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EDITORIAL

This issue of DEOSNEWS concludes a series begun earlier in response to a request by Dr. Connie Dillon of the University of Oklahoma who contacted us about publishing an annotated bibliography developed by graduate students in one of her classes. We welcomed the opportunity to provide our readers with this research-based resource. However, space limitations prohibited us from publishing the entire work in one issue. The students' original annotated bibliography covered six topics, four of which have been published previously. The first two subject areas, Technology and Design and Learners and Learning, were published in Volume 6 Number 5 of DEOSNEWS. The second topics, Learner Support and Faculty Issues, were published in Volume 7 Number 3 (instructions for retrieving back issues appear at the end of this article). The introduction to the complete bibliography and an abridged version (minimally edited) of the final two subject areas, Administration and Organization and Policy, are presented in this issue of DEOSNEWS. We acknowledge the efforts of the students in developing this resource and are grateful to their mentor for bringing this work to our attention.

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A REVIEW OF DISTANCE EDUCATION RESEARCH:

AN ANNOTATED BIBLIOGRAPHY APPROACH

by

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INTRODUCTION

This annotated bibliography has been prepared with the hope that researchers and practitioners in the field of Distance Education will find here a useful review of articles that are currently appearing in refereed journals. Our investigation of distance education literature focused on the following topics: Technology and Instructional Design; Learners and Learning; Learner Support; Faculty; Administration and Organization; and Policy.

The methodology was developed from a Research and Theory class led by Dr. Connie Dillon at the

University of Oklahoma. Students were master's and doctoral level students. A research critique guide was developed in the class and students did literature searches on the topics identified above. It is sincerely hoped that this material will prove to be useful and valuable to others as it proved to be to those who presented there annotated bibliographies. Gratitude is expressed to the authors of the articles which were reviewed; they served as "instructors " in content and as a laboratory for the class.

TOPIC 5: ADMINISTRATION AND ORGANIZATION

PUGLIESE, R. (1994). Telecourse persistence and psychological variables. *The American Journal of Distance Education* 8(3): 22-39.

Research Hypotheses: This study was designed to investigate the predictive power of measures of loneliness, communication apprehension, communication competence, and locus of control in relation to withdrawal and withdrawal/failure in telecourses (televised instruction). Ten hypotheses were provided regarding loneliness, dyadic communication, social confirmation, social experience, and locus of control.

Population/Sample: Subjects were urban commuter students from Rockland Community College (New York). Demographic information was provided about the population. A total of 306, or 39%, of 580 students were successfully contacted for this study. Attempts were made to contact both persisting and withdrawing students.

Research Design and Data Analysis: A telephone survey method was used since students do not meet on campus for classes except on a voluntary basis. Higher response rates are experienced with telephone surveys than mailed surveys. The survey was conducted at the end of Fall semester 1989. The following was used for the survey: Loneliness: Revised UCLA Loneliness Scale Interpersonal Communication Apprehension: Personal Report of Communication Apprehension 24 (PRCA-24). Communication Competence: Communication Adaptability Scale Self Report (CAS-SR) Locus of Control: Internal-External Locus of Control Scale - short version.

A discriminant analysis was performed to distinguish persisters from non-persisters. The dependent variable was analyzed by two behaviors, withdrawal and withdrawal/failure. The five independent variables were social experience, social confirmation, dyadic apprehension, loneliness, and locus of control. Tables were provided showing the following for both withdrawal and withdrawal/failure: Predicted cases Standardized canonical discriminant function coefficients. Variables ordered by size of correlation within function Pearson correlation coefficients discriminant analysis: a procedure relation to regression. It uses a number of predictor variables to classify subjects into two or more distinct groups such as dropouts versus persisters. The procedure results in an equation or discriminant function where scores on the predictors are multiplied by weights to permit classification of subjects into groups. With 3 or more groups, discriminant analysis goes beyond multiple regression. Computations and interpretations are complex. Pearson: Used with interval or ratio scales to find relationship. Perfect positive correlation is 1 and perfect negative correlation is -1. Little relationship - it will be near 0. Indicates relationship, not causation. Predicts groups, not individuals.

