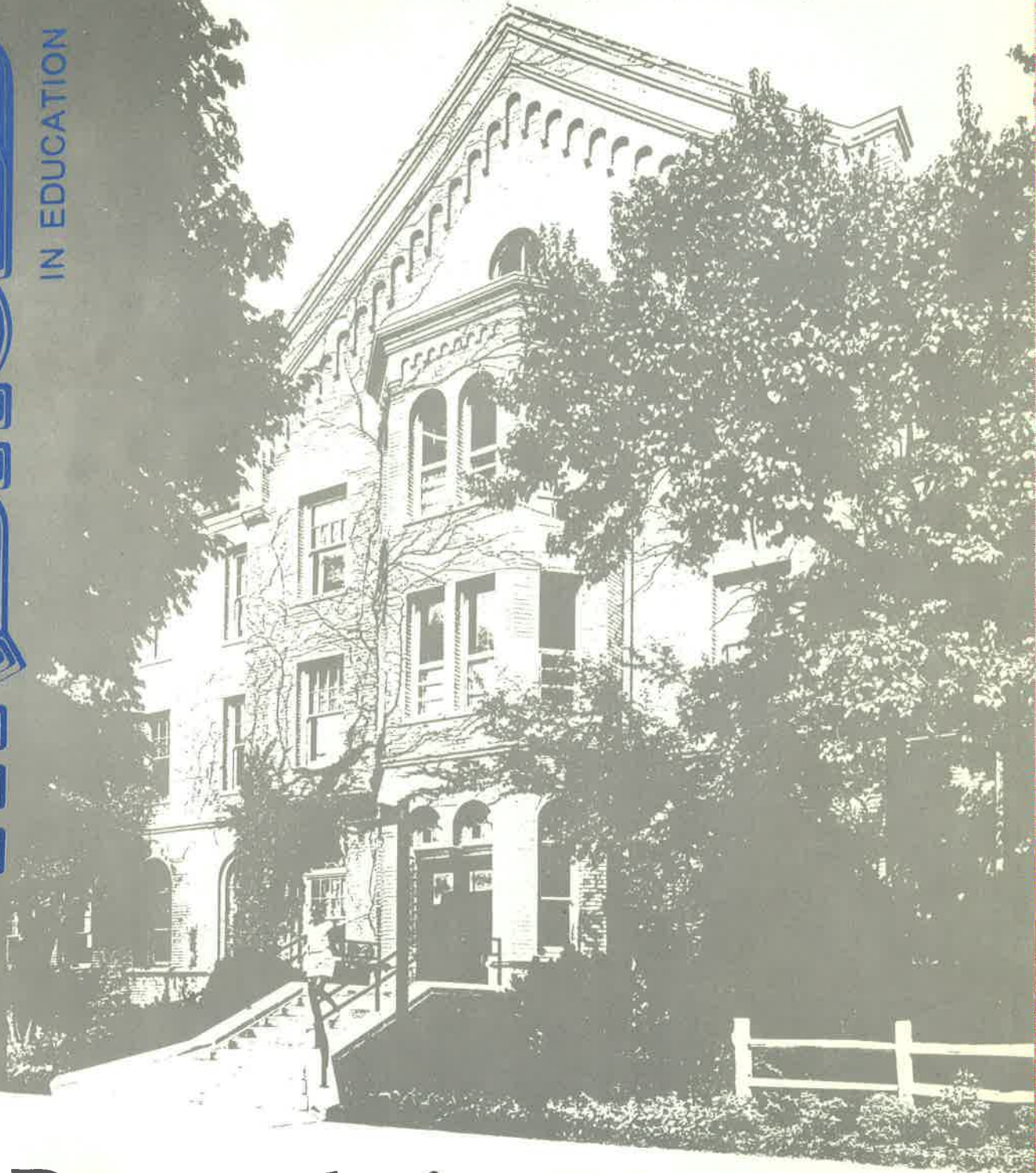


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REFRESH

IN EDUCATION



Research in Education

Selected Student Research at Northern Illinois University

Issue Editors:

Edwin Simpson & Robert Rosemier

Selected Student Research in Education at Northern Illinois University

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Editors' Note

The study of education has developed dramatically during the last quarter century. Abstracts of research conducted by recent graduates of the College of Education, Northern Illinois University, reflect not only new approaches to doing research, but added depth and diversity of interest by these researchers. Today it is commonly understood that education occurs in many places, both in and out of the school environment. Early childhood through adult education are

all part of the education mission in contemporary practice. Thus, research reported in this volume was chosen not only for its outstanding quality, but because it represents inquiry about education in its many diverse forms. Many of these studies are exceptional because they demonstrate the cross-disciplinary influences present in the contemporary study of education, such as new applications of history, philosophy, sociology, as well as highly sophisti-

cated computer-assisted statistical analyses now available to researchers.

We wish to thank the many contributors to this special issue--former College of Education graduate students who are practicing professionals, as well as the NIU faculty who supervised the research. Without special effort made by all, results of this publication could not have approached the high standard we hope it represents.



Edwin L. Simpson

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Foreword: The Research Mission at Northern Illinois University

by Jerrold H. Zar

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As a modern comprehensive institution of higher education, Northern Illinois University is dedicated to the generation, application, and transmission of knowledge. And this is a commitment it exercises through the interwoven activities of research, professional service, and instruction.

In its size, strength, and diversity the NIU College of Education exemplifies

these activities in numerous ways: Knowledge is expanded through the research activities of faculty and graduate students, knowledge is applied through service to the professional community, and knowledge is transmitted through instructional activities.

As one of the most important aspects of a major university's mission, research is pursued by those faculty dealing most intensively with graduate students and by those graduate students pursuing academia's highest degrees: doctoral degrees. Specifically, all candidates for doctoral degrees must propose, prepare, and defend a dissertation based upon original scholarship and resulting in the significant new contribution to the field of study. It is the combination of the dissertation-research experience, the re-

ceipt of advanced instruction, and the cultivation of a professional-service ethic that makes the Ed.D.-degree recipient such a valuable member of the professional education fellowship.

The tradition for this intellectual experience is long-standing and well-established within Northern Illinois University's College of Education, as this issue of *Thresholds in Education* will attest. Faculty continue in their commitment to the furtherance of knowledge in their respective fields of specialization, and students continue to volunteer for the rigors of advanced study and research in order that they--and their colleagues and students--may benefit from the rewards of such study and research. That tradition is a serious and productive one at Northern Illinois University.



Foreword: Linking Research and Practice

by Charles E. Stegman

Charles E. Stegman is Dean, College of Education, Northern Illinois University, DeKalb, Illinois.

The proposed Federal budget for 1992 includes approximately \$241 million for the Office of Educational Research and Improvement (OERI). This is almost double the amount spent in 1991 and triples that spent in 1990. Within the 1992 OERI budget is approximately \$74 million for 18 research centers that will address a number of major concerns in education. These centers are expected to spend over \$125 million during the next five years.

This is a major increase in the commitment of Federal dollars to OERI and reflects the role that educational research should play in the improvement of prac-

tice. According to OERI, "The centers are expected to provide information to help practitioners and policy makers meet national educational goals by the year 2000." Their creation also "guarantees that the federal educational research agenda will feel their influence well into the 1990s" (OERI Bulletin, Fall/Winter, 1990, p. 3). One of the ironies of the current funding is that awards for 17 of the centers have been granted, but no award was made for the new National Center for Research on Dissemination and Knowledge Utilization. OERI felt that the proposals submitted did not adequately address ways that would build the necessary linkages between research and practice. The competition for this Center is expected to be reopened this year.

Most people in education are committed to educational reform and believe that improved practice must be based upon a sound research base. However, many also recognize the gap that exists

between educational researchers and those who work in the nation's schools each day. Beyond the Federal efforts to fill this gap, there are many local initiatives that are needed to improve the dissemination and utilization of research information.

While this issue of *Thresholds* will not solve the national problems of dissemination and knowledge utilization, it is published because of our recognition that research should inform practice and practice should guide research. The dissertations and thesis highlighted in this issue were nominated by the faculty because of their quality. The graduates are to be congratulated for their fine work, and we encourage them to continue to build and utilize a knowledge base founded upon research. We also hope that practitioners in the field reading about these studies will find information that is helpful to them in meeting their educational goals.



Northern Illinois University

The College of Education

Department of Curriculum & Instruction

The Grounded Theory Study of Selected Academic Programs Which Prepare Corporate Educators

by Gloria T. Alter

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Don Reyes, Director

From the unique perspective offered by Dr. Alter's use of grounded theory in this study, educators in both corporate and non-corporate settings can gain the most complete view of what exists in corporate education to date. In addition, she has presented a synthesis of grounded theory methodology which will prove useful to future researchers. Thus, this dissertation makes a significant contribution to the field with its comprehensive review of the literature, its findings and its explication of grounded theory methodology.

The growth of corporate training and development is part of a revolutionary change which has occurred in education over the past 20 years (Demetrius & Deutsch, 1982). This change is the movement of training and education from school to non-school settings. These two arenas increasingly address the same market with similar curriculum offerings. Corporations have even gained the

right to grant degrees and maintain colleges.

As training has increased, the number of training professionals and the academic programs to prepare them have also increased. Very little is known about these academic programs, although a significant body of literature is available which identifies the competencies of training professionals. Therefore, this study analyzed selected academic programs to

determine what might characterize state-of-the-art practice in the preparation of corporate educators.

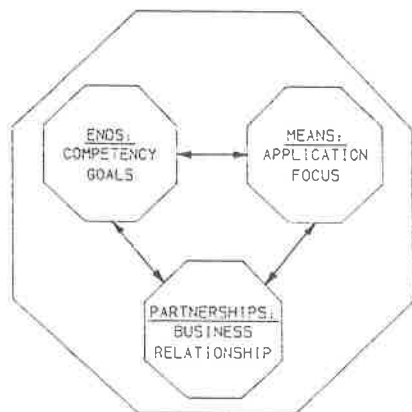
A Summary of the Study

This study examined curricular characteristics and program and institutional organizational patterns commonly found in selected academic programs which train corporate edu-

icators. Data were collected from certificate and graduate programs through nearly 250 hours of course and field observation, 50 faculty and student interviews, and an analysis of curricular and instructional documents and materials. Field data collection took place over a two-year period (1986-1988).

Grounded theory techniques were used to develop theoretical propositions concerning the academic preparation of corporate educators. The propositions centered around core variables, as illustrated in Figure 1, and the conceptual organization of the findings is further detailed in the theoretical outline, "Summary of Findings: Competency Development for Real-World Training in Business and Industry."

Figure 1: Interrelationships of Core Variable(s):



Summary of Findings: Competency-Development for Real-World Training in Business and Industry

I. Programs are "competency-focused."

- A. Competencies organize the curricula.
- B. Programs' competencies vary along a continuum from a general skill orientation to specific sets of competencies.
- C. Competency needs for training professionals (program graduates) are ascertained in part by

informal or formal input regarding present company needs.

II. Programs are "application-based."

- A. Competency development permeates the entire curriculum.
- B. The composite of a program's activity falls along a theory-to-practice continuum from a skill-related knowledge and skill development to a more complete focus on skill development.
- C. A real-world orientation is observable in program methods, materials, activities and course content.

III. Business-academic world connections permeate every aspect of curriculum planning.

[See I. C., and II. C.]

- A. The real world of training informs and interacts with the curriculum at every point.
- B. Programs vary in the types of connections they maintain with the business world and the degree to which they are connected.
- C. These dynamic connections are the "glue" that holds the programs together.

Conclusions and Implications for Research and Practice

Research Needs

Limited data are available regarding actual curricular/instructional practice in academic programs for corporate educators. It is likely that more indepth study will be needed in order to develop the common curricular model of training and development called for by T&D/HRD academics. The field would likely benefit from a generalist

and a number of specialist models as these training positions are both projected to increase in the future. One initial difficulty in studying the programs is that they have not been systematically identified, and lists of programs meeting specified criteria are not available. Limited information is available through American Society for Training and Development. However, programs included in the academic database are those which have contacted ASTD voluntarily and provided self-report data. Perhaps, then, the actual identification of existing T&D/HRD programs is a first step toward further study.

The training field and especially academic program studies would benefit from a systematic effort in developing a research base. There is a redundancy in much of the literature and little progress appears to have been made in coordinated research efforts (e.g., no agreed-upon definitions, standard practices).

