A survey of business and industrial training team supervisors and members was undertaken in order to identify the most important entry-level competencies required of instructional development specialists in a variety of business and industrial settings. The study sample of 300 was randomly selected from the approximately 2,850 members of the Senior Trainers interest group of the American Society for Training and Development (ASTD). Participants were requested to rank a list of instructional development competencies. Survey data were analyzed by tabulating the mean for the overall importance of each competency so as to rank order the entire list. The results indicated that: (1) certain competencies were consistently rated as more important than other competencies; (2) interpersonal skills were the highest-ranked competencies; (3) instructional team members differed from instructional team supervisors in their ranking of competencies; (4) certain competencies were consistently lowest rated; and (5) the type and size of organization and the function of an organization's development unit were not important variables in determining desired competencies. A set of 13 recommendations based on the study are presented. Two ranked lists of competencies and a list of participants are provided as well as a 29-item bibliography. (Author/JL)
ENTRY LEVEL COMPETENCIES FOR INSTRUCTIONAL DEVELOPERS

Presented by: Madeline J. Trimby, PhD
President, Dynamic Directions

Association for Educational Communications and Technology
Annual Convention
Tuesday, May 4, 1982
Dallas, Texas

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TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."
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 the study on which this paper is based 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 (team member and supervisor/manager) 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. (See Appendix for those participants willing to be credited for responding. List is arranged alphabetically by organization, and contains the name of the organization and the name of the person who responded.)

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 three persons.

The data was analyzed by tabulating the mean for the overall importance of each competency, so as to rank-order the entire list. A difference was found in the rank order of the competencies. 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 working with equipment in the scientific manufacturing group.

Conclusions

The following conclusions were drawn from studying the data collected in the study:
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 towards 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 organization, 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 prepara-
tion programs.

(5) That it does not appear to be of paramount importance for
instructional developers to possess subject matter expertise in the con-
tent 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 Conclu-
sion Five.

(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.
APPENDIX

PARTICIPANTS WILLING TO BE CREDITED FOR RESPONDING

Name of Organization:
Advanced Systems, Inc.
Advanced Technology Laboratories
AM Multigraphics
Amdahl Corporation
American Express
American Manufacturing Company of Texas
American Savings Bank
Arby's, Inc.
Arthur Andersen and Company
Audio Visual Results
Avco Aerostructures
Berol Corporation
Blue Cross/Blue Shield of Mich.
Bobby McGee's USA, Inc.
Boehringer Ingelheim, Ltd.
Boise Cascade Corporation
Boston Gas Company
Burns International Security Services, Inc.
H.E. Butt Grocery Company
Central Illinois Light Company
CF Industries
Citicorp Credit Services, Inc.
Clearfield Job Corps
Connecticut General Corporation
Conoco, Inc.
Creative Interchange
Creative Universal
Dayton's Company
Detroit Bank Corporation
Domino's Pizza, Inc.
Dover Corporation/Elevator Div.
Dow Chemical, USA
Eastern Air Lines, Inc.
Eastman Kodak
Electronic Data Systems Corporation
Electronics Association of Calif.
Elk Corporation
Employers Mutual Companies
EM
Entex, Inc.
Equitable Savings
Factoy Mutual Engineering

Name of Person Responding:
Odin Westgaard
Meredith L. Ward
Kayetta Slocum
Linda L. Thompson
Dennis J. Stewart
James B. Frazier
Frederick J. Collett
Andrew F. Arvey, III
Maurice Coleman
Lee Hancock
Roxanne P. Willert
Dayle E. Rado
Mary Ann Motyka
Mari A. Faistenhammer
K.D. Wichmann
Ann Ritter
Susan Horwitz
Craig A. Bussey
Andrea Patton
Harold W. Wissink
William G. Eppel
Mary Ann Allison
John W. Jeppson
T. Gail Howard
H.W. Swaim
Arthur E. Worth
Fredrick W. Wicks
Mitch Hammer
Linda Conat
Donald E. Dufek
Joe Jenkins
Willard B. Maxwell
Lewis W. Lash
Mabelle I. Parrinello
Bob Hunsberger
Erik R. Lindstedt
Forrest Reynolds
Charles Summers
Ken Haff
Geralyn Burke
Lynn Hatfield
Ellen Gold
### APPENDIX - Continued

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

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<th>Name of Organization</th>
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<td>Public Service Company of N.H.</td>
<td>Gary N. Arnold</td>
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<td>Quality Control Circles, Inc.</td>
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<td>Ruth Crane</td>
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<td>Rapidata, Inc.</td>
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<td>Resorts International/Hotel Casino</td>
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<td>Shirlee Manufacturing Company</td>
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<td>Shop-n-Go Markets</td>
<td>Stan Helmkamp</td>
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<td>Southeast Banking Corporation</td>
<td>Pidge Diehl</td>
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<td>Southern Railway System</td>
<td>Joseph L. Gelmini</td>
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<td>Stouffer Foods Corporation</td>
<td>Joseph Girolamo</td>
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<td>Taco Bell</td>
<td>James Baron</td>
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<td>Target Stores</td>
<td>Jari Holland</td>
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<td>Telemedia</td>
<td>Michael I. Hirsch</td>
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<td>Tenneco Oil Company/P&amp;M</td>
<td>R.H. Woods</td>
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<td>Thiokol/Wasatch Div.</td>
<td>William E. Jones</td>
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<td>Thompson Recruitment Advertising</td>
<td>Linda Green</td>
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<td>United California Bank</td>
<td>Lyn Barrie</td>
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<td>United Information Systems/United Telecom</td>
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<td>United Research Company</td>
<td>Martin C. Becker</td>
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<td>Union Carbide Corporation</td>
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<td>Utah International, Inc.</td>
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<td>Wang Laboratories, Inc.</td>
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<td>Westinghouse Electric</td>
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<td>Wheat-First Securities</td>
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<td>Zale Corporation/Zale Div.</td>
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<tr>
<th>Rank</th>
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<th>Competency</th>
<th>Rank</th>
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<td>1</td>
<td>4.840</td>
<td>.410</td>
<td>14a-To listen effectively.</td>
<td>3</td>
<td>4.823</td>
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<td>2</td>
<td>4.736</td>
<td>.494</td>
<td>14f-To adapt to differing situations.</td>
<td>6</td>
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<td>.570</td>
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<td>3</td>
<td>4.680</td>
<td>.655</td>
<td>12e-To establish credibility with the group.</td>
<td>13</td>
<td>4.584</td>
<td>.825</td>
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<td>4</td>
<td>4.357</td>
<td>.843</td>
<td>10g-To apply concepts of adult learning to program planning.</td>
<td>39</td>
<td>4.129</td>
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<td>5</td>
<td>4.352</td>
<td>.944</td>
<td>12d-To use equipment effectively.</td>
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#### FOR SUPERVISORS/MANAGERS

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<td>9e-To analyze performance needs.</td>
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### TABLE 9.—Continued

#### FOR SUPERVISORS/MANAGERS

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<td>37</td>
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<td>10g-To apply concepts of adult learning to program planning.</td>
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<td>13b-To gather data to validate programs after program has been presented.</td>
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#### FOR TEAM MEMBERS

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TABLE 9.--Continued

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Division of Instructional Development/AECT. "Competencies for the Instructional Development Practitioner," Fall 1980. (Document sent to members for evaluation.)


Ingalls, John D. "Throw Away Your Job Descriptions and Write Competency Models," Training/HRD, April 1979, 16(4), 32-34.