Findings: The five independent variables correctly classified 34.56% of subjects with withdrawal/failure as the dependent variable and 27.64% with withdrawal as the dependent variable.

The results are "modest", as described by the author, since a chance finding would result in 25% correctly classified. Based on the results, all 10 hypotheses were rejected. None of the independent variables was significantly related to withdrawal and withdrawal/failure. The opposite has been found to be true in studies of residential institutions and a tentative link has been found in urban/commuter institutions.

TELECOMMUNICATIONS AND INFORMATION INFRASTRUCTURE ASSISTANCE PROGRAM. 1995. Oklahoma Department of Commerce and the Institute for Telecommunications. Stillwater, OK: TIAP

Research Questions: The planning proposal addressed two major issues:

1. "The quality of life in Oklahoma's rural communities suffers from a lack of educational opportunities, access to health care and other social services, and economic development initiatives. Oklahoma does not lack high-quality programs and services; it lacks the ability to deliver programs and services outside the metropolitan areas.

2. Oklahoma's unique population distribution is not well-served by an outdated, 24 year old analog Educational Telecommunications Network (ETV) and by the Oklahoma Government Telecommunications Network (OGTV). Main streets in small communities are suffering economically, partly because of failure to keep pace with society's technological demands. Improved state infrastructure is necessary to reach under-served citizens and assist in the improvement of rural quality of life."

Population: Focus groups were conducted at six sites; Ardmore, Lawton, McAlester, Oklahoma City, Tulsa and Woodward in order to provide geographical representation. Five new studies were conducted by consultants looking at: 1) public awareness of telecommunication needs, 2) technical assessment of the statewide network, 3) network usage and rate structure, 4) health care network assessment, and 5) private sector regulatory assessment. Previous studies were also reviewed as background.

Research Design/Data Analysis: The design is incorporated in the previous section. This is essentially field action research that should lead to more formal studies.

Findings: The Strategic Plan for Telecommunication has five recommendations for the state to implement: 1) Establish, as a priority item for state development and funding, the creation of a telecommunications infrastructure, 2) Create and fund local community telecommunications centers, 3) Position telecommunications as a priority economic development tool for the state, 4) Create the Oklahoma Telecommunications Development Council for the encouragement and coordination of growth of telecommunications networks in the state, and 5) Ensure ongoing support for telecommunications providers and users in areas of training, evaluation and assessment of state-wide telecommunications, including a review of the regulatory environment.

GRUBER, S. AND COLDEVIN, G. (Fall, 1994). Management Training at a Distance for Inuit Administrators: The Atii Pilot Project. *Journal of Distance Education* 9(2): 21-34.

Research question/hypothesis: The hypothesis contends that using distance training versus

face-to-face training would be more effective for the following reasons: 1) it would permit urgently needed management training to be delivered to significantly greater numbers of the target population, 2) the training could take place over a much shorter time period, 3) instruction delivered at a distance would be at least as effective and more efficient than comparable face-to-face training, and 4) preservation of the culture and values of the aboriginal people while accomplishing the task of self-government.

Population/Sample: The research was conducted on 76 participants at twelve community cites. A second group of 43 Inuit participants were centered at their six community cites. The participants were drawn from a wide range of backgrounds that include those already in management positions for a number of years, those newly appointed to one, and those aspiring to one.

Research Design/ Data Analysis: The project was conducted in two language workshops, one in English, the other in Inuktitut. The two groups were given identical topics of reference: "Developing Management Skills with People." The trainees gathered at their respective cites, in their communities, in groups of 4-11 people. They met for four hours each day over a ten day period. Each session consisted of live instruction delivered by television, over four time zones away, interspersed with group and individual learning exercises. Interaction was provided by fax and telephone services. Each participant received a printed comprehensive study guide which included workshop objectives, schedules, reading and exercises. Two sets of instructors were hired, one for each workshop, with an Inuit trainer included for each set. The participants were asked to self-evaluate their familiarity with the subject matter prior to the start of the workshops. Following the workshops, the participants were given a 60 item questionnaire, available in both languages, which contained both open and closed questions. Interviews were conducted directly after the workshops and 6 months after the completion. Data was also on various other groups such as the employers, course design team, and facilitators, etc.

