mind when rating the competency. However, this would have to be verified by further study to be conclusive.

Therefore, except in the case of the two specific competencies discussed above, both dealing with equipment, and both for supervisors/managers, hypotheses three and four:

H03 There is no significant difference between entry level instructional development competencies in the areas of: 1) management of the development unit and process, 2) identifying needs for program development, 3) planning program content, 4) designing and producing materials, 5) conducting training programs, 6) evaluation and follow-up, and 7) general competencies desired for team members from one type of business or industrial setting to another.

H04 There is no significant difference between entry level instructional development com-

petencies in the areas of: 1) management of the development unit and process, 2) identifying needs for program development, 3) planning program content, 4) designing and producing materials, 5) conducting training programs, 6) evaluation and follow-up, and 7) general competencies desired for supervisory/management personnel from one type of business or industrial setting to another, are supported by this study.

Results of Primary Function of Development Unit Effect

The same two-way multivariate analyses of covariance described under Results of Type of Business or Industry Effect were used to determine whether the primary function of the development unit was responsible for a significant difference between the competencies. The three types of primary function used in the study were:

- 1) Training (to improve performance on present job, or with new hires)
- 2) Education (to improve competence for specific higher position; upward mobility)
- 3) Development (to prepare employee for movement in organization as it grows and changes).

Since the number of persons checking either education or development as the primary function (7.5 percent and 4.7 percent respectively--see Tables 1-3) were so small (8 and 5 persons respectively, as compared to 94 persons--or 87 percent--for training as the primary function), these two categories were collapsed into one category to contrast with training. No statistical significance was found for primary function of the development unit. Thus, hypotheses five and six:

H05 There is no significant relationship between entry level instructional development competencies in the areas of: 1) management of the development unit and process, 2) identifying needs for program development, 3) planning program content, 4) designing and producing materials, 5) conducting training programs, 6) evaluation and follow-up, and 7) general competencies desired for team members and the principal function (training, education, or development) of the instructional development, training, or human resource development unit.

H06 There is no significant relationship between entry level instructional development competencies in the areas of: 1) management of the development unit and process, 2) identifying needs for program development, 3) planning program content, 4) designing and producing materials, 5) conducting training programs, 6)

evaluation and follow-up, and 7) general competencies desired for supervisory/management personnel and the principal function (training, education, or development) of the instructional development, training, or human resource development unit, are supported by this study.

Results of Size of the Development Unit Effect

The same two-way multivariate analysis of variance described under Results of Type of Business or Industry Effect was used to determine whether the size of the instructional development unit was responsible for a significant difference between the competencies. Since size was indicated in interval units, and because it was thought that the number of employees might affect the competencies desired, size was used as the covariate in the analysis. However, there was no significant relationship between the size of the unit (the number of employees) and the competencies desired. It should be pointed out, though, that "one-person departments" were eliminated from the study by design, and a study contrasting such departments with the ones in this study could possibly yield different results.

Thus, hypotheses seven and eight:

H07 There is no significant relationship between entry level instructional development competencies in the areas of: 1) management of the

development unit and process, 2) identifying needs for program development, 3) planning program content, 4) designing and producing materials, 5) conducting training programs, 6) evaluation and follow-up, and 7) general competencies desired for team members and the size of the instructional development, training, or human resource development unit.

H08 There is no significant relationship between entry level instructional development competencies in the areas of: 1) management of the development unit and process, 2) identifying needs for program development, 3) planning program content, 4) designing and producing materials, 5) conducting training programs, 6) evaluation and follow-up, and 7) general competencies desired for supervisory/management personnel and the size of the instructional development, training, or human resource development unit,

are supported by this study.

Summary

Data was collected and analyzed in order to address four major areas of concern: 1) the determination of the most important competencies for two entry level positions, 2) the determination of whether type of business or industry was an

important factor in rating the competencies, 3) the determination of whether principal function of the development unit influenced the choice of competencies, and 4) the determination of whether size of the development unit was an important variable regarding the competencies.

Questionnaires were mailed to three hundred members of the Senior Trainers interest group of the American Society for Training and Development. Responses were received from 162 participants (54 percent). Data were analyzed from 127 of the responses received.

As to type of organization, sixteen (or 12.6 percent) of the respondents represented merchandizing, fifty-nine (or 46.5 percent) represented service organizations, twenty-five (19.6 percent) represented industrial manufacturing, and twenty-seven (21.3 percent) represented scientific manufacturing.

In terms of primary function of the development unit, 87 percent of the respondents ranked training as the primary function of their unit. Education was rated as the primary function by 7.5 percent, with 4.7 percent reporting development as their primary function.

The size of the development unit ranged from one to ten thousand employees, with the median being 6.5 employees. The number of developers supervised by the respondents varied from one to forty, with the average being 5.7 persons; the median was 3 persons.

A difference was found in the rank order of the competencies, therefore, hypotheses one and two were rejected. Repeated

measures analyses of variance revealed statistical significance for the higher ranked competencies (numbers one through three for team members, and one through four for supervisors/managers), as well as for a few (58th for team members; 63rd, 64th, and 67th for supervisors/managers) of the competencies toward the bottom of the lists. However, it would appear that for a majority of the competencies below those ranked the highest three or four, there was no significant difference in importance as judged by the respondents.

An intraclass correlation analysis indicated that the raters were able to discriminate well between what they were rating (between the competencies), as well as how well they agreed on any particular item (on an individual competency).