Curricular and Instructional Practice

The behavioral emphasis in these T&D/HRD programs raises the issue of the degree to which theory and/or practice should guide the academic preparation of school and non-school educators. Should public school educators, for example, be receiving an academic preparation which is more directed toward the development of specific competencies? And, on the other hand, should corporate educators receive an academic preparation which includes more of a theoretical emphasis? What is lost when one is emphasized over the other? What is gained with an emphasis on both?

In addition to the issue of a theory or practice emphasis, the question of what competencies are applicable to educators in general and which pertain specifically to the corporate or nonschool setting must be addressed. When competency studies identifying needs for corporate educators are examined, most are found to be generic

business setting. This would indicate that the practice of corporate education may have more in common with traditional education than has been previously assumed.

The world of corporate education challenges traditional education and raises the question of whether or not our nation should reexamine its

educational system as a whole. Morse (1984) stated: "Traditional education must lay down the mantle of being the only real 'educator' in society" (p. 72). Given current social, technological and economic conditions, we would do well to assess the best use of our "educational capital" (e.g., human resources, time, money avail-

able for education, and training). At the very least, continued collaboration of training and development/business with education and government is essential. As the distinctions blur, more significant changes toward the improvement of our traditional approaches to education may become possible.

References

Demetrulias, D., & Deutsch, A. (1982). New audiences for teacher education (Fastback No. 178). Bloomington: Phi Delta Kappa.

Morse, S. W. (1984). Employee educational programs: Implications for industry and higher education (Higher Education Report No. 7). Washington, DC: George Washington University, ERIC Clearinghouse on Higher Education, Association for the Study of Higher Education.



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Differences in the Preferred Classification Strategies of Monolingual and Bilingual Preschool Children

by Toma Heldt

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Gene Meyer, Director

This study looked for, but did not find, evidence of a significant difference in the criteria used by preschool monolingual and bilingual children to classify objects in their environment. Evidence of a significant difference would have raised questions concerning the possibility of significant differences in other areas of cognition as well as whether these differences would necessitate changes in content or methodology of instruction at the preschool and primary level. In addition, evidence of such a difference would have raised questions concerning the casual/correlational relationship between language and culture when bilingualism is a factor.

Classification is a cognitive universal. It is the ability to organize stimuli as equivalent based on common properties and is one of the basic human cognitive activities (Lennenberg, 1967). It is intimately involved in the formation of concepts and is also involved in perception, memory and most linguistic behavior.

Classification and language are interrelated cognitive activities. Numerous studies suggest that there is a difference between the effect of early childhood bilingualism and monolingualism on cognitive development (Bain, 1976; Ben-Zeev, 1977; Feldman and Shen, 1971).

The purpose of this investigation was to determine if there is a significant difference between the classification strategies preferred by monolingual 4- and 5-year-old children and bilingual 4- and 5-year-old children and to relate this preference to age, gender, or language background. The dimensions selected for classification

were those of function, form and color.

The subjects were 96 children; 48 males, 48 females, equally divided between 4-year-olds and 5-year-olds and children monolingual in English and children bilingual in English and an Asian language. The children attended day-care centers and preschools in urban areas within 40 miles of Elgin, Illinois.

The subjects' language status was determined by a questionnaire completed by the subjects' parents. Children were considered fluent in a language other than English if they used that language to communicate with at least one other member of their household on a regular basis. English fluency was determined by informal teacher observation and by a language sample taken by the researcher and rated using the guidelines from *Assessment of Language Minority Students* (Hamayan et al., 1985).

Five sets of classification tasks were developed. Each task involved sorting four pairs of common objects into two distinct groups. The objects, all between 3 inches square and 6 inches square to reduce the effect of size as a variable, could be classified by function, color or form.

An 18 x 24 inch gray felt rectangle, divided vertically by a white tape line, was placed in front of the subject and the two halves were patted by the researcher to indicate two different places. The materials for each of the five classification tasks, contained within five individual, white plastic buckets, were presented for classifying, each bucket individually, in random order. The researcher touched each half of the felt again and instructed the subjects to "put together the things that go together."

Bucket #1 contained:

2 cylindrical red candles
2 cylindrical yellow glasses

2 round yellow candles
2 round red glasses

Bucket #2 contained:

2 round white cookies
2 round brown pillows
2 square brown cookies
2 square white pillows

Bucket #3 contained:

2 round gray mirrors
2 round purple blocks
2 square purple mirrors
2 square purple blocks

Bucket #4 contained:

2 rectangular pink baskets
2 rectangular green dishes
2 round green baskets
2 round pink dishes

Bucket #5 contained:

2 rectangular black brushes
2 rectangular orange pencils
2 cylindrical orange brushes
2 cylindrical black pencils

The classification strategies selected by each sub-group were analyzed for each task using chi-square to establish if there was a significant difference between the classification strategies used by monolingual and bilingual preschool children when analyzed by age, gender and language.

This study concluded that there was no significant difference between the classification strategies of any of the groups examined. A frequency count for each strategy by task was

also produced, which indicated that color was the preferred strategy on 204 of the 480 classification trials. The trend for children to shift from a preference for classification by color to classification by form as age increased was not evident.

Further research on this topic should limit the bilingual subjects to those children speaking the same Asian language and include an additional group of subjects, monolingual in the Asian language used by the bilingual group in order to clarify the fact that the monolingual response was a reflection of the strategies typical of monolinguals in general and not just of speakers of English.

References

- Bain, B. (1976). A verbal regulation of cognitive processes: A replication of Luria's procedures with bilingual and unilingual infants. Child Development, 47 (2), 543-546.
- Ben-Zeev, S. (1977). The influence of bilingualism on cognitive strategy and cognitive development. Child Development, 48 (3), 1009-1018.
- Feldman, C., & Shen, M. (1971). Some language-related cognitive advantages of bilingual five-year-olds. Journal of Genetic Psychology, 118 (2), 235-244.
- Hamayan, E., Kwait, J., & Perlman, R. (1985). Assessment of language minority students. Springfield: Illinois State Board of Education.
- Lennenberg, E. (1967). Biological Foundations of Language. New York: J. Wiley & Sons.



The Effects of Expressive Writing on the Composing and Learning Processes of Sixth-Grade Students in Social Studies

by *Bonnie Kuhrt*

Bonnie Kuhrt is an eighth grade teacher at Sandburg Junior High School, Rolling Meadows, Illinois.

Pamela J. Farris, Director

The role of writing in the learning process has received much attention in view of the Bay Area Writing Project and the findings of Donald Graves. Dr. Kuhrt's dissertation was based upon the idea that learning logs can contribute to the acquisition of social studies concepts by sixth-graders. Based upon Emig and Appleby and Langer's work, Dr. Kuhrt probed into the qualitative and quantitative aspects of writing in the content areas in terms of the process-product model.

The findings of Dr. Kuhrt's study resulted in enhanced insights into the writing process. Her findings into the means of assessing covert writing and learning operations have assisted others in this area of study. For example, Kepner's study of the importance of a teacher's written feedback upon the writing in a second language was largely based upon Dr. Kuhrt's study.

Rather than assessing the impact of writing on the quality of written product, examination of a more encompassing issue has emerged. Based on the active and connective nature of writing and learning that requires reformulation and integration of new information with preexisting knowledge, the question becomes: "What impact does writing have on measures of learning?" Following the research pattern exploring this question, this study extended the population to include the upper elementary level.

Background of the Study

Case studies (Newell, 1983, Langer & Applebee, 1987) investigating the writing-learning connection had subjects think-aloud (Flower & Hayes, 1980) during the qualitative phase. Newell (1983) had subjects

verbalize thoughts during three composing activities. Due to possible cognitive overload interfering or distorting operations, the current study used Bloom's (1953) stimulated-recall technique with reconstructive videotape cues.

Beyond identifying covert operations, Newell (1983) found the three writing treatments facilitated or impeded recall to the same extent; however, essay writing contributed to learning concepts. For this study, learning log entries used expressive writing similar to the child's language patterns.

Purpose

The purpose of this study was to examine how expressive writing affects learning and composing operations of sixth grade students. Initially, patterns on learning and composing

operations were examined for variations due to the level of prior knowledge. Next, the effects of expressive writing on three learning measures were examined.

Methods

Subjects: Twenty-three subjects from a total population of forty-seven students had the necessary proficiencies to examine the effect of expressive writing on learning and composing. The criteria established included: holistic scores on writing samples, standardized reading scores, content area cloze scores, and teacher recommendations.

Design: Information drawn from the protocols allowed for description and comparison of operations based on levels of prior knowledge. Next, the use of pretest scores allowed students to serve as their own

controls in areas of high and low prior knowledge. Counterbalanced treatment sessions varied the topic order as well as levels of prior knowledge. Concept elaboration and integration plus free recall of relationship units were examined strictly by posttest scores.

Procedures: Six forty-five minute sessions involved reading passages from Human Heritage and responding to the text through expressive writing. This writing involved speculation about the author's purpose, organizational patterns, areas of confusion, and deep processing concepts.

Two other sessions involved a pretest and posttest. The pretest established levels of prior knowledge for the passages. One week after the final treatment session, a posttest assessed the differential effect on the measures of learning.

Six randomly selected subjects were videotaped during expressive writing sessions. Within forty-eight hours following the session, thoughts at points of hesitation were reported. By transcribing these reconstructed thoughts at hesitation points, a total writing protocol emerged.

Analysis: Examination of the composing and learning operations

used mean percentages of the operations. By graphing the data, the pattern of operations for levels of prior knowledge were compared.

A t-test examined the effect expressive writing and level of prior knowledge of learning measures. The level of significance was established at $p < .05$.

Findings: Learning and Composing Operations

- (1) Regardless of the level of prior knowledge, an overall similarity in the mean percentage patterns emerged.
- (2) Pronounced variations appeared in composing and hesitation activities.
- (3) Interplay between composing and hesitation operations suggested a recursive process (Flower & Hayes, 1980).
- (4) Pronounced variations appeared in the writing protocols. More instances of creating a thesis statement, using evidence, and linking concepts appeared in low prior knowledge areas. The high prior knowledge profile indicated more occurrences of making inferences and expressing feelings.

Learning Measures

- (1) There was a statistically significant difference in recall of concept units given a high level of prior knowledge.
- (2) While a significant difference was indicated between levels of prior knowledge on the pretest, there was no significant difference indicated for gain in classification and concept identification on the posttest. Comparison of pretest to posttest scores indicate significant gains on low prior knowledge for classification as well as concept identification while high prior knowledge showed gains only in classification. A multiple t check for regression was not statistically significant.

Limitations and Recommendations

- (1) The revised system of coding used by Langer and Applebee (1987) may have resolved needs cited by Newell (1983).
- (2) Rotation of a nonwriting treatment into the counterbalance design would allow for examination of other possible differences.

References

- Bloom, B. S. (1953). Thought-processes in lectures and discussions. Journal of General Education, 61, 160-169.
- Flower, L. S., & Hayes, J. R. (1980). Identifying the organization of writing processes. In L. W. Gregg & E. R. Steinberg (Eds.), Cognitive processes in writing (pp. 3-20). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Langer, J., & Applebee, A. (1987). How writing shapes thinking. Urbana, IL: National Council of Teachers of English.
- Newell, G. (1983). Learning from writing in two content areas: A case study/protocol analysis (Doctoral dissertation, Stanford University, 1983). (University Microfilms No. 83-14, 481).



A Study of the Processes of Reflection and the Knowledge Bases of Elementary Teacher Education Students in the Context of a Clinical Experience

by John D. Lange

John D. Lange is at the Carseldine Campus, Queensland University of Technology, Queensland, Australia.

Don Reyes, Director

John Lang's paper, "A Study of the Process of Reflection and the Knowledge Base of Elementary Teacher Education Students in the Context of Their Clinical Experience" will be an important contribution to the literature for both its review of reflectivity in teaching and its application of case methodology.

Drawing from Van Maanen, Schon and others, Lange presents a comprehensive perspective on the dimensions of reflectivity in teaching. His synthesis of writing on the topic will be useful to practitioners developing programs around this important concept.

Likewise, researchers interested in designing qualitative research studies will find a sound review and application of case methodology in this dissertation which will prove both informative and useful.

This action-research case study takes account of the concerns of teacher educators (Sizer, 1984; Goodlad, 1984; Holmes Group, 1986) about the effectiveness of current teacher education programs and the need for programmatic responses to participants in the development of their understanding the complexity of the environment in which teaching takes place, and the complexity of the teaching act itself.