Findings: The researchers note that for the purposes of their article, the major findings and conclusions are made to assist in the design and delivery of other distance training projects in an aboriginal context. The main findings of the data, however, indicate that the participants who completed the course (English: $n=76/83\%$, Inuit: $n=43/98\%$), reported very positive feedback for the project, and showed marked improvement in their performance on the job 6 months later. The participants overwhelmingly supported the use of a combination method of training (manuals and technology based learning such as TV and telephone services) to train more people for the given management purposes. Several other issues were addressed with regards to how the project was designed, lessons learned for organizations to follow and a cost benefit analysis of the project versus distance and alternative forms of training.

MILLS, D. P., CERVERO, R. M., LANGONE, C. A., & WILSON, A. L. (1995). The impact of interests, power relationships, and organization structure on program planning practice: A case study. *Adult Education Quarterly* 46(1): 1-16.

Research questions: How do power relations and agents' interests affect their choices and development of educational programs? Whose interests are being served by the CES?

Population: The four key informants consisted of individuals in Georgia working as district program development specialists. A typical case sampling approach was used to select six agents from urban

and rural locations and different discipline orientations, for the case studies.

Research Design/Data Analysis: The researchers conducted a qualitative multi-site case study design. They triangulated data gathered from multiple sources. These sources included quarterly reports, correspondence, transcripts of meetings, evaluation reports, organization charts, interviews with key informants, interviews with six agents, and interviews with other CES administrators. The first part consisted of analysis of the interview data using a modified form of analytic induction. The researchers were concerned with the social context of the participants' planning activities. In the second stage, the programs were analyzed to see how the social contextual factors affected the program design. The participants told how they used local resources such as the local college of continuing education to mail out brochures to individuals and the local fair to hand out brochures. Agents believed they were facilitators, and coordinators in getting people and programs together.

Conclusions: The results showed that traditional interests affected 1) organizational structure and culture, 2) available resources for the extension programs, and 3) power relationships. People are hired whose personal philosophy fit the traditional concept of agrarian education. The research indicates that a diversity of adult education programs are not being developed because of these traditionalist attitudes. The researchers concluded that the CES leaders need to hire a more diverse faculty, redistribute internal resources, and help train agents to stand up against the traditional power play to limit the diversity of educational programs developed for adult learners.

PHELPS, R. H., WELLS, R. A., ASHWORTH, R. L., JR., & HAHN, H. A. (1991). Effectiveness and cost of distance education using computer mediated communication. *The American Journal of Distance Education* 5(3): 7-19.

Research Questions/Hypothesis: The research questions are implied in the article and never clearly stated. A) How much does training cost when implemented with CMC? B) How effective is training delivered via CMC? C) What does the cost for training CMC entail? and D) How do the students feel about learning through CMC?

Population/Sample: The participants in the study were fourteen US Army Reserve Component officers enrolled in the CMC Group. The Residence Group were 370 Reserve Component students taking the same course as the CMC group from October 1986 through June 1989. Forty-nine students took pre- and post-surveys. A third group of participants in the study were in one civil full-time course manager /administrator and three part-time instructors. No information on the age, gender, or other aspects of learner characteristics were reported.

Research Design and Data Analysis:

Procedures: Prior to the delivery of instruction, CMC students were trained to use computer equipment with written instructional materials through self-teaching. The part time instructors received the same training as the CMC students on how to use the computer equipment. In addition, they instructors received 40 hours of training on teaching/motivational techniques. The subject of the courses involved in this study were engineering and leadership. Students received instructions in two groups: CMC group and traditional residence group. The residence group took the instruction in the military classrooms during two 40-hour weeks. In addition, the residence students were required to study in the evening and during weekend to complete their assignments. Students were paid to receive

the training. The two week course was converted into the CMC course which consisted of computer aided instruction, storyboards, computer aided testing, and computer conferencing.