Multivariate analysis of covariance, with size as the covariate and a priori planned comparisons for the main effects of type of organization, primary function of the development unit and size of the development unit, revealed no statistical significance, except in terms of the working with equipment in the scientific manufacturing group. Thus, hypotheses three through eight were supported by the study.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The purpose of this chapter is to summarize the research problem, methodology and procedures, and results of this study. On the basis of these findings, general conclusions and recommendations are stated.

Summary

Demands for accountability and relevance in education and training have led to increased emphasis on the competence of practitioners in a number of professions. Competency-based instruction, with its goal of mastery of the material by all qualified learners, in spite of their differences in entry skills and abilities, has been one result of this emphasis. Another result is the use in many professions of competencies to measure the professional effectiveness of persons within the field, and as such, to judge whether the standards of a profession are being upheld. As in other professions, persons in instructional development have been concerned with identifying the most appropriate competencies for practitioners in that field.

The primary purpose of this study was to identify the most important entry level instructional development (ID) competencies required in a variety of business and industry settings, as perceived by those responsible for hiring and/or supervising the

instructional developers. Recognizing that each organization would have unique characteristics and requirements, it was the objective of this study to identify common entry level competencies that were considered essential for team members as well as for persons in management or supervisory positions in an instructional development, training, or human resource development unit. The significance of this study is that it will assist academic institutions in preparing students who are interested in going into business or industrial settings. The study should also be of value to the businesses and industries as a selection guide, as they will have a better idea of what skills to expect from ID graduates.

Null research hypotheses were formulated to investigate which competencies (the dependent variables in the study) were seen as the most important for two entry level positions on development teams, and to investigate whether type of organization, principal function of the development unit, and size of the development unit (the independent variables) were important variables in the competencies desired for either of these two entry level positions. The four major limitations of the study were: 1) that it was a survey, and as such depended on subjective perceptions of respondents; 2) the sample was drawn from members of only one national organization (ASTD) and therefore looked at a selected group in business and industry; 3) information was requested from those who hire and/or supervise rather than from those who actually perform the work; and 4) the researcher chose not to study the areas of educational, health

care, military or governmental agencies, which also employ instructional developers.

The review of recent literature assisted in forming a basis and impetus for the study. The concepts of competence and competency-based education were explored and discussed, as were the movement of instructional developers into business and industry, the emergence of human resource development as an important professional activity, and the importance of understanding basic considerations about the adult as a learner. Proceedings of various meetings and reports of previous studies were examined and utilized in formulating the research questions and hypotheses and to generate the list of competencies used.

A sample size of 300 was randomly chosen from the approximately 2,850 members of the Senior Trainers interest group of the American Society for Training and Development. Each participant was asked demographic data regarding the name of the organization of the respondent, the principal product/service offered, the type of organization (indicated by a check mark next to one of the choices of: merchandizing, service organization, industrial manufacturing or scientific manufacturing), a rank ordering of three possible principal functions of the instructional development or training development unit (training, education, and development), the number of employees in the unit, the number of developers supervised by the respondent, and the primary responsibility of the respondent in the training development function. They were then asked to rate the importance of the seventy competencies according to a five point Likert

type scale (from "essential" to "of no importance"). Through the initial mailing and three follow-ups, 162 or 54 percent of the questionnaires were returned. Of the 162 returns, 127 or 43 percent, were useable for the analysis of data in the study.

The data was analyzed by tabulating the mean for the overall importance of each competency, so as to rank-order the entire list. Repeated measures analyses of variance were then conducted to determine if any differences between the means were statistically significant. An intraclass correlation was used to estimate the reliability of ratings across raters. In addition, a two-way multivariate analysis of covariance, with unit size as the covariate and a priori planned comparisons for the main effects of type of organization and function of unit, was computed.

Conclusions

Conclusion 1: Certain competencies were rated as more important than the other competencies.

Although the means computed for the various competencies were all quite close to each other and thus did not differentiate greatly between the competencies, it was important to note that at least the first (top) three competencies for team members, and the top four for supervisors/managers did show statistical significance. Thus, these three and four competencies, respectively, were the more important ones as viewed by the respondents. There was then a large "middle" group of competencies, with statistical significance not found again until to-

wards the bottom of the list (fifty-eighth competency for team members; sixty-third for supervisors/managers.) Thus, these latter competencies can be considered as the least important competencies, as viewed by the respondents.

Conclusion 2: The highest ranked competencies for both groups dealt with interpersonal communication skills.

The highest ranked competencies dealt with interpersonal communication type skills (listening effectively, attitude formation, adapting to differing situations, establishing communication among staff members, and establishing credibility with the group), key skills to possess for almost any occupation. These results were especially similar to those reported by Deden-Parker (1981) in her study, and also somewhat similar to the Pinto/Walker study (1978) results.

Conclusion 3: There was a difference in the rating of the various competencies for team members as compared to the ratings for supervisors/managers.