This qualitative, naturalistic, study through its associated processes of data analysis and interpretation endeavors to explore, describe, analyze, and explain the knowledge, skills, and beliefs of student teachers as they described their understandings of their developing professional knowledge frameworks and processes in the context of the teaching/learning environment. The case

study approach was found to be an effective way of inquiring into these aspects of the teacher education curriculum (Carr & Kemmis, 1986). It was concerned with the nature of the reflective process (its context, content, and extent) that these students brought to their practice, and the foundational knowledge they identified for their interpretations.

The subjects of the study were a group of 22 elementary education student teachers undertaking a clinical experience section of the second professional teacher education semester. The students were required in their program to record in their individual journals, ten to fifteen descriptions of some encountered classroom incidents along with their reactions to each incident. The journal entries provided the major data source for

analysis and interpretation in this case study.

As this study considered student teachers' meta-cognitive strategies and the meanings they attributed to actions of themselves and others, a qualitative case study research design based on education students' reflective journal writings was found to be an effective means of assessing instances of their selection and application of meta-cognitive strategies. It is accepted that journal writing has the potential for identifying, analyzing, and fostering integration of theory, practice and content knowledge (Flower and Hayes, 1984).

The analysis used in the study did not take the form of case studies of individual student teachers. Rather, it was a collection of 'cases' held together by the content; the case represented the group of student

teachers. The case generation, analysis and data interpretation in the study proceeded through four stages:

- (1) identifying key events or experiences for each informant's journal entries;
- (2) interpreting the meaning of the identified incident by considering the context, content, and extent of the reflective process;
- (3) identifying themes, categories, and constructs that related one case component to another; and
- (4) identifying a structure that related one case component to another.

The fourth stage also considered as substantial organizational and construct input, the criteria and component frameworks that had been synthesized from the literature and research review of reflectivity and teacher knowledge.

Summary of Findings

Three major generalizations emerged from the analysis which were supported by a number of organizing ideas. These organizing ideas were induced from constructs within the students' descriptions and reflections of the encountered incidents.

The Context of the Reflective Process: When identifying the con-

text of their reflective responses, the student teachers described incidents that focused predominately on identifying the ways and means of managing and controlling the classroom environment and the methods of directing learning that would enhance the efficiency of the teaching/learning process.

Content of the Reflective Process: When considering the domains of teacher knowledge to guide their understanding of the teaching/learning environment, the student teachers focused predominately in the domain of general pedagogical knowledge, the broad principles and strategies that are used in maintaining effective classroom management and organizational procedures, and represented this knowledge in a propositional form.

The Extent of the Reflective Process: When clarifying their discussion, the student teachers used one of the four processes as a design heuristic of reflections, Naming and Reframing; Identifying Goals and Appraising their Worth; Sorting Images, Selecting Strategies, and Articulating Consequences; and Reflecting on Effects and Redesigning One's own Practice, and applied a range of thinking skills (e.g., identifying, evaluating, inferring, hypothesizing) to illuminate and comprehend the encountered incidents.

This study supports the view of teacher education as an action-oriented process that is open-ended and ever-broadening and much less as an information-processing mode of instruction (Resnick, 1987). It would seem from the study that the 'case', through the evidence of their journal entries, had a relatively narrow perspective of the knowledge base that may be required by a reflective practitioner (Schon, 1987). The depth and therefore the quality of the reflective inquiry may be dependent upon student teachers possessing a conceptual schema, which can accommodate and grow from an initial well-defined base and develop into an assessing and an applying frame of reference for identifying and understanding the structure in the teaching and learning process. This process may in some ways reflect the curriculum perspective of Schwab (1973) in which student teachers would be expected to have knowledge of the substantive structures of teaching- the ways in which the fundamental principles are organized (the domains and forms of teacher knowledge of this study) (Schulman, 1987), and a knowledge of the syntactic structure which provides the canons of evidence and proof that guide inquiry in education (The action-research design of this study).

References

- Carr, W., & Kemmis, S. (1986). Becoming Critical. Philadelphia: Taylor & Francis.
- Flower, L. S. & Hayes, J. R. (1984). Images, plans, and prose: The representation of meaning in writing. Written Communication, 1(1), 120-160.
- Goodlad, J. (1984). A place called school: Prospects for the future. New York: McGraw-Hill.
- Holmes Group, (1986). Tomorrow's teachers. East Lansing: The Holmes Group.
- Resnick, L. B. (1987). Education and learning to think. Washington, DC: National Academy Press.
- Schon, D. A. (1987). Educating the reflective practitioner: Towards a new design for teaching and learning in the professions. San Francisco: Jossey-Bass.
- Shulman, L. S. (1987). Knowledge and teaching: Foundations of the new reform. Harvard Educational Review, 57 (1), 1-22.
- Sizer, T. (1984). Horace's compromise: The dilemma of the American high school. Boston: Houghton Mifflin.



The Existence of Factors Associated with the Implementation of Instructional Change as Reported by Teachers in Small, Medium, and Large Suburban Elementary Districts

by Ann Lund

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Rodney Borstad, Director

Presently, there is considerable attention given to restructuring schools in our nation. Change is difficult and a slow process for most educators. Educators need to have a thorough understanding of the theory, process, and practicalities of change. The concept of "every leader a teacher and every teacher a leader" needs to be implemented in our schools. Leadership and followship cannot be separated. And when every teacher is a leader, every child can be a success. Ann Lund has made a fine contribution to the study of various perceptions of teachers in bringing about instructional change.

As rapid, complex, and continuous change takes place in society and in pedagogy, school leaders faced with change must become equipped with knowledge about both the nature of change and the process of changing (Fullan, 1982). The dynamics of change are complex and there are many factors associated with the successful planning and implementing of change.

In his book, The Culture of the School and the Problem of Change, Sarason (1971) explains that changes, which are initiated for classroom use without consideration of those in the school setting who are expected to change, may result only in "substituting one set of books for another" (p. 48). In other words, on the surface things may appear to change, but conditions in the classroom remain basically the same. The usual finding regarding change proposals which are not implemented is that there is some

fault with the change itself. However, when observing the extent to which a change is put into practice, others besides Sarason have found that there is a lack of implementation of the change (Hall & Hord, 1987).

The purpose of this study was to focus on the process of implementing instructional changes from the perspective of teachers. The study investigated the frequency with which teachers from small, medium, and large suburban elementary school districts reported the existence of selected factors associated with the implementation of instructional change. Questions based on a review of literature and related research were developed by the researcher to be used in personal interviews with randomly selected teachers from the three different size districts. The questions, formed in a frequency format, were developed regarding the existence of selected factors. A total of 73 factors

regarding influencers of instructional change, decision-making bodies for instructional change, change agents who assist with instructional change, interventions of change agents, attitudes of the teacher, and conditions in the school were investigated.

Data were recorded by the researcher on response sheets, which corresponded to specific questions that teachers read from charts. Upon the completion of the data-gathering procedures, descriptive statistics were computed for each factor in the study. The statistics included group means and standard deviations. An ANOVA test ($p < .05$) was used to determine the statistical significance of the differences among the means of the small, medium and large district groups. The Scheffe post hoc test was used to assess statistical significance in pair-wise comparisons. Summaries of teacher comments and specific teacher quotes regarding the

factors were used to discuss the quantified data.

An analysis of the findings of the study, gained through both the information gathered in quantified form and through additional comments made by teachers in the interviews, provided the basis for the following conclusions.

For most factors regarding the implementation of instructional change, there is no significant variance among teachers from small, medium and large district groups.

Teachers are the most significant entity in the process of implementing instructional change. They are the most frequent influencers of instructional changes, the most frequent decision-making body for instructional changes, and the most frequent change agents who assist other teachers in the implementation of instructional changes.

Teachers often act alone in making decisions for instructional

changes. Teachers are not often influenced to make instructional changes by journals, magazines, or books, nor are they often influenced by network groups or professional organizations.

Those change agents who most assist in the implementation of instructional changes are proximal, those with whom teachers have opportunity to have regular and extended interaction.

When teachers agree with the reasons for the instructional changes and believe that the changes will have a positive impact on students, the teachers are more likely to implement the changes for a longer period of time. Changes implemented a longer time are considered by teachers to be more worthwhile, more stimulating and more meaningful.

Certain school conditions associated with the implementation of instructional changes exist with similar frequency in different size suburban elementary school districts and within

the schools of the district. These include the fact that teachers help each other with problems and share expertise, they are informed about research, and they implement instructional changes for two or more years. Instructional changes are incorporated into written curriculum or policy, particularly by larger districts. For the most part, teachers agree with the reasons for change, though teachers in the large district less frequently report that instructional changes are made to solve identified problems. Teachers are consulted about changes that impact them.

Those who plan to see instructional changes initiated and implemented in their districts need to incorporate the knowledge, skill, concerns and motivations of teachers, for the perspective of teachers is crucial to the successful implementation of instructional changes.

References

Fullan, M. (1982). The meaning of educational change. New York: Teachers College Press.

Hall, G. E., & Hord, S. M. (1987). Change in schools facilitating the process. New York: State University Press.

Sarason, S. B. (1971). The Culture of the School and the problem of change. Boston: Allyn & Bacon.



An Investigation of Informal Reading Inventory Scoring Criteria with Average Second- and Fourth-Grade Students

by Judith A. Morris

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The Morris study has added to the literature on informal reading inventories (IRIs) in several ways. First, her finding that word recognition scores on both commercial and text-based IRIs were similar gives teachers and diagnosticians greater confidence in using published IRIs and passages of various lengths. Second, similar average scores among second and fourth graders supports some previous literature that also found no need for differentiated criteria for various grade levels. Finally, the study provided a careful comparison of qualitative and quantitative miscue counts that should be useful to both diagnosticians and researchers.

Many reading authorities believe that placing students in instructional materials at the appropriate level of difficulty is important if students are to make optimum progress in learning to read. How can the appropriate level be determined? Research has shown that standardized tests give results up to five years above a student's actual reading level. Numerous authorities propose that informal reading inventories (IRIs) are more suitable for this purpose.

IRIs have been used for over 50 years. Initially they were prepared from the materials which students were reading in their classrooms. However, during the last three decades, many commercial IRIs have been published. Analysis has shown that the scoring criteria of commercial IRIs vary greatly. Some use the scoring criteria originally proposed by Betts (1946), while others don't.

Betts' criteria of 95% word recognition and a minimum of 75% comprehension are commonly cited as the

standard for identifying the instructional level of students in Grades 1 through 6. However, some researchers have proposed other criteria. Cooper (1952) proposed two sets of criteria--98% word recognition and at least 70% comprehension for primary grades, and 96% word recognition and at least 60% comprehension for intermediate grades. Powell (1970) also proposed two sets of criteria--85% word recognition for Grades 1 and 2, and 91 to 95% word recognition for Grades 3 through 5. He proposed a minimum of 70% comprehension for all grade levels.

This study compared the word recognition and comprehension scores obtained by average second- and fourth-grade students on a commercial and a text-based IRI with the criteria proposed by Betts, Cooper, and Powell. Scores on the commercial and text-based IRIs were compared. Scores were also compared on the basis of gender.

Second (N=52) and fourth- (N=45) grade students identified as average readers by their classroom reading teachers and having instructional reading level scores of second- and fourth-grade, respectively, on the Reading Comprehension Test of the Metropolitan Achievement Test, Sixth Edition, constituted the sample.

All students orally read two passages at their respective grade levels; one from Johns' Basic Reading Inventory, Fourth Edition, and one from a text-based IRI prepared by the investigator. They orally answered 10 questions for each passage. Provisions were made to control for order effect by randomly assigning subjects to either the BRI first, text-based passage second or text-based passage first, BRI second mode.

Three word recognition scores were obtained for each student by conducting a qualitative analysis of miscues which included total and adjusted total miscues, and a qualitative analysis which included only signifi-

cant miscues. Total miscues included omission of an entire word or portion of a word, addition (insertion) of a sound or word, repetition of two or more words, substitution or mispronunciation of a word, words pronounced by the examiner, ignored punctuation - if meaning was altered, repetition of one word, repetition due to self-correction, and self correction. Adjusted total miscues included all of the miscues previously mentioned except repetition of one word, repetition due to self-correction, and self-correction. A miscue was considered significant if it resulted in a significant change in meaning.