Data Collecting and Analysis:

Instruments

Pre and post-course student perceptions of their knowledge

Test scores, Course complete information

Cost of training

Analysis: ANOVA was used to compare the resident to the CMC course for both engineering and leadership courses. Cost for the training were reported.

Findings: There were greater gains in CMC students perceived learning than the resident students.

However, there was no difference between course test scores. 95% residence students and 64% CMC students finished their engineering course. 84% residence student and 75% CMC students finished the leadership course. 4249 hours worth of staff effort to convert the residence training into distance CMC training. The cost/per student over 5 iterations of the training was \$2,716 about half of the cost of residence training which was \$5,793.

The author concluded that the larger number of enrollment, iterations, and the lower the drop out rate, the more beneficial CMC training would be in terms of cost. Based on the information and analysis, the authors concluded that CMC was at least as effective as resident training, and it was less expensive than residence training.

TOPIC 6: POLICY

GUNAWARDENA, C. N. (1990). Integrating telecommunication systems to reach distant learners. *The American Journal of Distance Education* 4(3): 38-46.

Purpose: This investigation was undertaken to study the obstacles to introducing what the author referred to as ad hoc video conference based programs into a traditional university.

Methodology: A case study design from the naturalistic or qualitative paradigm was selected. The author selected this specific type of approach because of her desire to study the issues from the perspectives of experts in the field. Her desire was to interpret and synthesize the information gained. Seven experts from the field of telecommunications and distance education were selected by the author, which is a method called a "purposeful sample." The experts were all from the state of Oklahoma and had experience working with the state telecommunications system and the OSU satellite system. The author used an "unstructured" format in face to face interviews conducted in the spring of 1989. Each interview was analyzed separately and as a part of the larger study using content analysis techniques to identify issues and concerns related to the purpose of this study. Techniques used to insure reliability and validity of data were triangulation, member checks, and peer examination.

Findings: Several broad categories were used to provide findings of the study.

Cost and related issues - Telecommunications systems are expensive and too often, attention is given only to the technology, not planning for the use of the technology. It is critical to also review institutional mission, operational costs, enrollment potential, programming, organizational issues, faculty issues, facilities, and receiving institution arrangements. The author points out that systems do not save money and further, are not necessarily self supporting from fees generated from enrollment.

Administrative support - For a system to be successful, it is critical to have up front and continuing support from the governing board and President of the institution. The author also discussed issues related to possible business and industry investments in systems, and budgeting for systems.

Faculty support and training - There may be initial resistance from faculty because they are unfamiliar with telecommunications systems and they may also be fearful of becoming "obsolete." It is important to consider training for faculty not only in the use of the technology but also in the principles of learning theory.

Faculty incentives - Ideas provided include financial incentives, release or preparation time, a share of the revenue generated provided to faculty or the department, and consideration of faculty rewards.

Activities at receive sites - This section related to the importance of arrangements for national satellite programs including print materials, the training of local coordinators, and local wraparound programs for those activities.

Interaction in ad hoc videoconference programs - National satellite programs attract large audiences which limits interaction possibilities. The author suggests some methods of overcoming that problem including continuing the audio portion of the program to answer questions, mail in questions, computer aided discussions and a panel of experts at the local receiving site.

Producing and marketing videoconferences - Although an advantage of satellite delivery is the dissemination of timely information, adequate time for planning is required. The author suggests six months. The author also suggests consortia membership as a possibility for decreasing the risks involved in providing videoconferences.

BLACK, E. J. (1992). Faculty Support for University Distance Education. *Journal of Distance Education*. Fall 1992. Vol. VII, No. 2: 5-29.

Research Question: Synthesis of six research questions into three. Phase One: (Juxtaposition of four research questions.) 1) To what extent are faculty familiar with distance education and how does familiarity with DE differ according to selected professional characteristics? 2) To what extent do faculty support distance education and how does faculty support for DE differ according to faculty familiarity with distance education and according to selected professional characteristics? Phase Two: (Juxtaposition of two research questions.) 1) How do faculty who are supportive of, opposed to, or divided in their support for distance education understand the compatibility and feasibility of distance education; and what are their respective differences on those issues?