Although interpersonal skills rated high on both lists, the other competencies did vary according to whether they were ratings for team members or for supervisors/managers. The other higher ranked competencies for team members dealt with applying adult learning concepts, using equipment effectively, developing objectives, conducting group presentations, identifying appropriate presentation strategies, using evaluation data for program revision, identifying audience characteristics, and describing prerequisite skills; whereas, the other higher ranked competencies for supervisors/managers dealt with an awareness of corporate goals, communicating with other sections of the organiza-

tion, preparing long and short term goals, administering budgets, evaluating the effectiveness of hired consultants, determining cost benefits, and establishing program priorities. That developmental skills are emphasized more for team members and administrative skills more for supervisors/managers also is supported by the ratings for the competencies at the bottom of the lists for each group. The less important competencies for team members dealt with preparing long and short term goals, locating outside consultants, designing research studies, mediating differences among staff, producing still photographs and multi-image displays, coordinating activities of the development unit, acquiring and managing facilities and equipment, supervising hired outside consultants, producing programs for computers, administering budgets, and establishing staffing patterns. The less important competencies for supervisor/managers had to do with preparing production specifications; preparing specifications for organizing the physical environment; designing research studies; producing simulations, role plays, and group activities; possessing subject matter expertise; and producing pamphlets and brochures, video tapes, slide-tapes, audio tapes, multi-image displays, photographs, and programs for computers. (It is interesting to note, however, that designing research studies and producing still photographs, multi-image displays, and programs for computers are all low on both lists.)

Conclusion 4: Certain competencies appeared among the lowest ranked competencies for each group.

Just as there were certain competencies that ranked very

highly at the top of each list, there were certain competencies that fell towards the bottom of each list. These competencies dealt with designing research studies and producing still photographs, multi-image displays, and programs for computers. Evidently these skills were not viewed by the respondents as being particularly important for either team members or supervisors/managers.

Conclusion 5: In this study, type of organization, function of the development unit, and size of the development unit were not important variables in determining the desired competencies, except with regard to equipment in scientific manufacturing organizations.

Statistical analyses supported the suspicions that the competencies desired for team members and supervisors/managers were not affected by type of organization, function of the development unit, or size of the development unit, with the possible exception of scientific manufacturing industries. Further study could determine whether knowledge of scientific equipment is important and necessary in those industries; otherwise, the competencies are not significantly different across the types of organizations, or affected by function or size of the development unit. Similar conclusions across occupational lines were drawn by Streit (1979) in his study.

The congruence of the above findings with those reported by the various other studies done over several years, suggests that the present findings have validity and generalizability over different sites.

Recommendations

Keeping in mind the limitations of the study: 1) that it was a survey, and as such depended on subjective perceptions of respondents; 2) the sample was drawn from members of only one national organization (ASTD) and therefore looked at a selected group in business and industry; 3) information was requested from those who hire and/or supervise rather than from those who actually perform the work; and 4) the researcher chose not to study the areas of educational, health care, military or governmental agencies, which also employ instructional developers, the researcher made the following recommendations regarding the implications of the study:

(1) That this list of seventy competencies be used by academic preparation programs in planning curricula and advising and guiding students. This recommendation is based on the following reasons:

(a) This list seems to be fairly comprehensive and close to exhaustive, especially since few respondents added competencies to the list. (And examination of those that were added shows that in several cases the addition was basically a rewording of either a previously stated competency or of a competency that appeared later in the questionnaire. Several others were very situation-specific items that were added.)

(b) The competencies used in this study were carefully selected based on the previous work of others in past studies or committee work. Thus, the competencies should represent the most important ones.

(c) That the competencies are for the most part all considered to be important ones is evidenced by the high ratings given to most of the competencies. (Approximately 91% of the team member competencies had a mean of 2.5 or above, and over 94% of the supervisor/manager competencies had a mean of 2.5 or above.)

(d) The results of the study are consistent with results reported in previous studies.

(2) That academic preparation programs place a strong emphasis on the development of interpersonal communication skills, management skills, and the concepts of adult learning. Since competencies in these areas ranked so high on the list, not only in this but in previous studies, emphasis should be placed on these skills as well as technical instructional development skills.

(3) That academic preparation programs and business and industry personnel spend some time in determining how the various competencies will be measured. If these competencies will be used as requirements in an academic program or as a screening device in hiring by business or industry, appropriate and consistent ways for measuring such competencies will have to

be established. Consideration should be given to the development of instruments that have some validity in measuring these competencies.

(4) That although computer programming skills ranked very low on both lists of competencies, consideration should be given as to whether these are important skills for the future. The low ranking given to this competency (68th out of 70 for team members, and 70th out of 70 for supervisors/managers) in this study, and the fact that they were also at the bottom of the list in the Deden-Parker and Pinto/Walker studies should be considered from two standpoints: 1) that respondents may have been reflecting the status quo, rather than considering potentially useful or necessary skills in the future, and 2) that the competency statements may not have been clear enough to differentiate between actual programming skills (tending more towards computer science skills) and using knowledge about computers to develop computer-assisted, -aided or -managed training programs. The possibility of acquiring knowledge about computers, in anticipation of future needs, should be investigated by academic preparation programs.

(5) That it does not appear to be of paramount importance for instructional developers to possess subject matter expertise in the content area to be developed. Possessing subject matter expertise in the content area to be developed ranked fairly low (39th out of 70 for team members, 63rd out of 70 for supervisors/managers) in this study. Thus, it would appear that graduates from instructional development programs should be able to

move into any one of the types of organizations and development units without various specialized background training. The one possible exception might relate to the scientific equipment discussed in Conclusion 5.

(6) Examine areas of competencies instead of individual ones. The present study investigated seventy competencies and how they ranked one against another. A future study could take the seven basic areas under which the competencies were grouped and see how they rank in importance (the sets rather than individual competencies.) This would possibly yield results on the kinds of skills that should be learned rather than specific skills. (Domains of skills, with each domain related to another domain.)

(7) Contrast one-person development units with larger units. Since "one-person departments" were eliminated from this study, it would be interesting to contrast them and the skills required to units with more employees. Whether or not the larger departments tend towards specialization of activities could be investigated as well.