Second-grade mean word recognition scores of 93% for total miscues and 96% for adjusted total miscues were most consistent with Betts' criterion of 95%. When only significant

miscues were counted, the mean score of 98% was most consistent with Cooper's criterion of 98%. Fourth-grade mean word repetition scores were most consistent with Powell's criterion of 92% when total miscues ($x=93\%$) were counted, and with Cooper's criterion of 96% when adjusted total ($x=96\%$) and significant ($x=98\%$) miscues were counted.

Comprehension scores for both grades were most consistent with Betts' criterion of 75%. Second-grade scores averaged 78.9% on the commercial and 74% on the text-based IRI. Fourth-grade scores averaged 85.3% on the commercial and 77.7% on the text-based IRI.

Two-tailed *t*-tests were used to compare the differences between students' scores on the commercial and text-based IRIs. Differences in the

scores between boys and girls were also compared by a *t*-test. The level of significance was set at .05. Comparison of the commercial and text-based IRI scores yielded a statistically significant difference ($p=.011$) for second-grade total miscues. No other significant differences were observed for word recognition scores. Second-grade comprehension scores ($p=.056$) were not significant when the two tests were compared. Fourth-grade comprehension scores were significant ($p=.001$). There were no significant differences between the scores of boys and girls.

In conclusion, whose criteria were upheld? In this study, it depended upon how miscues were counted.

References

Betts, E. A. (1946). Foundations of reading instruction. New York: American Book.

Cooper, J. L. (1952). The effect of adjustment of basal reading materials on reading achievement. Unpublished doctoral dissertation, Boston University, Boston.

Powell, W. R. (1970). Reappraising the criteria for interpreting informal inventories. In D. DeBoer (Ed.), Reading diagnosis and evaluation (pp. 100-109). Newark: International Reading Association.



The Role of Home and Classroom Literacy Environments on the Spontaneous Writing and Composing Behaviors of Kindergartners as Perceived by Parents and Teachers

by Marilyn Moore
Ruddy

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The last decade has found emergent literacy to be a primary focus for early childhood educators. Dr. Ruddy's dissertation was based upon the interactions of children with various materials and media and the types of spontaneous writing behaviors possessed by the children. Dr. Ruddy involved the home and the school environments as she interviewed parents and the kindergarten teachers of the children included in the study.

With the increased attention given to the acquisition of early reading and writing skills, Dr. Ruddy's work is at the cutting edge of research in this area. She based her work upon the research findings of Harste, Sulzby, and Teale, among others.

There has been much national debate on the developmentally appropriate issues of the kindergarten curriculum. This debate has been a contributing factor to the slow pace at which our school systems are making change, especially when we take a close look at emergent literacy at the kindergarten level. Both parents and teachers need to better understand their roles in the social and linguistic dimensions of literacy at home and in the kindergarten classroom. With this awareness, home and school can work together to improve the literacy abilities of the kindergarten child. All too often, each is working in a vacuum which could keep the children from progressing in their readiness skills.

After considering the roles of both home and school, the question arises: "When a child is experiencing the emergence of literacy skills, does the school environment or home environment encourage the child more?" This study examined the home/school environment and the spontaneous and nonspontaneous writing behaviors of kindergarten students. A developmental writing program was being piloted at the school district where the research took place. The children from one school were involved in a kindergarten writing program while the children from the other school were not. There was not a significant difference according to parent and teacher ratings between the children in the writing program

and those who were not when looking at literacy abilities. The significance stemmed from the types of literacy environments which were provided for at home. The experiences that the child had at home and at school, as perceived by the parents and as viewed by the teachers, were examined in order to observe the difference between spontaneous and nonspontaneous writers. Prior to parent and teacher interviews, it was hypothesized that the school literacy program would have the greatest effect upon 81 middle class culturally diverse kindergartners.

The parents responded to a Parent Questionnaire of Home Literacy Environment, which also enabled them to evaluate and rate their chil-

dren according to high, average, or low writing ability. Teachers responded to a Teacher Rating Scale for Spontaneous Writing Behavior. They were also able to rate their students according to high, average or low writing ability.

An overall summary of the results were as follows:

1. Parents thought that both their male and female children had positive responses to their similar literacy environments at home. This was true in spite of the fact that teachers and parents rated female students higher in literacy skills than male students.
2. A strong foundation for home literacy emphasized an interaction with siblings. This had a major effect on the child's literacy interest. The "only" child, or child without siblings had structured literacy experiences with their parents rather than sponta-

neous literacy experiences with siblings. This observation accounted for an overall lower home literacy score for "only" children.

3. The home literacy environment had a greater effect on the children's literacy interest than the school literacy environment at the kindergarten level.

Researchers are aware that the "roots" of written language do extend down from the kindergarten experience to the first years of the child's life and that these "roots" also extend outside of the school setting into the home (Dowhower, 1989; Durkin, 1966; Sampson, 1986). This research supports this concept by pointing out that parents have a wonderful opportunity and a very willing and enthusiastic audience in their preschool children.

The idea that the emergent literacy curriculum can be nurtured at home and expanded at school shows the possibility of parents and teachers working together to provide develop-

mentally appropriate experiences for the child in order for the child to make a smooth and exciting transition from home to school in terms of literacy interest. It seems necessary that parents become more informed of their important position in their child's literacy development. Some parents push the academic side of learning to read and write, and they should be more aware that this does not necessarily contribute to the child's literacy success. Reading to the child daily and having literacy materials available for the child to manipulate are all that is necessary in a home literacy environment. An education on the naturalistic approach should be made available in preschool program, preschool screenings, community brochures for hospitals, libraries, etc. The results of this research support other research findings reported by various experts of the kindergarten curriculum: A good start at home seems to make the transition to kindergarten easier.

References

Dowhower, S. (1989). Curriculum dilemma: The early reader. Reading Horizons. Fall 1989, 41-51.

Durkin, D. (1966). Children who read early. New York: Teachers College Press.

Sampson, M. (ed.) (1986). The purpose of literacy: early reading and writing. Dubuque: Kendall/Hunt.



Development and Measurement of a Construct of Reflective Teaching

by *Barbara Lewis Wollman*

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If we want a reflective citizenry, children need to learn in a reflective environment. A major concern is whether teachers have the attributes needed to provide this environment and help solve other educational problems. This dissertation demonstrates the kind of research that professional schools need to do in order to impact practice. We need functional constructs and measurement approaches for concepts such as reflective teaching, which can be used to determine whether teachers have the attributes needed to be a part of solving the problems we face. Results from research of the type presented here can be used to help identify leaders for the effort and to help identify where interventions hold the most promise for providing the teachers we need.

Reflective behavior is not a new goal for education -- Dewey wrote eloquently in its behalf as a sine qua non of education in a democracy (Dewey, 1916). -- but the 1980s saw an exponential rise in the amount of literature devoted to it (Lee, 1989). If reflective behavior is to become an expected outcome of education in the 1990s, it will be necessary for schools to provide the teachers who can evoke and nurture reflective behavior in our students.

Current research supports the assertion that the teacher is a major influence -- both as a demonstrator and as a nurturer -- on which societal skills, knowledge and attitudes will be assimilated by our children. Current research also gives us an indication that specific reflective thinking skills and attitudes can be transmitted by the teacher.

The purpose of this investigation was to determine the extent to which individuals within the existing population of teachers exhibit those characteristics associated with facilitating active, reflective learning. A related investigation has been to determine what conditions or experiences have occurred in the lives of these teachers that might have led them to develop the characteristics associated with active, reflective learning.

The construct, reflective teaching behavior, was defined using Dewey (esp. 1916, 1938), Rokeach (1960), and Piaget (various dates) to form the basis, and related studies (both classic and current) to refine the concepts. The elements of the construct were grouped into eight categories of related characteristics:

- open-mindedness,
- evaluative outlook,
- intellectual curiosity,
- enjoyment of complexity,
- intellectual self-trust,
- logical reasoning,
- intellectual honesty, and
- constructivistic outlook.

This list of characteristics was not intended to be exhaustive (although by implication it very well may be), but only highly indicative.

Items were then chosen from Goodlad's A Study in Schooling

(1979) to form an operational definition for measurement of the construct. Thirty-one percent of the teachers in Goodlad's representative sample of teachers gave a sufficient number of appropriate responses to qualify them as highly or moderately reflective, based on the criteria selected for the present study.

Descriptive analysis of the data showed that a significantly greater percentage of elementary, foreign language, language arts/English, older, and female teachers, as well as former elementary education, foreign language, and language arts/English majors, were highly or moderately reflective.

Logit regression analysis was done on these data to determine the relative effects that antecedent variables (here, gender and major) and situational variables (here, teaching assignment) had on reflective teaching behavior. Gender accounted for 26% of the association between the construct and teaching assignment, and major accounted for 45%, indi-

cating the likelihood of some situational effect on the level of reflective teaching behavior.

Implications

Using secondary analysis on an existing data set, it was found that reflective teaching attitudes and behaviors can be measured in a reliable and demonstrably valid manner using secondary analysis; that these attitudes and behaviors are distributed differently between genders, and among age groups, undergraduate majors, and teaching assignments; and, although selection (here, gender) and training (here, major) do account for a part of the relationship of teaching assignment to reflective teaching, there remains a situational effect on teacher attitudes and behaviors. All these results have implications for staff hiring and school management practices, and, by implication, teacher education.

Incidentally to the main investigation, the outcomes of using reflec-

tive teachers in our schools were explored. For example, with respect to job satisfaction, the present study found that 83% of the reflective teachers said that their job expectations were met, and 76% would rechoose teaching as a profession, as compared to highly significant lower percentages for non-reflective teachers. In terms of staff morale and the retention of trained and experienced teachers, and with implications for staff continuity, this is important information.

In summary, reflective behavior has been offered as a propitious and viable unifying goal for education in the U.S. Thirty-one percent of existing teachers are able to demonstrate the nurture of reflective behavior in their students. Results of this study has implications for hiring practices, teacher education, and school climate, should our society recognize reflective thinking as a survival necessity and make it a primary goal of American education.

References

- Altemeyer, B. (1989). Enemies of freedom: Understanding right wing authoritarianism. New York: Jossey-Bass.
- Dewey, J. (1916). Democracy and education. New York: MacMillan.
- Dewey, J. (1938). Logic: The theory of inquiry. New York: Henry Holt.
- Goodlad, J. I. (1979). A study of schooling. California: Institute for Development of Educational Activities.
- Lee, J. S. (1989). Thinking about higher order thinking. (Working paper. DeKalb, IL: Social Science Research Institute, Northern Illinois University).
- Rokeach, M. (1960). The open and closed mind: Investigations into the nature of belief systems and personality systems. New York: Basic Books.



The Effect of Aerobic Exercise on Fitness Status, Cognition, and Health Locus of Control in Older Women

by Alicia C. Cosky

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The learning of older adults generally has received little attention by researchers in the past. At a point in American history when health and fitness is being highly supported publicly, studies such as Cosky's illuminate relationships that have been assumed between physical effects of exercise and capacity for learning. She was able to carefully control the study of healthy women over the age 65 who participated in aerobic exercise. Her research is significant in that she was able to investigate some of the assumed, but unstudied, relationships between exercise, health, fitness, and cognitive function with this older adult population. Alicia received the 1990 Outstanding Student Scholarship Award for her dissertation from the Department of Leadership & Educational Policy Studies.

Recent demographic estimates, based on data from the United States Bureau of the Census, clearly indicate that the aged population is rapidly increasing and will continue to do so until the year 2030. As this segment of the population continues to grow, an ever-increasing concern is developing with regard to the quality of life during the later years. Governmental agencies, medical and health professionals, and educators, appear to be stepping up their efforts at understanding the unique needs of elderly persons in order to glean some insights into better serving this growing segment of society.

The enhancement of the equality of life in the later years involves empowering individuals with the necessary knowledge and skills to age

successfully. The author defines successful aging as the ability to adapt to the physiological, emotional, and psychological changes which accompany the aging process. These adaptations enable individuals not only to maintain former life patterns but to continue experiencing growth while developing their full potential, regardless of age.

Over the past two decades, society as a whole has come to recognize that elderly individuals do possess special needs arising from their life stage tasks, needs which are inherently different from those of other age groups. Taking into consideration both the legislative directives and the fact that future older adults may well desire further educational opportunities, adult education as a profession

has begun to respond to the educational needs of the older adult. Increased effort to provide opportunities for learning relevant to life experiences, has resulted in a variety of educational offerings never before available to the older learner.