Population/Sample: Phase One used a survey that included 670 survey questionnaires sent out, and a

respondent rate of N=487 or 73%: 200 women and 287 men faculty members. Phase two used focus interviews of n=50 British Columbia University faculty.

Research Design/ Data Analysis: The research design was composed of five concepts: Support, Familiarity, Professional Characteristics, Compatibility, and Feasibility. It incorporated quantitative and qualitative methods.

Data Collection: The research design included three instruments to accomplish data collection: A pre-tested Likert-type questionnaire was used. Four disciplinary groups emerged: 1) Hard, Pure (natural sciences); 2) Hard, Applied (professional sciences); 3) Soft, Pure (arts and humanities); 4) Soft, Applied (professional groups, i.e., Law). The research designed involved two phases: a mailed survey of n=487 faculty, and focused interviews of n=50 faculty. **Data Analysis:** Chi-square was used for the quantitative portion. For the qualitative part, these three groups included:

1) emphasis given between accessibility and quality issue, 2) views about instruction and use of technology for interaction and purposes, and 3) need for student experience on a university campus.

Findings: Survey Findings (Phase One): 79% of the faculty had heard about distance education, 33% had discussed UBC's roles with other faculty and only 23% had debated issues concerning DE. 20% of the faculty had made administrative decisions about DE, 18% had prepared DE teaching materials, and 15% had involvement with DE teaching. "Chi-square analysis showed that faculty in the soft, pure and applied disciplinary groupings significantly more familiar with distance education than those in the hard, pure and hard applied groupings (chi-square=36.80; df=6; significance 0.000)." (Black, pp. 13)

Three categories of attitudes toward support for distance education emerged: Supportive=14 or (19%)/Divided Support=22 or (31%)/Opposed=14 or (23%)

Faculty Votes for Distance Education Courses (n=487). Respondents numbering 380 (78%) would vote "Yes", whereas 49 (10%) would vote "No" on Undergraduate courses. However, they wouldn't endorse Graduate courses which was outvoted 239 nays (49%) vs. 189 yeas (39%).

Interview Findings (Phase Two) n=50: Perhaps the most revealing implication was important Faculty (19%) who supported DE believed university experience was beneficial, but not essential. Faculty in the divided category (31%) stated that a campus experience for undergraduates was preferred, and essential for graduates. The opponents (23%) believed that the missing variable of being with a university community of scholars was reason to oppose DE. They preferred the university presence to mold a scholarly vista of academics. The root for the resistance is preference for elite education rather than mass education. The solution is increasing faculty knowledge about distance education and increasing rewards for faculty participation in DE.

MORAN, L. (1993). Genesis of the open learning institute of British Columbia. *Journal of Distance Education* 8(1): 43 - 70.

Research Question: The author's statement of purpose was based upon her belief that forces outside the field distance education (social, educational, economic and political) shape and effect emerging distance education policies. Her goal was to describe, in rich detail, the factors and forces that led to

the establishment of the Open Learning Institute (OLI) in British Columbia in June, 1978.

Conclusions drawn from this study were intended to illustrate the wide range of subtle forces that impact the evolving field of distance education, and to provide a source of information that might be useful in policy decisions in the future. This paper was based on a more extended study the history of OLI conducted by the author in 1991 (Legitimization of Distance Education: A Social History of the Open Learning Institute of British Columbia 1978 - 1988. Ph.D. dissertation, University of British Columbia).

Methodology: The author used descriptive research techniques to produce a detailed description of the social, economic and political climates, events and decisions in British Columbia immediately prior to the founding of the Open Learning Institute in June, 1978.

Data Collection and Analysis: The author conducted an in depth study and analysis of the minutes of a variety of commission and board meetings, as well as extensive interviews with the personalities involved at all levels in the process of establishing the Institute. The author also did an extensive search of the political, social, educational and economic policies, documents and events occurring in the time period in which the issue of establishing the OLI was of interest to the government, the higher educational establishment, and populace of British Columbia (i.e., 1975 - 1978). Data collected resulted in a chronology of events that lead to the creation of OLI, as well as an analysis of the direct and often subtle interconnections between decisions and events.