(8) Study replies from developers rather than from managers. Information in this study was requested from those who hire and/or supervise rather than from those who actually perform the work. Thus, the competencies listed by supervisors could be those viewed as ideal, or as assumed to be used, while they in fact may not be the ones used by practitioners. A future study could investigate whether responses from practitioners correspond to those given by the supervisors.

(9) Use a different technique for generating the competencies to be studied. In order to further validate the competencies in this and previous studies, it is recommended that a technique such as the critical incident technique be used. This technique, in which respondents describe effective and ineffective behaviors that have been observed as part of actual practice within a specified role, could be used to determine whether the same essential competencies are generated as in a survey where the responses essentially are limited to the answer choices printed on a questionnaire.

(10) Replicate the study with other types of organizations. For someone interested more in educational, health care, military or governmental agencies, this study could be replicated to determine whether these agencies require different competencies, and whether type of organization, function of the development unit, or size of the development unit were important variables in those organizations.

(11) Study whether competency requirements are different for masters and doctoral level graduates. A possible study that should be of interest to academic preparation programs would be to investigate whether the competencies necessary for masters level graduates vary from those required for doctoral graduates.

(12) Study the amount of formal training needed in instructional development principles and techniques. Another recommendation for further study would be to determine whether formal training in instructional development principles and techniques

really is necessary to work in business and industry in a development unit. Such a study could also study the amount of formal training possessed by persons already working in these positions.

(13) Study specific industries, especially scientific manufacturing. It is suggested that a more in-depth study be made of the manufacturing industries, especially scientific manufacturing, to determine whether they in fact do have unique requirements regarding equipment used.

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APPENDICES

APPENDIX A
SURVEY INSTRUMENT USED

INVENTORY OF ENTRY LEVEL INSTRUCTIONAL DEVELOPMENT COMPETENCIES

Purpose:

This inventory is a compilation and revision of competencies from the Business and Industry Symposium; the Pinto/Walker ASTD study; and sub-committees within the Association for Educational Communications and Technology (AECT).

- The inventory is designed to identify the most important entry level instructional development (ID) competencies required in a variety of business and industry settings.
- These competencies will be judged by those responsible for supervising (and possibly hiring) professionals to be engaged in training, educational, or developmental activities related to the human resources component of their organization.
- The data provided by this inventory will be used by planners of preservice educational programs to make decisions regarding program content.

The following items will be used to interpret the data gathered on the remaining items.

1. Name of organization: _____
2. Principal product/service offered: _____
3. Type of organization (check one):

<input type="checkbox"/> Merchandizing (or Retail Trade) (i.e. department stores, hotels, restaurants, sales to homes, etc.)	<input type="checkbox"/> Industrial Manufacturing (i.e. automotive, steel, parts, etc.)
<input type="checkbox"/> Service Organization (i.e. transportation, insurance or financial institutions, newspapers, social service agencies, etc.)	<input type="checkbox"/> Scientific Manufacturing (i.e. foods, pharmaceuticals, chemicals, electronics, computers, etc.)
<input type="checkbox"/> Other (specify) _____	
4. Principal functions of instructional development or training development unit:
(please rank order, 1-3)

<input type="checkbox"/> training (to improve performance on present job, or with new hires)
<input type="checkbox"/> education (to improve competence for specific higher position; upward mobility)
<input type="checkbox"/> development (to prepare employee for movement in organization as it grows and changes)
5. Number of employees in instructional development or training development unit: _____
6. Number of instructional developers/training developers that you supervise: _____
7. What is your primary responsibility in the training development function: _____

Directions:

Items 8-14 describe competencies related to the beginning instructional technologist or training developer. Please rate the importance of each competency as an entry level skill for both a beginning team member and for a beginning supervisor/manager in a training development unit.

For example, if you feel that the ability to administer the budget for the development unit is of little importance for a team member, but is essential for a supervisor/manager, you would mark:

	TEAM MEMBER					SUPERVISOR/MANAGER				
	Essential	Important	Somewhat Important	Of Little Importance	Of No Importance	Essential	Important	Somewhat Important	Of Little Importance	Of No Importance
To administer the budget for the development unit.	5	4	3	(2)	1	(5)	4	3	2	1

8. MANAGEMENT OF THE DEVELOPMENT UNIT AND PROCESS:

- a. To promote a favorable attitude toward training, education, and development among decision makers in the organization.
- b. To establish communication among members of the training development team.
- c. To mediate differences among staff.
- d. To communicate with other sections of the organization.
- e. To establish appropriate staffing patterns for the development unit.
- f. To coordinate activities of the development team.
- g. To acquire and manage appropriate facilities and equipment for the unit.
- h. To set time and budget parameters for projects.
- i. To administer the budget for the development unit.
- j. To arrange for the adoption of projects.
- k. To train others to function as technologists.
- l. To prepare long and short term goals for the development unit.
- m. To project future training needs of the organization.
- n. Other (specify): _____

9. IDENTIFYING NEEDS FOR PROGRAM DEVELOPMENT:

- a. To assess needs for the development of programs.
- b. To design instruments for conducting needs assessment (questionnaires, interview schedules, etc.)
- c. To interact as a consultant with clients.
- d. To establish program priorities.
- e. To analyze performance needs.
- f. To identify nature of problems, i.e. instructional, motivational, environmental
- g. Other (specify): _____

(cont'd)