The concept of a "sound mind in a sound body" which the early Greek philosopher Homer espoused is receiving renewed attention as recent research suggests that exercise not only improves physical condition, but may also serve to enhance the emotional and psychological well-being of older adults (Harris, 1986). Specifically, it has been suggested that cognitive function may be enhanced due to changes in regional cerebral circulation, increased neural activity, and heightened metabolic processes

in the brain resulting from participation in a regular exercise program (Dustman et al., 1984; Spirduso, 1983).

Based on current research trends in fitness and aging, this study investigated the question: "Is there a relationship between participation in an exercise program and cognitive function in older women?" If it is accepted that one is entitled to a quality existence in later life and if the ability to continue learning serves to enhance the quality of life, what do we as adult educators know about learning in old age? What type of activities might serve to maintain or enhance cognitive function in later life?

This researcher suggests that aerobic-type activity, performed on a regular basis, may be one way to improve upon the quality of life during the later years. Successful aging requires the ability to adapt to changes, those occurring within the individual and those resulting from a rapidly changing environment. Successful adaptive behavior most often requires the acquisition and application of new knowledge and skills. It is being suggested that regular exercises not only improves one's physical status but may also benefit the individual's mental capacity.

A casual-comparative method of research (ex post facto) was employed in this study. The data reported for this investigation were collected before and after fifteen subjects completed a 20-week low-impact aerobics class and five subjects maintained a normal sedentary lifestyle. Measures were secured on selected fitness variables and several aspects

of cognition. The sample consisted of 20 healthy women, 65 years of age and older who volunteered to participate in this study.

A two-way analysis of variance compared posttest means between groups, controlling for pretest score, and found no significant differences ($p .05$) in fitness status and measures of cognition. Analysis of covariance, multiple regression, and Pearson product moment correlation showed some relationships existing between the dependent variables and age and years of schooling. Significant changes were not found in measures of fitness and cognition. The researcher has identified three plausible explanations for this: 1) pretest scores were relatively high on all measures for this sample, 2) the currently available tools of measurement were not appropriate for the older adult, and 3) the nature of the low-impact aerobics class as administered in this study suggested modification. In addition, subjective observations by the researcher indicated beneficial results which could not be analyzed statistically.

Although significant findings in regard to fitness and cognition were not demonstrated, the mere fact that this relationship is receiving renewed attention from researchers suggests that a beneficial relationship between fitness and learning may indeed exist. Adult educators choosing to work with older adults in a learning environment may need to look beyond cognitive strategies alone and render some consideration to physical status as well. Educational programs planned for the older learner should

incorporate age-appropriate teaching/learning strategies which encompass the premise of a sound mind in a sound body.

Given the health demographics for older adults, it is evident that as a population increases in age, so does the incidence of chronic health problems. Previous research on intelligence and aging has demonstrated that rate of learning for older adults is negatively affected by the presence of disease (Schaie & Geiwitz, 1982). In addition, conditions of anoxia (lack of oxygen to the brain) have demonstrated decreased ability for cognitive processing (Spirduso, 1983). Efforts on the part of educators to help the older adult maintain a fit lifestyle could be a first giant step in helping them age successfully.

The findings from this study imply that the older adult, medically screened, is capable of rigorous physical assessment and participation within the limits of their functional ability. The benefits of regular exercise for the older adult has been documented over the past 209 years and the nature of these benefits have served to enhance the quality of later life. Research in the area of fitness and cognition has begun to demonstrate the potential for a mutually beneficial relationship to exist. If further research can affirm this relationship, the potential of a fitness lifestyle to enhance the aging process could be substantial enough to further improve the quality of life in the later years not only physically but intellectually as well.

References

- Dustman, R. E., Ruhling, R. O., Russell, E. M., Shearer, D. E., Bonekat, H. W., & Shigeoka, J. W. (1984). Aerobic exercise training and improved neuropsychological function of older individuals. *Neurobiology of Aging*, 5, 35-42.
- Harris, R. (1986). Diagnostic and therapeutic aspects of physical exercise and sports in clinical health care of the aging. In B. D. McPherson (Ed.), Sport and aging: The 1984 Olympic Scientific Congress Proceedings (Vol 5, pp 157-164). Champaign, IL: Human Kinetics Publishers, Inc.
- Schaie, K. W., & Geniwitz, J. (1982). Adult development and aging. Boston: Little, Brown and Company.
- Spirduso, W. W. (1983). Exercise and the aging brain. *Research Quarterly for Exercise and Sport*, 54(2), 208-218.



The Learning Styles of Athletic Trainers Compared with Their Performance on the NATA Certification Examination

by David O. Draper

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William Young, Director

Increasingly, scholarship is being devoted to studies that unearth biases and prejudices connected with entrance, qualifying, certification and recertification examinations in the professions. This study sought to determine if there were selected relationships between learning styles of individuals within a profession and their performance on a certification examination. Study results revealed no positive relationships between preferred learning styles of professionals and their scores on the certification examination. Results were used to suggest methods that educators can use to improve instruction for professional preparation and produced data, that if utilized, will lead to improved continuing education programs for the professional group under study.

There is an increasing demand for competent individuals to assume roles in many allied health fields. When a governing board of a respective health field determines that a member is competent, the person is granted certification. This certification is often earned by passing a qualifying examination and it is maintained through participation in continuing education.

One allied health field that follows this process of certification of its members is the National Athletic Trainer's Association (NATA). Athletic trainers are the paramedics of the sports profession. They are responsible for prevention, evaluation, treatment, rehabilitation and education of their clients--the athletes. In order to become certified by the NATA, a candidate must have a college degree, experience in sportsmedicine and pass the NATA certification exam.

After they are granted certification they must participate in continuing education and earn a minimum of six CEU's every three years. Since the NATA puts such an emphasis on pre-professional and continuing education, I wondered what effect, if any, individual learning styles had upon athletic trainers' ability to gain and maintain certification.

Several studies have been performed to identify the learning styles of allied health professionals such as nurses, medical technologists and physical therapists. (McCabe, 1983; Payton, 1979). However, prior to this dissertation research, there has been no published information regarding the diversified learning styles of athletic trainers. Also there have been no previous studies that compared subjects learning styles with their performance on a credentialing exam. The purpose of this study was two-

fold: First, to identify the learning styles of entry level athletic trainers, and second to determine if the NATA certification examination was biased toward any particular learning style.

The Learning Styles Inventory (LSI) developed by Babich and Randol (1976) was the instrument used in this study. Validity and reliability of the instrument were determined through split half, correlation coefficient and internal consistency tests. The LSI is a Likert scale that measures three types of learning preferences:

- 1) personal, which includes written language, oral language or kinesthetic modes;
- 2) social, including group or independent learning; and
- 3) examination preference, oral or written.

Data needed to be collected at a time when many subjects would be available to complete the survey. The January 1988 NATA certification examination was chosen because more than 300 subjects would be present. Copies of the instrument were mailed to proctors of each of the 14 nationwide sites. At the end of the examination, each student was given an envelope which contained the LSI instructions for completing the survey. Students were told that their participation was voluntary. In order to participate in the study, subjects needed to complete two tasks:

- 1) return their completed LSI within two weeks, and
- 2) immediately after receiving them, they were given coded numbers that did not disclose their names.

Of the 372 subjects who received a survey, 165 returned it (44%). Within three weeks after the exam, 102 subjects submitted a photocopy of their scores, establishing a total usable n of 102.

Regarding learning preference, most subjects were independent

learners (63%), preferential to written as opposed to oral exams (58%), and kinesthetic learners (60%). Regarding exam preparation, most subjects (73%) spent the majority of their study time in a reading mode, even though only 21% chose reading as their preferred learning mode. Regarding examination performance, there was no relationship between exam scores and personal or social learning styles. The only relationship found between performance on the exam and learning style had to do with examination preference. Subjects who had a preference for written exams scored significantly higher ($p < .05$) on the written section of the certification test than subjects who had an oral exam preference. The reverse of this, however, was not true. Subjects who preferred oral exams did no better on the oral section of the test than subjects who had a written exam preference. Two possible explanations for this might be the lack of oral examinations given in college, and the stress that examinees go through when subjected to the oral NATA exam.

Overall, the NATA certification exam is unbiased with regard to learning style. This has been of great value to the NATA and to individuals preparing to take the NATA certification exam. It is apparent from this study that entry level athletic trainers exhibit some commonalities with regard to learning style. The majority of entry level athletic trainers prefer kinesthetic learning, and independent study, yet these are the least used modes in continuing education. Most continuing education settings for athletic trainers employ the lecture format, which is the least preferred mode (19%) of learning among athletic trainers. Based upon the results of this study, I have submitted recommendations to the NATA regarding preprofessional and continuing education. These recommendations have included increased opportunities for kinesthetic learning, oral examination and independent study in the education of athletic trainers. It is my opinion that the implementation of these suggestions in preparatory and continuing education settings, will result in improved learning and participation among athletic trainers.

References

- Babich, A.M., and Randol, P. (1976). Learning styles inventory reliability report. Wichita: Murdock Teacher Center.
- McCabe, M. J. (1983). Analysis of learning styles of nursing students at University of Central Florida. (Ed.D. practicum paper, Nova University, Fort Lauderdale, FL.)
- Payton, O. D., Heuter, N. E., & McDonald, M. E. (1979). Learning style preferences of physical therapy students. Physical Therapy, 59, 147-52.



Design and Delivery of Training for International Trainees: A Case Study

by *Jeanne M. Hites*

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David Gueulette, Director

I am particularly impressed with the direction of Jeanne Hites' doctoral research. It has been concerned with the understanding of specific cultural groups and the application of appropriate instructional strategies. The findings have promise for the improvement of teaching in cross-cultural settings at the adult level, but especially for providing the underpinning for the restructuring of international training at AT&T. She has presented her approaches and has been published in respected journals. Her research into the most effective ways to design instruction for international learners is of special importance in our global classrooms. As a result of her research she has become an expert in areas of the design of instruction and planning for international corporate training. She has been an energetic and effective instructional developer for several years and has emerged as a nationally recognized expert in the area of designing instruction for special and international learners.

In many instances, students from various cultures are receiving instruction that is developed and delivered by other cultures without conscious attention to critical cultural traits and their effects on the design and delivery of instruction. As a result, the training appears to be less effective than it is with domestic audiences. The purpose of this case study is to determine the cultural traits most critical to the design of instruction for use by other cultures; to the delivery of instruction to other cultures; to learning of instructional content designed and delivered by one culture for other cultures in an industrial environment.

The literature review examines major conclusions in the literature relevant to conditions and methods of instruction across cultures, their evidence and implications for this inquiry. Cultural factors discussed in-

cluded culture shock, and cross-cultural communication skills or barriers caused by ethnocentrism or stereotyping. Cultural values which may affect the development or delivery of instruction include orientation toward the individual or collective, power distance, uncertainty avoidance, and orientation toward doing versus being. Consequences of cultural values that may affect instruction include expectations disparity between students and instructors, differences in expected leadership styles, motivations and job structure that may affect prerequisite skills and necessary course objectives (Hofstede, 1983). Language factors include second language discomfort and difficulty with vocabulary, grammar and cognitive style. Reading may take longer in the second language although comprehension of written language may be better than comprehension of spoken

language (MacNamara, 1967). Students may have more difficulty comprehending than producing either the written or spoken second language. They may have difficulty translating terminology, and may have more difficulty with abstract than concrete words in the second language. This can cause problems grasping ideas or concepts and lead to the fatigue, frustration and embarrassment referred to as second-language discomfort. Finally, students may be unaccustomed to the learning or cognitive style assumed in the classroom (Doktor, 1982).

Non-verbal factors found in the literature include discomfort as a result of unfamiliar eye-contact or proxemic behaviors, or confusion as a result of unfamiliar gestures (Hall, 1976).

Many of the condition factors listed above will influence the design

and delivery of instruction. The design activities and strategies that may be affected include front-end analysis, organizational, delivery or management strategies and evaluation. Organizational strategies which are intended to influence the internal processes of learning include both micro-strategies (those specified for organizing instruction on a single idea) and macrostrategies (those specified for organizing more than one idea). These condition and method factors found in the literature were used as the research propositions that guided the data collection for the case study.