Findings: The findings of the study confirmed her belief that forces outside the realm of control of those working in distance education play a significant role in policy decisions. The author also concluded the evolution of DE and open learning depends heavily on the ability of those making decisions to judge political, economic, and social climates that impact their efforts. In the particular case of the OLI, the author states that the tense and confusing atmosphere, as well as the political intrigues that occurred need not have happened. The hard feelings that were created between governmental and educational officials lingered long past the actual founding of the OLI and were perhaps counterproductive in the long run. As the author states, many of the burning issues that were debated at the time were eventually resolved in the following decade when confusion and misunderstanding about the definition and goals distance education became clearer.

HOLT, D. M. AND THOMPSON, D. J. (1995). Responding to the technological imperative: The experience of an open and distance education institution. *Distance Education* 16(1): 43-64

Research Questions: What are the basic technologically based challenges confronting tertiary institutions? What are the major leadership/managerial issues confronting universities which support the delivery and support of multiple modes of teaching and learning?

Population: Participants came from a pool of key academic decision-makers within Deakin University. Traditional and technologically oriented leaders from different departments were selected because of their representativeness of many diverse educational views. The university has six campuses with a student population of 26,000 enrolled students (10,000 are categorized as studying off-campus) and another 20,000 students using distance education programs.

Research Design/Data Analysis: The study is a qualitative case study. The researchers conducted formal open ended interviews with nine teaching staff members from five different academic

disciplines. Additionally, the researchers used data collected from "countless informal discussions with teaching and general staff across all faculties and campuses" (p. 44). The data was analyzed for emerging themes across participants.

Comments: The authors found three basic technologically based challenges: 1) What should be taught and how can these core competencies be developed for learners in the work place? 2) How can technology be used to maximize students' educational experience, and 3) How can tertiary institutions use technology to effectively network with remotely located partners in teaching?

There were eight major leadership/managerial issues apparent in the data analysis: 1) The need for strategic viewpoints throughout the organization, 2) The potential for the diversification of strategic thinking, 3) Local risk-taking and innovation in large organizations, 4) Incremental implementation of technologies, 5) Finding the time for technological innovation, 6) New conceptions of practices in staff, 7) Simultaneously centralizing and decentralizing key technological services, and 8) Managing cultures and politics in the technological change process.

The authors concluded that an organization's leadership could use political and empowerment skills to help their organization become proactive in developing technological support for their visions of flexible teaching and learning modes. In addition, the researchers wrote that a distribution of change agency powers within the entire hierarchy of the organization would speed up the diffusion process.

KIRSCHNER, P., MEESTER, M. , AND MIDDELBECK, E. (Spring 1991) Practical Objectives at the Open University of the Netherlands. *Journal of Distance Education* 6(1): 5-27.

Research question/hypothesis: The hypotheses for this research project were diverse. The researchers wished to find out: 1) how and to what extent students should make use of laboratory practicals and 2) the structure of practicals at OuN should be different than the traditional university. They needed to define the nature of these differences.

Population/Sample: The population consisted of 12 faculty members of the Faculty of Natural Sciences at the OuN. All members, from a variety of diverse backgrounds in the Sciences (physics, biology, chemistry, earth sciences, etc.), have at least a Master's degree and 9 of them have attained a Ph.D. All of them had been involved in course development for the University.

Research Design/Data Analysis: Two instruments were developed (both in English) to measure the degree of importance of objectives and end-terms for practicals in undergraduate natural sciences. The first instrument was a pair comparison inventory of the eight general objectives contained in Kirschner and Meester (1988). In this procedure paired items are presented to the subject with instructions to choose one member of each pair on the basis of a stated criterion; the desirability of incorporating a particular objective into the undergraduate curriculum. The second instrument was a Likert-scale objectives inventory containing 102 items that were analogs of the 97 specific objectives and end-terms presented in Kirschner and Meester (1988). The objectives and end-terms were screened for ambiguity, clarity, and multi-interpretability by a number of educational technologists and educators in the Natural Sciences. The participants were asked to order these items into five main categories: 1) Indispensable 2) Important 3) Neutral 4) Not really necessary 5) Superfluous.