	TEAM MEMBER					SUPERVISOR/MANAGER				
	Essential	Important	Somewhat Important	Of Little Importance	Of No Importance	Essential	Important	Somewhat Important	Of Little Importance	Of No Importance
a. To promote a favorable attitude toward training, education, and development among decision makers in the organization.	5	4	3	2	1	5	4	3	2	1
b. To establish communication among members of the training development team.	5	4	3	2	1	5	4	3	2	1
c. To mediate differences among staff.	5	4	3	2	1	5	4	3	2	1
d. To communicate with other sections of the organization.	5	4	3	2	1	5	4	3	2	1
e. To establish appropriate staffing patterns for the development unit.	5	4	3	2	1	5	4	3	2	1
f. To coordinate activities of the development team.	5	4	3	2	1	5	4	3	2	1
g. To acquire and manage appropriate facilities and equipment for the unit.	5	4	3	2	1	5	4	3	2	1
h. To set time and budget parameters for projects.	5	4	3	2	1	5	4	3	2	1
i. To administer the budget for the development unit.	5	4	3	2	1	5	4	3	2	1
j. To arrange for the adoption of projects.	5	4	3	2	1	5	4	3	2	1
k. To train others to function as technologists.	5	4	3	2	1	5	4	3	2	1
l. To prepare long and short term goals for the development unit.	5	4	3	2	1	5	4	3	2	1
m. To project future training needs of the organization.	5	4	3	2	1	5	4	3	2	1
n. Other (specify): _____	5	4	3	2	1	5	4	3	2	1
a. To assess needs for the development of programs.	5	4	3	2	1	5	4	3	2	1
b. To design instruments for conducting needs assessment (questionnaires, interview schedules, etc.)	5	4	3	2	1	5	4	3	2	1
c. To interact as a consultant with clients.	5	4	3	2	1	5	4	3	2	1
d. To establish program priorities.	5	4	3	2	1	5	4	3	2	1
e. To analyze performance needs.	5	4	3	2	1	5	4	3	2	1
f. To identify nature of problems, i.e. instructional, motivational, environmental	5	4	3	2	1	5	4	3	2	1
g. Other (specify): _____	5	4	3	2	1	5	4	3	2	1
	TEAM MEMBER					SUPERVISOR/MANAGER				

10. PLANNING PROGRAM CONTENT:

- a. To identify relevant audience characteristics.
- b. To describe prerequisite skills for a task.
- c. To develop objectives which specifically identify intended outcomes.
- d. To identify relevant existing resources for program development.
- e. To determine whether to use an existing program, purchase an external program, or design a new program.
- f. To identify appropriate presentation strategies for a task.
- g. To apply concepts of adult learning to program planning.
- h. To apply theories to motivate participants.
- i. To specify structural and environmental requirements for a program.
- j. To use organizational development (OD) principles and practices.
- k. Other (specify):

TEAM MEMBER					SUPERVISOR/MANAGER				
Essential	Important	Somewhat Important	Of Little Importance	Of No Importance	Essential	Important	Somewhat Important	Of Little Importance	Of No Importance
5	4	3	2	1	5	4	3	2	1
5	4	3	2	1	5	4	3	2	1
5	4	3	2	1	5	4	3	2	1
5	4	3	2	1	5	4	3	2	1
5	4	3	2	1	5	4	3	2	1
5	4	3	2	1	5	4	3	2	1
5	4	3	2	1	5	4	3	2	1
5	4	3	2	1	5	4	3	2	1
5	4	3	2	1	5	4	3	2	1
5	4	3	2	1	5	4	3	2	1
5	4	3	2	1	5	4	3	2	1
5	4	3	2	1	5	4	3	2	1
5	4	3	2	1	5	4	3	2	1
5	4	3	2	1	5	4	3	2	1
5	4	3	2	1	5	4	3	2	1

11. DESIGNING AND PRODUCING MATERIALS:

- a. To prepare specifications for the production of materials.
 - b. To make appropriate decisions regarding the use of audio or visual media.
 - c. To plan and monitor production schedules.
 - d. To write for effective communication, i.e. scripting, technical writing, etc.
 - e. To produce the following types of materials:
 - 1) still photographs
 - 2) audio tapes
 - 3) video tapes
 - 4) slide-tapes
 - 5) multi-image visual displays
 - 6) pamphlets and brochures
 - 7) programs for computers
 - 8) simulations, role plays, group activities
 - 9) other: _____
-
- f. To locate outside consultants when needed.
 - g. To supervise hired outside consultants.

[illegible]

(cont'd)

TEAM MEMBER

SUPERVISOR/MANAGER:

	TEAM MEMBER					SUPERVISOR/MANAGER				
	Essential	Important	Somewhat Important	Of Little Importance	Of No Importance	Essential	Important	Somewhat Important	Of Little Importance	Of No Importance
11. DESIGNING AND PRODUCING MATERIALS: (cont'd)										
h. To evaluate the effectiveness of hired consultants.	5	4	3	2	1	5	4	3	2	1
i. Other (specify): _____	5	4	3	2	1	5	4	3	2	1
12. CONDUCTING TRAINING PROGRAMS:										
a. To prepare specifications for organizing the physical environment.	5	4	3	2	1	5	4	3	2	1
b. To prepare specifications for the acquisition of appropriate hardware.	5	4	3	2	1	5	4	3	2	1
c. To conduct group presentations.	5	4	3	2	1	5	4	3	2	1
d. To use equipment effectively.	5	4	3	2	1	5	4	3	2	1
e. To establish credibility with the group.	5	4	3	2	1	5	4	3	2	1
f. Other(specify): _____	5	4	3	2	1	5	4	3	2	1
13. EVALUATION AND FOLLOW-UP:										
a. To gather data describing program effectiveness during developmental stages (formative evaluation).	5	4	3	2	1	5	4	3	2	1
b. To gather data to validate programs after program has been presented (summative evaluation).	5	4	3	2	1	5	4	3	2	1
c. To plan a comprehensive program evaluation process.	5	4	3	2	1	5	4	3	2	1
d. To use evaluation data for program revision.	5	4	3	2	1	5	4	3	2	1
e. To design evaluation instruments to assess the effectiveness of a program.	5	4	3	2	1	5	4	3	2	1
f. To design instruments to measure participants' accomplishments.	5	4	3	2	1	5	4	3	2	1
g. To evaluate the training development process.	5	4	3	2	1	5	4	3	2	1
h. To determine the cost benefits of training programs.	5	4	3	2	1	5	4	3	2	1
i. Other (specify): _____	5	4	3	2	1	5	4	3	2	1
14. GENERAL COMPETENCIES:										
a. To analyze development/training research data.	5	4	3	2	1	5	4	3	2	1
b. To keep abreast of current theoretical thought and research directions.	5	4	3	2	1	5	4	3	2	1
c. To design research studies to test existing and new instructional systems.	5	4	3	2	1	5	4	3	2	1

(cont'd)

TEAM MEMBER

SUPERVISOR/MANAGER

	TEAM MEMBER					SUPERVISOR/MANAGER				
	Essential	Important	Somewhat Important	Of Little Importance	Of No Importance	Essential	Important	Somewhat Important	Of Little Importance	Of No Importance
14. GENERAL COMPETENCIES: (cont'd)										
d. To consult effectively with subject matter experts.	5	4	3	2	1	5	4	3	2	1
e. To possess subject matter expertise in content area to be developed.	5	4	3	2	1	5	4	3	2	1
f. To adapt to differing situations.	5	4	3	2	1	5	4	3	2	1
g. To listen effectively.	5	4	3	2	1	5	4	3	2	1
h. To function at awareness level with the following concepts:										
1) corporate goals and objectives	5	4	3	2	1	5	4	3	2	1
2) types of business ownership	5	4	3	2	1	5	4	3	2	1
3) marketing and sales	5	4	3	2	1	5	4	3	2	1
4) production and manufacturing	5	4	3	2	1	5	4	3	2	1
5) corporate budgeting	5	4	3	2	1	5	4	3	2	1
6) profit and loss	5	4	3	2	1	5	4	3	2	1
7) other (specify): _____	5	4	3	2	1	5	4	3	2	1
i. Other (specify): _____										

May I give credit to you and your company by listing your name(s) on an acknowledgment page?

Yes ☐

No ☐

Are you interested in receiving a copy of the results of the study?

Yes ☐

No ☐

Name: _____

Company Name: _____

Address: _____

City, State: _____

ZIP CODE _____

THANK YOU!

Thank you for your time and responses. Please return the completed inventory (in the enclosed, stamped, self-addressed envelope) to:

Madeline J. Trimby, Specialist
College of Education
133 Erickson Hall
Michigan State University
East Lansing, MI 48824

APPENDIX B
FIRST COVER LETTER

APPENDIX B

MICHIGAN STATE UNIVERSITY

COLLEGE OF EDUCATION • INSTRUCTIONAL RESOURCES CENTER
133 Erickson Hall

EAST LANSING • MICHIGAN • 48824

April 16, 1981

Dear ASTD Senior Trainer:

Most companies are interested in providing training/human development programs that are effective, efficient and relevant.

My task is to identify the job skills or competencies viewed by trainers as most essential for entry level positions for instructional developers, or persons responsible for developing training programs. The results of this study should assist you in: 1) recruitment (hiring), 2) job descriptions, and 3) personnel assessment, and should also decrease on-the-job training required.

The enclosed inventory includes competencies generated by groups of trainers about what skills instructional developers should have in business and industry. I want to find out how much those who supervise developers agree or disagree. If you feel that you are not in such a position, would you give this inventory to the appropriate person in your organization? The results from these inventories will be made available to programs that train instructional developers, so that graduates will more closely meet your needs.

The inventories have a code number that will be used for follow-up procedures, but data reported out of this study will not be tied to individual names or organizations. However, I would like to give credit to you for your help by listing your name and your company's name in an acknowledgment list in my final report. Therefore, please check the appropriate box at the end of the inventory to indicate whether or not you wish that information to be included. Please also indicate whether you would like a copy of the results of the study.

At first glance the inventory may look long, but pilot tests have shown that it takes about 15 minutes to finish. Please use the enclosed stamped, self-addressed envelope to return the inventory. It would be very helpful to me if I could receive your response by April 28.

Thank you for your time and cooperation.

Sincerely,

Madeline J. Trimby

Madeline J. Trimby
Specialist, Dean's Office
(517) 355-1752

Research Adviser,

Castelle G. Gentry

Castelle G. Gentry, Director
Educational Systems Development
(517) 353-0726

APPENDIX C
SECOND COVER LETTER

APPENDIX C



133 Erickson Hall

EAST LANSING • MICHIGAN • 48824

May 18, 1981

Dear ASTD Senior Trainer:

Perhaps you have misplaced or forgotten to complete the inventory you received from me several weeks ago. It is extremely important to me that I receive these inventories as soon as possible. Consequently, I am enclosing another copy of the inventory to facilitate the return of your opinion regarding the competencies.