A descriptive case study approach was taken and data were collected from multiple sources including twenty-nine students from six countries: Korea, Taiwan, the Netherlands, Australia, the Dominican Republic and Great Britain. In addition, twenty instructors, one educational technologist and two administrators provided data, and forty-three documents (including course materials) were analyzed. Five technical training courses held June 1 through August 15, 1989 in Taiwan, Dublin,

Ohio and Lisle, Illinois in which the twenty-nine students were enrolled, were examined.

Techniques used for data collection included surveys, structured interviews, the critical incident technique and documentation analysis. Multiple sources and techniques were used to provide a cross-check of the findings. A factor uncovered in the data collection was considered critical when it was mentioned four times by at least two data sources.

The data showed that the most critical traits brought to training by international students were value differences, and language difficulty. The most often mentioned value differences were values about education and authority resulting in Asian students' practice of asking questions outside of class, or not at all. Two other top ranked differences were motivation and group orientation. Language difficulty was considered by both students and instructors to be the most critical factor in limiting achievement of course objectives. Most methods or instructional design activities critically interacted with language and cultural traits to the

extent that they ameliorated or exacerbated cultural or language factors.

Most critical were instructional micro-strategies, instructional management strategies and instructional delivery strategies. The implication of this study is that training designed for international students should ameliorate cultural and language factors through appropriate instructional strategies that are based on a front-end analysis of the specific target population.

This study should be interesting to businesses conducting training across cultures. Since most of the student respondents were Asian, the findings could be of specific interest to those training Asian students for application to the practical design of instruction. This study provides some baseline data on the outcomes of specific methods used at the AT&T Product Training Centers under specific cross-cultural conditions. Data derived from this study may be used in theory-building and may provide criteria from which U. S. industry executives can better plan for diverse workforces or for the training aspect of technology transfer programs.

References

- Doktor, R. (1982). A cognitive approach to culturally appropriate HRD programs, *Training Magazine*, 36, (10), 32-36.
- Hall, E. T. (1976). *Beyond culture*. Garden City: Anchor Press.
- Hofstede, G. (1983). *Culture's consequences*. Beverly Hills: Sage Publications.
- MacNamara, J. (1967). The effect of instruction in a weaker language, *Journal of Social Issues*, 23(2), 121-135.



Visual Literacy: Investigation of Visual Literacy Concepts as Historically Developed in the Writings of Selected Western Philosophers from the Pre-Socratics to Comenius

by Susan B. Leahy

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Sue Leahy's dissertation is over 400 pages on Visual Literacy as developed in the works of selected Western philosophers from the Pre-Socratics to Comenius. The research is exhaustive and germane to the understanding of the foundations of our current theory and practice of visual learning, teaching and visualization. Her study is an important contribution to the field of Instructional Technology, Educational Psychology and, to education in general. Her dissertation is indeed a superior line of inquiry that has been well investigated and articulated. We who have read her work are impressed not only with Sue's depth of knowledge on the foundations of Visual Literacy, but also on her ability to express her findings and views. She is a stellar researcher and scholar and has presented and published excerpts from her study. Sue received the 1990 Outstanding Student Scholarship Award for her dissertation from the Department of Leadership and Educational Policy Studies.

Introduction

Visual Literacy is a concept, an educational movement, and a controversial metaphor. Since its inception in 1969, researchers in the field have developed definitions, theoretical models, and operational constructs. Interested scholars in fields as diverse as art, psychology, philosophy, and linguistics have converged upon a common interest in visual literacy commensurate with the explosive growth of visual communication in the 20th century. The term, visual literacy, is herein defined as "...the ability to understand and use images, including the ability to think, learn, and express oneself in terms of images" (Braden & Hortin, 1982, p. 41).

An investigation examining connections between current conceptual definitions of visual literacy and ma-

yor Western philosophical thought specific to those conceptual definitions should provide access to some seminal issues relative to the development of the visual literacy concept. The investigatory question, then, becomes: "What have selected Western philosophers from the Pre-Socratics to Comenius contributed to current understanding of the concept, visual literacy, including the basic constructs of understanding images, using images, and thinking, learning, and expressing oneself in terms of images?"

The dual nature of the visual literacy definition demands dichotomous treatment of the question. Philosophical discussions concerning understanding images must be examined along side philosophical discussions concerning using images.

General Findings

In general, most philosophical discussions about understanding images fall under the basic psychological categories of sensation, perception, and knowledge. In addition, historically, the visual image gradually gained importance in retention and recollection, and in memory and learning as the classical philosophers injected thinking into the process of knowing. In this way, understanding images became a necessary part of early epistemological thought. As philosophical thought progressed into the Middle Ages, understanding images in the context of nonverbal communication arose as well. Signs, symbols, and gestures gained recognition as bearers of meaning in nonverbal settings. At the same time, Medieval philosophers began to disagree over the rightful status of the visual image and its role in learning. Some thinkers

exalted the image as the all important point between sense data and universal concepts. Other thinkers described the image as a mere starting point that humankind directly, intuitively, and universally understands. By the time of Comenius, Renaissance philosophical thought emphasized the visual image as a vital player in the prevailing sense realist theory of knowledge.

Second, in general, most philosophical discussions about using images are found within specific discussions that philosophers began to take up in the areas of astronomy, anatomy and medicine, botany, mathematics, architecture, theology, educational practice and mnemonics. Interestingly, some philosophers actually used images themselves within the context of visual communication: in astronomy, Ptolemy constructed star-maps and planetary globes; in anatomy and medicine, Aristotle used anatomical illustrations in Lyceum student texts; in botany, Theophrastus may have developed illustrations of specimens previously only verbally described; in mathematics, Pythagoras, Socrates, and Plato used visual images to teach geometry; in architecture, Vitruvius developed the dual constructs of imagination (understanding the architectural image) and invention (using the architectural image); in theology, Aquinas used imagery as metaphor for the Holy Scriptures; and, in educational practice, Quintilian, Erasmus, and Comenius encouraged the tactile, kinesthetic skill of creating images in reading and writing instruction.

Provocateurs of Seminal Issues

Building upon these general findings, the investigation of visual literacy concepts as historically developed in the writings of selected Western philosophers from the PreSocratics to Comenius reveals eight Western philosophers who emerge as provocateurs of seminal issues related to visual literacy. The eight men are: Aristotle, Quintilian,

Vitruvius, Ptolemy, Augustine, Aquinas, Ockham, and Comenius.

Aristotle

In discussions on understanding images, Aristotle designated recollection as a physiological causal chain that produces changes in the nervous system. Centuries later, this belief emerged as a conceptual tenet of the psychological foundations of visual literacy used to explain how images are understood, how visual learning occurs, and how visual training becomes possible. Another thread weaving through the centuries to emerge as a fully credited psychological tenet of visual literacy is found in Aristotle's explanation of associationism and the appeal of the visual image to learners. In setting forth the conceptual idea that certain elements of visual grammar are necessary to visual composition and appeal, he provided a seminal notion that art and visual literacy theorists Arnheim (1969, 1986) and Dondis (1973) further refined.

As for Aristotle's use of images, as an educator, he supplemented verbal learning with visual representations in anatomy texts he prepared for Lyceum students. He further encouraged students to think and learn in terms of images by recommending illustrated anatomy texts of the day as supplements to his own. This classical thinker initiated several provocative threads of thought contributing to current understanding of the visual literacy concept today.

Quintilian

Quintilian's contributions to current understanding of visual literacy lie in his educational methodology that was dependent on visualization as an aid to student recall, on developmentalism as a psychological base for learning, and on kinesthetic manipulation of the visual representations of the alphabet as a preface to reading and writing. All three of these areas are of certain relevance to visual literacy conceptualists today. He reviewed philosophical opinion of

the day concerning functions of the human mind in memory and mnemonic techniques in oratory which link in method and rationale with present-day concepts in visual literacy. Of special interest was his choice of the verbal metaphor to explain the visual events of mnemonics. This choice created an ancient kinship between Quintilian and today's visual literacy advocates who believe the verbal metaphor is properly assigned to the very name of the field-Visual Literacy.

Vitruvius

An additional contributor of the Roman period was the philosopher-architect, Vitruvius. Vitruvius forwarded a provocative idea that presaged rather distinctly the dual constructs of visual literacy. In delineating the aspects of arrangement in architecture, he described two components. Those two components were imagination and invention. Imagination was the attention paid toward understanding the architectural image. Invention was the creation of the architectural image. Vitruvius, thus, provided the seminal basis for the dual modalities of understanding and using images, the input-output constructs of visual literacy generic to most definitions of visual literacy today.

Ptolemy

Ptolemy's contribution to current understanding of visual literacy was his mathematical systematization of the visual image in cartography. His system of latitude and longitude provided a precise, uniform, universal method to visualize the earth's surface. At that point, understanding and using images became, for the first time, observable skills that today have their place in the social sciences and IQ testing as skills to be mastered by the visually literate student.

Augustine

St. Augustine, philosopher-theologian, contributed two aspects toward current understanding of vis-

ual literacy. In direct continuation of Aristotle's thought, Augustine designated a series of visual elements including harmony, unity, number, proportion, and order as necessary to visual composition. Today's visual literacy theorists believe that precise attention must be paid to these grammatical elements of visual language to produce visual composition understandable to the viewer, a stance finding support in both Augustinian and Aristotelian thought.

Secondly, Augustine pioneered the notion of nonverbal communication through signs, symbols, and gestures. His recognition of nonverbal communication signaled the embryonic beginnings of the concept of body language and of object language, both components of the psychological foundations of visual literacy.

Aquinas

Following Augustine, Aquinas bolstered the idea of the supremacy of the visual image as a permanent foundation of intellectual activity by raising the image to a lofty position of necessary condition in his epistemological thought. Aquinas rediscovered the injected Aristotelian thought on reminiscence and laws of association and order into his own discussions on the visual image. Sharing Aristotle's views that memory belonged to the images of sense perception, Aquinas developed a mnemonic tradition whereby the weak human soul could remember subtle and spiritual truths in a unique blend of philosophy and theology, so typical of the Middle Ages. By refiring the Aristotelian threads of philosophical continuity and theologizing the mne-

monic tradition, Aquinas contributed to current understanding of visual literacy.

Ockham

Ockham, in contrast to Aquinas, sharply rejected the representative theory of perception, thereby removing the image from its lofty position. He believed humans understood images directly, intuitively, and universally. So it was that over 500 years ago, Ockham framed the same controversy that has resurfaced today over tenability of visual literacy as a concept. Current opponents who treat visual literacy as a failed metaphor--as an ability shared by most people, if not all, as a general human condition--are not, then, the first to attack the foundational notions and constructs underlying the concept.

Comenius

Comenius emerged as a stellar example of a philosopher-educator who contributed more systematically and comprehensively than any of his predecessors toward current understanding of visual literacy. Comenius and 20th century visual literacy advocates share certain commonalities in educational methodology, theory, and practice in developmentalism, associationism, nonverbal communication and language acquisition, and recognition of visual learning styles.

His illustrated Latin-Vernacular text, *Orbis Pictus*, clearly reflected Comenius' belief that understanding images and factors of visual sensory experience were too important to be left to chance, a sentiment echoed in visual literacy literature today. His practice of associating like with like using visual methods, ocular aids,

and creative production of visuals is in direct line with modern visual literacy methodology. Comenius' conclusion that nonverbal communication between parent and child is prior to and the basis of later language acquisition and development is a remarkably modern conception that visual literacy advocates support as part of visual language. His "see-it-draw-it" disposition encouraged a visual style of instruction and learning. A pivotal figure, Comenius was the first Western philosopher-educator to develop educational tenets, methodology, and specific practice firmly based on the constructs of visual literacy in seeming devotion to the importance of understanding images and using images to think, to learn, and to express oneself.

Conclusions

Though the term, visual literacy, is new and up-to-date, visual literacy is not a new idea. Visual literacy finds its structural roots deep within an extensive body of selected Western philosophical thought. Even 2,000 years ago, thinkers enumerated germinal philosophical threads which have woven the multitextural fabric of visual literacy, controversy and all. Though study of the philosophical past may reveal much of what has been, it can offer no insight into what will come to be. That power lies with humanity and the ways humanity harnesses the power of ideas. Harnessing the powerful ideas and concepts of visual literacy to serve the needs of educational practice in the visually explosive 20th century is the approach some philosophers would surely recommend.

References

- Arnheim, R. (1969). *Art and visual perception*. Berkeley: University of California Press.
- Arnheim, R. (1986). *New essays on the psychology of art*. Berkeley: University of California Press.