Construct-validity was not used since the inventories discussed were not meant to predict or test

hypothesized relations or theoretical constructs. Content validation was guided by the question, according to the researchers: Is the substance or content of this measure representative of the content or the universe of content of the property being measured? The answer was provided by the use of the most complete set of objectives collected. Reliability was found to be .95. The Guttman split-half coefficient was .93. The inventory was split into two subgroups and calculated individually. The objective section had a reliability factor of .93, whereas the end-term was .86.

Findings: The results were divided into two main groups; general objectives and specific objectives. In the former category, the Kendall coefficient of concordance was used (a measure of the relation among several rankings of N objects or individuals). A T-test was also used as a means of comparison of the differences between the weightings of the general objectives. The participants favored the use of knowledge in unfamiliar settings the most out of the criteria presented. In the latter case, the specific objectives and the end-terms were separated for detailed analysis. Of the eleven most highly rated specific objectives, six are specifications of the general objective "to interpret experimental data," three are specifications of another highly ranked global objective "to solve problems," and two which were considered "indispensable." The specific end-terms display similar characteristics in that they can be placed into two distinct categories: 1) to obtain good scientific method and 2) to understand the scientific method. In both cases, they relate to academic skills. The six highest ranking end-terms all deal with some aspect of critical academic or mental skills.

BINER, P. M. (1993) The development of an instrument to measure student attitudes toward televised courses. *The American Journal of Distance Education* 7(1): 62-73.

Research tasks:

The instrument development involved four phases: Identifying the factors that potentially could affect student attitudes, Identifying the major dimensions underlying groupings of specific factors identified in the first phase, Content validity analysis of the items identified, and Developing and pretesting/piloting the instrument using students enrolled in a telecourse.

Methodology:

Sample/population, procedures, design, analysis, and results by phase: The target population of the attitudinal assessment are students enrolled in telecourses. Fifty individuals were surveyed in the first phase of the study. The sample of subjects consisted of stratified random subsample of thirty graduate and undergraduate students enrolled in university sponsored telecourses. Nine professors who were teaching the televised courses, and four instructional designers who designed some of the telecourses and three full time telecourse administrators. A survey questionnaire with one question was sent to the participants. The subjects were asked to list as many factors as possible that they believe would potentially affect the quality of televised courses in anyway. 63% students, 75 faculty responded to the questionnaire. Seventy-one relatively independent factors were identified at this stage.

The participants in the second phase of the study were seven content-matter experts who had an average of 5.28 years of tele-education experience. The dimensions of interest were determined using a card-sorting technique (the Q-sort). Each of the seventy-one factors were assigned to one of the three dimensions identified: Instruction/instructor aspects, technological aspects, and management/coordination aspects. The reliability of the assignment of the factors to the dimensions

was analyzed. The inter-rater agreement was 81%.

Eleven subjects were selected based on their diversity of experience with televised courses. Four of the subjects participated in the previous phase of the study. Each subject was given a list of the seventy-one factors and asked to rate each factor as one of the three: not necessary, useful but not essential, and essential. The content validity ratio was calculated for each factor based on the formula: $CVR = (\text{number of subjects rating an item as essential} - 1/2 \text{ of total number of subjects}) / (1/2 \text{ of total number of subjects})$. The CVR were not reported or discussed.

Based on the third phase study results, the thirty-four factors with CVR greater than zero were developed into items in the attitudinal survey. The survey questionnaire then was administered to ninety-eight graduate and undergraduate students of various majors who were enrolled in different telecourses. The survey took 10 to 20 minutes for the students to finish. The 86% on-campus and 77% remote site students returned the survey. The author stated that the data collected from the surveys were used to assess the students' satisfaction of the factors on the specific dimensions.

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