Your help is needed in determining the most important competencies for entry level instructional developers, or persons responsible for developing training programs. The inventory takes only about 15 minutes to complete and yet your response is very important to the success of the study.

Your time and cooperation will be greatly appreciated.

Sincerely,

Madeline J. Trimby

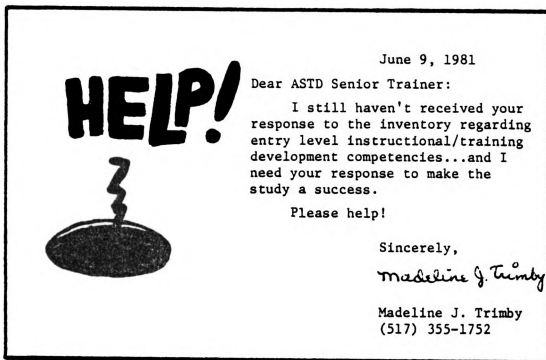
Madeline J. Trimby
Specialist, Dean's Office
(517) 355-1752

Research Adviser,

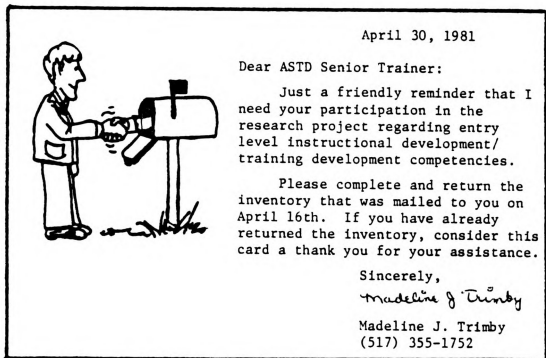
C. G. Gentry

Castelle G. Gentry, Director
Educational Systems Development
(517) 353-0726

APPENDIX D
POSTCARDS SENT



D-1: First Reminder Postcard



D-2: Final Reminder Postcard

APPENDIX E
PARTICIPANTS WILLING TO BE CREDITED
FOR RESPONDING

APPENDIX E

PARTICIPANTS WILLING TO BE CREDITED FOR RESPONDING

<u>Name of Organization:</u>	<u>Name of Person Responding:</u>
Advanced Systems, Inc.	Odin Westgaard
Advanced Technology Laboratories	Meredith L. Ward
AM Multigraphics	Kayetta Slocum
Amdahl Corporation	Linda L. Thompson
American Express	Dennis J. Stewart
American Manufacturing Company of Texas	James B. Frazier
American Savings Bank	Frederick J. Collett
Arby's, Inc.	Andrew F. Arvay, III
Arthur Andersen and Company	Maurice Coleman
Audio Visual Results	Lee Hancock
Avco Aerostructures	Roxanne P. Willert
Berol Corporation	Dayle E. Rado
Blue Cross/Blue Shield of Mich.	Mary Ann Motyka
Bobby McGee's USA, Inc.	Mari A. Faistenhammer
Boehringer Ingelheim, Ltd.	K.D. Wichmann
Boise Cascade Corporation	Ann Ritter
Boston Gas Company	Susan Horwitz
Burns International Security Services, Inc.	Craig A. Bussey
H.E. Butt Grocery Company	Andrea Patton
Central Illinois Light Company	Harold W. Wissink
CF Industries	William G. Eppel
Citicorp Credit Services, Inc.	Mary Ann Allison
Clearfield Job Corps	John W. Jeppson
Connecticut General Corporation	I. Gail Howard
Conoco, Inc.	H.W. Swaim
Creative Interchange	Arthur E. Worth
Creative Universal	Fredrick W. Wicks
Dayton's Company	Mitch Hammer
Detroit Bank Corporation	Linda Conat
Domino's Pizza, Inc.	Donald E. Dufek
Dover Corporation/Elevator Div.	Joe Jenkins
Dow Chemical, USA	Willard B. Maxwell
Eastern Air Lines, Inc.	Lewis W. Lash
Eastman Kodak	Mabelle I. Parrinello
Electronic Data Systems Corporation	Bob Hunsberger
Electronics Association of Calif.	Erik R. Lindstedt
Elk Corporation	Forrest Reynolds
Employers Mutual Companies	Charles Summers
EMS	Ken Haff
Entex, Inc.	Geralyn Burke
Equitable Savings	Lynn Hatfield
Factory Mutual Engineering	Ellen Gold