- Braden, R. A., and Hortin, J. A. (1982). Identifying the theoretical foundations of visual literacy. *Journal of Visual Verbal Language*, 2, 37-42.

- Dondis, D. A. (1973). *A primer of visual literacy*. Cambridge: Massachusetts Institute of Technology.



Mao Zedong's Philosophy of Adult Education

by Yanzi Lin

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Phyllis M. Cunningham, Director

Most westerners have not considered the interest that Mao Zedong had for the education of adults. This dissertation gives us first of all the theoretical base and the formations of adult education practice which have grown out of Chinese socialist thought. Secondly, one can see how the historical epoch in which the Chinese revolution occurred shaped Mao's philosophy and the education of adults in the Peoples Republic of China. The dissertation shows how Mao's view's on the nature of human beings, knowledge, and adult learning became the basis of developing solutions starting with his first initiative, the Changsha worker evening school, to a fully conceptualized adult education program based on political education, moral cultivation and general educational development.

Chinese communist adult education was used as a means to support the Cultural Revolution, to overthrow the old social order and establish a new socialist one - to develop a generation of new people. Mao Zedong, the leader of the revolution was personally involved in many adult education programs and helped to develop the theory, philosophy, principles and methods of the Chinese communist adult education. Lin's dissertation, Mao Zedong's Philosophy of Adult Education systematically describes and analyzes Mao's intellectual contribution to Chinese communist adult education. The author observes that many of the approaches to adult education are still followed in China, although Mao has been dead for over ten years. Lin analyzes Mao's philosophy of adult education in the Chinese context and reveals that Mao did not separate himself from Chinese tradition and culture.

In the first portion of the dissertation Lin reviews Mao's life, the history of the Chinese communist

revolution, and Mao's activities in adult education. He observes that probably no statesmen or politicians of the contemporary world have involved themselves as much in adult education as Mao.

In the body of his dissertation Lin examines Mao's ideas on society, humanity, knowledge and learning. Mao took a Marxist view of society, propounding that the conflict between the ruling classes and the laboring people would lead inevitably to a socialist and communist society. Mao's ideas about human beings, however, were a blend of Marxism and Chinese tradition. At one time he held that humanity was comprised of conflicting classes, and encouraged ruthless class struggles. On other occasions he took a traditional humanistic view and promoted adult education programs intended to change the minds and behaviors of the people. Mao had a passion to educate the Chinese people to become dedicated, hard working, self-sacrificing and loyal to the revo-

lution. His ideal human being was patterned after a Confucian model.

Mao's ideas on knowledge and learning were essentially Marxist, which emphasized the importance of practice as the basic source of knowledge. Of particular interest to American readers is his unique learning theory. Though Mao never wrote any particular book or article on learning theory, he frequently talked about learning. In most of his major writings, Mao always gave a place to adult education and learning. Lin gleaned from the fragmented theses and syntheses six learning principles proposed by Mao:

1. Investigation or fact finding

The most important learning is not book-reading, but fact finding in practical situations;

2. Seeking truth from facts

Facts are the objective world and only those theories that are derived from and tested by facts can be referred to as truth or true knowledge;

3. Learning from the masses

The masses as a whole are smarter than intellectuals. Learning from the masses is one of the best ways to acquire knowledge;

4. Doing is itself learning

Many things in a revolution such as the Chinese Cultural Revolution were unique and can not be prescribed to fit other social revolutions. One has to learn by doing. In fact, learning by doing is an efficient way of learning. In this sense, doing is itself learning;

5. Learning from mistakes

Mistakes are not always bad. They tell people why they are wrong and by correcting the mistakes people learn right away; and

6. Being modest in learning

People can fill something only when there is vacancy. In learning, one should always feel empty so that one can acquire knowledge eagerly.

Lin also reviews Mao's theory of purpose and content of adult education. Generally, Mao held the notion that adult education was for the revolution. Three aspects make up the content of Mao's adult education - political indoctrination, moral cultivation and general educational studies and skill training. Mao supported unique methods of adult education which included criticism and self-criticism. These were especially intended for leaders and officials who were to rid the populace of "bad" ideas and habits, to set up models as a way to change people's behavior; the mass line, that is, the maximum participation of the populace; to send

officials and intellectuals into the countryside, bringing them closer to the masses; and to launch national campaigns as large scale adult education programs. Mao also had opinions about attitudes and beliefs related to the relationship of teachers and students. Throughout his life he challenged the authoritarianism of teachers, criticizing teachers and intellectuals for their "petty bourgeois ideas" and "waving stands" at crucial times. The ideal teacher for Mao is one who puts the interest of the people first, one who says he or she doesn't know when not knowing. The ideal student is one who dares to challenge authority, study on one's own and is close to the masses and practice.

Finally, Lin assesses Mao's philosophy of adult education. He compares four strengths and four weaknesses of Mao's approach. Realization of a radical approach of educational philosophy, the establishment of a learning society, the mass line, and the moral cultivation were four strengths. The four weaknesses included the over-emphasis of class struggle, his method of defining needs, political indoctrination and thought control, and the denigration of intellectuals and academic knowledge.



The Human Factors of Cancer Survival: A Qualitative Analysis of the Commonalities

by Mary Lou Lockerby

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Paul J. Ilsley, Director

Mary Lou Lockerby selected a compelling and difficult dissertation topic and matched it with a rigorous research methodology. Having lived with cancer herself, she examined what it meant to her, by delving into her own fears, hopes, reactions, and sense of self. (She even interviewed her own family members on their perceptions of changes she made, to verify the power and the meaning of the transformation that occurred in her life.) The resulting chronicle provided a rich source of data for a dissertation. But she was not content until she achieved four goals: 1) to produce the lifestories of people who survive cancer, including an elaborate autobiographical statement; 2) to expand the very definition of cancer, in human terms, that take us beyond mere clinical definitions; 3) to create a model of the primary factors that are common among cancer survivors; and 4) to divulge insights to health care professionals on how they can better understand, and therefore treat, people with cancer.

It is incredible to think of all the thousands of people who recovered from "incurable" illnesses and were never asked how or why they thought they had gotten well (Siegel, 1989, p. 12).

As the statement by Bernard Siegel implies, as well as my own personal experience with cancer indicates, there is an obvious need to understand the human factors of cancer survival. My research prompted me to search specifically for cancer survivors and question them regarding their survival--not the medical processes (although these factors are acknowledged) but rather the emotional and mental processes they felt contributed to their survival. The cumulative experiences and personal accounts of the cancer survivors furnish crucial insight into the commonalities of persons who survive cancer. Throughout personal interviews, proper analysis, and reflective awareness, I attempted to reveal the dimen-

sions that are common among persons who have survived cancer. Interviews permit the investigation of the whole arena of self-definitional/emotional and personal aspects including emotional support, control, perceptions of time, self-perceptions, personhood, and attitudes toward life. The significance is apparent for those who choose to understand the cancer experience and who wish to know it better.

A paramount conclusion of this study was that an essential aspect in the survival of cancer is the ability of a person to direct his/her own destiny, to actively control parts of the healing process, to set goals, to understand fears and anxieties, and to perceive himself/herself as a worthy human being. Survival is more than the will to live; it is an individual's tenacity and power to control situations of the body including the disease.

Cancer is a source of psychological and physical stress to patients, though certainly some tolerate the

disease better than others. Each person reacts differently to the illness and each one has individual and personal struggles. However, I uncovered five essential constituents of cancer survival and what these can tell us about cancer and its effects on a person's lifeworld. The entire experience of cancer survival--its trauma, its turbulence, its mystery, its phantasm--all become the foundation for survival and the total consciousness of the survivor's lifeworld. The experience cannot be separated from the individual or vice versa.

Five themes that emerged in this study support the recognition of the individual elements and the interrelatedness of each. These five factors posit essentialities for anyone dealing with the cancer experience:

1. Temporality

The temporal aspects are illustrated in anecdotal evidence as a

means to understand these components in supporting the survivor making the connection between the cancer experience and the life experience.

2. Spatiality

Spatiality and its relationship to the cancer survivor is a phenomenon that we take for granted. Spatiality is our surroundings, the feelings elicited around us from the people, places, and the things that make up our existence.

3. Support

Some form of support is needed. Interviews reveal support from friends, family, medical personnel and, above all, the survivors themselves.

4. Personal attitudes/self-perception

Cancer manifests a positive approach to treatment and survival. The duality of the cancer experience permits the person to make the choice--

whether to become a victim or a survivor.

5. Control

Control is an amalgamation of all the forces that constitute survival. Control is personal and diligent and permeates every other theme.

LeShan (1977) states that "there are times when getting cancer can become the beginning of living. The search for one's own being, the discovery of the life one needs to live, can be one of the strongest weapons against disease" (p. 184). I was striving to capture the complexity of the experience and to have the survivors relate that experience in their own terms with emphasis on emotional and self-perceptive issues. Words and the memories they trigger fuse with the experience of the philosophical transformation. The symbolic experience of disease leads to changes and adaptations that leave a lasting impression on those involved.

The heuristic theories which emerge are dual option manifestation, contextual relevance and the transcendence ethic. The dual option

manifestation indicates that persons diagnosed with cancer had two options to consider when facing the cancer: they could consider themselves a victim, or they could consider themselves a survivor. One comes face to face with his/her own mortality. The optimism, unrelenting determination, and unquenchable courage of all the participants clearly showed that they had faced the option and chosen the road to survival.

The contextual relevance refers to the survivors' own definition of cancer. The literature and the recorded definitions have deficiencies. Cancer has a multidimensional meaning with relevance to the importance of the five themes.

The survivors all indicated that they felt they had changed as a result of the cancer experience; but none of the survivors could pinpoint when or where the change occurred. The transformation was more than the simplicity the word implies; it was intensely personal and almost mysterious. Illness brings our life into a consciousness and allows us to dig deeper into the recesses of our selves and discover a realization of who we really are.

References

LeShan, L. (1977). You can fight for your life. New York: M. Evans & Company, Inc.

Siegel, B. S. (1989). Peace, love, and healing. New York: Harper & Row.



Incidental Learning by Adults in a Nontraditional Degree Program: A Case Study

by Craig Mealman

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Robert Smith, Director

One of many substantial outcomes of this study stems from the fact that it is important to clarify relationships between teaching, learning, and learning to learn in adulthood. Mealman's findings confirm that learner-centered instruction in subject matter can make substantial contributions to self-understanding as learner, openness, and motivation for further learning, as well as to competence in learning when emphasis is placed on active participation in structured groups and on self-directed out-of-class inquiry. This should be of considerable consolation to program developers and instructors who are aware of the tendency for subject matter to become rapidly obsolete and difficult to recall.

Focus of the Inquiry

In an attempt to understand the relationship of intentional and incidental learning most researchers have conducted experimental studies with normal school age children. While these results have shed some light about the phenomenon, much is yet unknown, especially related to adult learning. One conclusion from a review of the literature was that very little research had been conducted on adult students' incidental learning in natural settings.

Several adult education researchers have dealt with the topic of incidental learning. Fodor (1983) suggested that incidental learning is an expected, natural offshoot of even the most structured course. Apps (1978) discussed several ideas which provided added support for this inquiry. He spoke of both the expected nature of incidental learning, not only in educational settings but as part of everyday living, and how society

seems to place lower value on such learning outcomes. Lastly, Brookfield (1986) suggested that facilitators could develop a climate where incidental learning is more likely to occur.

Two general questions and seven specific questions formed the basis of the study:

1. What was the nature of adult students' incidental learning? and
2. What role does incidental learning play in the students' experience in the non-traditional degree program?

Initially, incidental learning was defined as planned, unplanned and unanticipated learning outcomes not identified as part of the formal curriculum. The definition established the parameters that were used during the data collection and analysis. At the conclusion of the study, the author revised the definition for incidental learning -- learning which is not

specified as part of a formal curriculum as those additive learning outcomes that occur naturally, resulting from participation in any educational experience.

Incidental learning can be anticipated or unanticipated, intended or unintended, and unwanted or undesirable by some; incidental learning occurs as a result of both planned and unplanned efforts on the parts of both students and instructors. Students or instructors may have conscious awareness of certain incidental learning outcomes and be able to articulate them; and certain incidental learning outcomes may remain unknown or at a pre-conscious level. Students and instructors may value incidental learning more than, less than or on par with formal learning.