APPENDIX E - Continued

<u>Name of Organization:</u>	<u>Name of Person Responding:</u>
Farmland Industries	John Griffith
Federal Express	John R. Herbek
Federal Reserve Bank	W.L. Thompson
First National Bank Atlanta	Dianne Huckins
First National Bank Cincinnati	Robert E. Schultz
Fluor Engineers & Constructors, Inc.	Enrique A. Cancino
Fox & Jacobs	John G. Peiser
General Dynamics/Electric Boat Div.	E.A. Sylvia, Jr.
General Foods Corporation	Lloyd K. Davis
General Motors Assembly Division	William Herlihy
General Signal Corporation	William R. Favro
General Telephone Co. of Illinois	Alan J. Wentz
G.F. Business Equipment/Crenlo Div.	Gene Campbell
Gilbarco, Inc.	George A. Gates
Gimbels Midwest	Gail E. Stoddard
Grain Terminal Association	Irene Molitor
Harley Davidson Motor Company	James Kasper
Home Owners Warranty Company	Delores Eldridge
Informatics, Inc.	Susan Gould
ITT North Electric	James A. Cook
Kaiser Aluminum	Mike Spalding
Levi Strauss International	Betty Martin-Lewis
Los Angeles Times	Jeff Fink
Mannesmann Tally	Sue Vitale
Merck, Sharp & Dohme	Dana Gaines
Merrill Lynch	Melissa Leifer
Miles Lab., Inc./Ames Div.	J.A. Jackson
3M Company	Milton Fronsoe, Jr.
Mohawk Parthways Girl Scout Council	Sally A. Bouton
Moore Business Systems	Kirk Asplin
Morgan Guaranty Trust Company	Nicholas J. Scalzo
Morrison-Knudsen Company, Inc.	Bruce D. Zimmerman
National Bank of North America	Jamie B. Telegadis
Naus & Newlyn, Inc.	Vernon L. Hamm, Jr.
NCTI	Thomas Macklin
New Wales Chemicals, Inc.	Richard T. Barnes, Jr.
NL Career Development Center/NL Industries	D.A. Kirsner
NL Chemicals/NL Industries	Dougald L. MacMillan
NTS Research Corporation	Richard J. Lamberski
Organizational Systems, Inc.	Victor M. Kline
Payco American Corporation	Jack Pachuta
Pay'n Save Corporation	Gregory Diven
Philadelphia Life Insurance Company	W.H. Turley
Pitney Bowes, Inc.	Charles H. Kinney
Pizza Inn, Inc.	Bill Curley
Ponderosa System, Inc.	William T. Pace
PPG Industries	Eli Vega
Public Service Indiana	Gail A. Morrison

APPENDIX E - Continued

<u>Name of Organization:</u>	<u>Name of Person Responding:</u>
Public Service Company of N.H.	Gary N. Arnold
Quality Control Circles, Inc.	Roma Rieker
Quiktrip Corporation	Ruth Crane
Rapidata, Inc.	JoAnn C. Dixon
Raytheon Company	R.A. Kaplowitz
Resorts International/Hotel Casino	Gilbert H. Hatcher
Shirlee Manufacturing Company	Thomas R. Koch
Shop-n-Go Markets	Stan Helmkamp
Southeast Banking Corporation	Pidge Diehl
Southern Railway System	Joseph L. Gelmini
Stouffer Foods Corporation	Joseph Girolamo
Taco Bell	James Baron
Target Stores	Jari Holland
Telemedia	Michael I. Hirsch
Tenneco Oil Company/P&M	R.H. Woods
Thiokol/Wasatch Div.	William E. Jones
Thompson Recruitment Advertising	Linda Green
United California Bank	-----
United Information Systems/United Telecom	Lyn Barrie
United Research Company	Martin C. Becker
Union Carbide Corporation	J.H. Victorson
Utah International, Inc.	William G. Aboud
Wang Laboratories, Inc.	John R. Grausam
Westinghouse Electric	Robert T. Scott
Wheat-First Securities	R. Wendell Williams
Williams Brothers Engineering	Leigh Flowe
Zale Corporation/Zale Div.	Bob Williams
Zapata Corporation	Robert A. Jones

APPENDIX F
ADDITIONAL COMPETENCIES SUGGESTED
BY RESPONDENTS

APPENDIX F

ADDITIONAL COMPETENCIES SUGGESTED BY RESPONDENTS

(Note: The following competencies were added by respondents to the sections indicated, in the blank marked "Other:_____." These headings correspond to the section on the questionnaire by the same name.)

8. MANAGEMENT OF THE DEVELOPMENT UNIT AND PROCESS:

- a. To demonstrate tranquility during adversity.
- b. To establish evaluative measures of unit/program effectiveness.
- c. To obey orders to the letter.
- d. To understand "line" needs.
- e. To develop a replacement.
- f. To establish career development goals and objectives of trainers.
- g. To provide advance training opportunities for the development team.
- h. To prepare long and short term goals for individual staff members.

9. IDENTIFYING NEEDS FOR PROGRAM DEVELOPMENT:

- a. Fluency in Spanish, Lao-Vietnamese, Farsi.
- b. Recognizing the difference in "informed" input and casual remarks or guesses.
- c. To communicate program needs to manager from team member's information and data.
- d. To stay abreast of program developments.

10. PLANNING PROGRAM CONTENT:

- a. Communicate with line--other staff.
- b. Additional languages skills in reading and writing.
- c. Technical (subject) knowledge.
- d. Apply concepts of behavior modification to course.
- e. Provide flow line for field with corporate departments.
- f. To build in several options for program presentation.

APPENDIX F - Continued

11. DESIGNING AND PRODUCING MATERIALS:

- a. To produce course workbooks and other handouts.
- b. To be able to produce A no. 1 videotape materials--shoot and edit.
- c. Willing to work 3 shifts--Saturdays & overtime.
- d. To produce work on flipcharts.
- e. To produce instructor guides or participant written materials.
- f. Conduct follow-ups and evaluations.
- g. Train supervisors and managers to do 1 through 8. (Refers to Competencies 11e1 through 11e8--having to do with producing the various types of materials)

12. CONDUCTING TRAINING PROGRAMS:

- a. Be punctual at all times--no exceptions, no excuses.
- b. To follow schedules and agenda.
- c. To establish appropriate communication in relation to training program.

13. EVALUATION AND FOLLOW-UP:

- a. Communicate results to management.
- b. To observe accurately the students progress.
- c. To use cost data for budget forecasting/requests.

14. GENERAL COMPETENCIES:

- a. Loyalty to company.
- b. Function at awareness level with concepts of free enterprise economics.
- c. Function at awareness level with concepts of contract vs. non-contract work groups.

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