Research Methods and Data Analysis

One primary objective of the study was to understand a phenomenon from the perspective of the student. The most appropriate methodology for this type of investigation is a naturalistic, case study design (Merriam and Simpson, 1989 and Bogdan and Biklen, 1982). The investigator becomes the primary research tool. One important work, *Naturalistic Inquiry*, (Lincoln and Guba, 1985) guided much of the design.

The researcher interviewed each of the 15 students who participated, and was a participant observer of 21 four-hour class sessions. Data were analyzed on an ongoing basis during the four phases of the inquiry. (The four phases included an orientation and overview, a focused exploration, a member check process, and an intensive data analysis period.) In order to establish trustworthiness, the researcher carried out the following processes: Prolonged Engagement, Triangulation, Negative Case Analysis, Referential Adequacy, Member Checks, Thick Description, Audit Trail, Peer Debriefing, and Reflexive Journal.

Findings

The case study was organized in three sections: context, how class

time was utilized, and students' accounts of their experiences.

The researcher investigated a class of adult students who were enrolled in a Bachelor of Arts Degree Completion Program with a concentration in Management at National-Louis University. The students were formed into a cohort which took 11 pre-determined courses consecutively over 13 months. Students could also earn college credit through the submission and evaluation of a portfolio of prior learning. Usually about 7 instructional activities were used in each class session. Approximately 65% of the time students were actively involved: 21% individual presentations, 14% small group interaction, 12% class discussion, 8% reports by small groups, 5% class activity, 3% student generated/facilitated discussion 2% reflection and writing. The following activities consumed the remaining class time: introduction to the session, 4%; video, 9%; break time, 9%; lecture, 3%; administrative matters, 3%; and miscellaneous, 6%. A significant amount of class time involved experiential education strategies.

Data from the interviews were organized into 14 categories and the presentation of this material represented the bulk of the case description.

One important finding was that the research participants did not tend to make distinctions between incidental and intentional or formal learning.

Also, incidental learning and intentional learning seemed to play equally important roles in their overall educational experience. Learning that was classified as incidental was placed in the following categories: Fit with life patterns; interaction and relationships with class peers and instructors; feelings associated with being involved in the various facets of the program; writing skills improvement; small group experience; self confidence; library research skills; continuing education aspirations; learning how to learn; experiential learning; and idiosyncratic outcomes.

Incidental learning was found to be associated with a variety of activities. Among those activities were small-group interaction in class, individual library research, modification of course assignments, listening to presentations and stories related by peers, carrying out course assignments which had a degree of flexibility, and applying learning in a variety of ways outside the classroom. Lastly, participants seemed to integrate readily what they were learning into many areas of their lives.

Participation in this nontraditional degree program has been described as intense. For many students, every aspect of living was touched by their commitment to earn their bachelor's degree. The program became an integral part of their overall experience, rather than something that stood apart.

References

- Apps, J. W. (1978). *Study skills for those adults returning to school*. New York: McGraw-Hill.
- Bogdan, R. C., & Biklin, S. K. (1982). *Qualitative research for education*. Boston: Allyn and Bacon, Inc.
- Brookfield, S. D. (1986). *Understanding and facilitating adult learning*. San Francisco: Jossey-Bass Publishing.
- Fodor, J. H. (1983). *Incidental learning in the intentional and structured learning experiences of adult students*. Unpublished dissertation, Northern Illinois University, DeKalb.
- Lincoln, Y. S., & Guba, E. D. (1985). *Naturalistic inquiry*. Beverly Hills: Sage Publications.
- Merriam, S. B., & Simpson, E. L. (1989). *A guide to research for educators and trainers of adults*. Malabar: Robert E. Krieger Publishing Company.



Intentional Culture Change by Managers Within an Organization: A Multiple Case Study Analysis

by Paul O'Neill

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Rick Orem, Director

The purpose of the study reported in Intentional Culture Change by Managers Within an Organization: A Multiple Case Study by Paul O'Neill was "to better understand the patterns, processes, and learning involved in the culture change of management groups." The study was significant for several reasons. First, there has been very limited systematic study of the patterns and processes of intentional culture change. This study adds to the organizational culture change literature. Secondly, the explanatory nature of this study has resulted in a better understanding of the complex dynamics of culture change within the management group. And thirdly, the results of this study should provide substantial practical assistance to individuals charged with responsibility for leading either subtle or overt organizational change. Finally, this dissertation was awarded the Donald H. Bullock Dissertation Award of the American Society of Training Directors for 1989, a recognition of the potential impact which this study can make on the study of human resource development and organizational culture change.

I. Problem

Today's business world is increasingly turbulent and uncertain. As a result, many organizations are re-viewing and adjusting their corporate missions and strategies through planned change efforts. Too often, this change occurs haphazardly. Trial-and-error learning among managers can seriously hinder the needed organizational transformation. What is needed is a more systematic learning process that can facilitate effective change among managers, who then can influence the rest of the organization.

The study described here examined the change processes of three management groups within three semi-independent mechanical shops. The shops were part of a railroad

company that was trying to forge a new relationship with its customers. The railroad company realized that the transformation would require a new organizational culture. The new culture would have to foster collaborative relationships within the overall railroad and within the shops themselves—a car shop, an engine shop, and a caboose shop, each with 100 to 300 employees.

II. Research Results

The study found the goal-setting process to have a critical impact on the success of the overall change effort. In-depth interviews with shop management, observation by the researcher, and document review revealed that only two of the shops pursued corporate goals that included

changing the management group's basic assumptions and values.

The first corporate goal dealt with job enrichment, including giving all employees more authority and responsibility. Both the engine and caboose shops managed to expand and enrich most employee jobs, which often resulted in direct improvement of both quality and productivity. Meanwhile, the car shop showed no evidence of enrichment.

The second corporate goal suggested more emphasis on both formal and informal teamwork. The caboose shop made strides toward the teamwork goal; eventually large groups of employees became nearly autonomous work units. The engine shop did not consciously pursue the teamwork goal, but did have great success with a project that involved subgroups of

employees from the entire shop. The car shop did not aggressively pursue this goal; in fact, it had mixed success with its limited use of project teams.

The third corporate goal suggested that managers take an active role in encouraging employee input on ways to improve shop operations. All three shops consciously pursued this goal. The engine and caboose shop managers began aggressively seeking employee input and reacting more positively to it. The car shop also developed better ways of reacting to employee ideas, but there was little evidence of car shop management proactively seeking employee input.

The fourth corporate goal implied a need for a systematic means of identifying and handling barriers to effective employee performance. All three shops successfully achieved that goal by establishing interactive problem-solving meetings with employees.

In summary, the engine shop and the caboose shop had considerable success in changing its culture by focusing on goals which affected management's values and assumptions. The car shop had limited success with its culture change by focusing on goals which merely affected the behavior of management.

The study next examined the specific change processes of the management groups. A comparative analysis of the implementation activities at the shops revealed a strong link between a change process based on the Lewin-Schein (Lewin, 1947; Schein, 1964, 1980, 1985) change model and the transformation success of each management group. The Lewin-Schein model describes three phases of change: unfreezing, changing, and refreezing.

During the unfreezing phase of the railroad company's change process, it became clear that the shopcraft managers first had to realize the need to alter substantially their traditional roles. Once the managers understood the absolute necessity for change, they had to be convinced that the proposed new relationships with employees were workable and doable. Successful pilot projects, which involved virtually every employee in the work unit, showed them that the basic assumptions underlying the change effort were indeed valid.

Once the culture of the management group was "unfrozen," it was time to learn the new culture. In both of the more successful changes, the management groups observed the shopcraft superintendents modeling with their employees critical attitudes

and behaviors in support of the change effort. The modeling of new attitudes and behaviors based on the basic assumptions and values inherent in the culture change had a powerful impact on the overall transformation process.

At this point, the management groups were ready to "refreeze" the organizational culture and to try out activities consistent with the espoused new culture. The managers had several opportunities to test new approaches on employees, such as leading formal project teams, soliciting informal suggestions, and involving employees in highly interactive meetings. The refreezing phase also involved "significant others," who confirmed with the managers the initial successes of the transformation effort.

Finally, it appeared that self-confirmation helped internalize the change. Managers said that implementing activities associated with the new culture often made their jobs easier. Thus, they began building the new activities into their everyday behaviors, which further served to complete the transformation of the management group.

Reference

- Lewin, K. (1947). Frontiers in group dynamics. *Human Relations*, 1, 2-38.
- Schein, E.H. (1964). The mechanism of change. In W. Bennis, E. Schein, F. Steele, & D. Berlew (Eds.), *Interpersonal Dynamics* (pp. 362-378). Homewood: Dorsey.
- Schein, E.H. (1980). *Organizational psychology*. Englewood Cliffs: Prentice-Hall.
- Schein, E.H. (1985). *Organizational culture and leadership*. San Francisco: Jossey-Bass.



An Analysis of Three Strategic Training Roles: Their Impact Upon Strategic Planning Problems

by John Redding

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John Niemi, Director

Dr. John C. Redding, whose dissertation is entitled, "An Analysis of Three Strategic Training Roles: Their Impact Upon Strategic Planning Problems," won the 1990 Donald Bullock Human Resource Development Dissertation Award of the American Society for Training and Development (ASTD), as the best dissertation in the field. The thrust of this dissertation is toward a broader concept of the strategic planning process than appears in the literature. This study offers to human resource developers an expanded role in assisting top-level managers to think strategically and to understand major strategic issues facing their organizations. The dissertation will be published by Jossey-Bass Publishers.

For much of the 20th century, the business landscape remained calm. Stable and secure, most organizations comfortably assumed that the next five years would be like the past five. Products evolved predictably. Competition was constant. Customers were content. Amid such tranquil conditions, business planning could be short-term in horizon and budget-dominated in focus.

Over the past three decades, business environments -- once safe and steady -- have become turbulent and threatening. Since 1960, organizations have encountered changes more extensive in scope and more threatening in impact than anything since the "modern" industrial system took shape. With change the only constant, adaptability is the sole competitive edge. During recent decades, a new form of business planning -- strategic planning -- has emerged as the central means that organizations use to adapt to environmental turbu-

lence and meet the challenge of change.

This three-phase study analyzed the extent to which training can assist organizations to formulate and implement strategic plans successfully. According to previous research, training has the potential of reducing the most common strategic planning problems: lack of organizational readiness, flawed formulation, and failed implementation. Three strategic training roles were examined:

Role 1: Increasing Strategic Readiness

To equip a critical mass of employees (from top level executives to frontline contributors) to think strategically, to plan strategically, and to understand key strategic issues.

Role 2: Improving Strategy Formulation

To participate actively in the development of strategic plans -- either directly through personal involvement or indirectly through senior management.

Role 3: Implementing Strategic Plans

To identify and implement training programs that explicitly support strategic plans, thereby establishing competitive advantage through superior employee competence.

The first phase was a pilot study of 10 organizations, using face-to-face structured interviews. The pilot study refined a research model based on a review of the literature.

The next phase, the primary investigation, analyzed the responses to a written survey of 171 organizations,

using a modified Dillman technique. Results were examined through multiple regression equations. A major finding was that each of the three strategic training roles has a significant direct effect upon strategic planning problems. Together, the three strategic training roles explained 28% of the variance in planning problems, providing empirical evidence that training may offer a direct and substantial contribution to strategic planning success.

Of the three training roles, Role 1 (Increasing Strategic Readiness) appears to have the most impact upon planning problems. Because Role 1 enhances the firm's overall strategic readiness, it seems capable of reducing a comprehensive range of strategic problems evidenced in both the formulation and implementation phases of strategic planning.

The third phase, a follow-up study of 20 organizations using in-depth telephone interviews, suggests that strategy-linked training does not necessarily develop with more years of organizational experience with strategic planning.

Two other factors seem to be more important:

- (a) a perceived organizational crisis that triggers an appreciation of the strategic importance of training; and
- (b) an active, clear, and consistent demonstration of top management's commitment to training as essential for strategic success.

For senior level managers, this research study argues for their increased personal support and public commitment to strategy-linked training as a competitive weapon. For human resource development (HRD) practitioners, this research study challenges them to reevaluate traditional and trusted techniques of needs assessment, program planning, and curriculum development, recognizing that they are often past-centered, reactive, and short-term in nature. It asks that they become pioneers in the next frontier of HRD, becoming expert, not just in the execution of business plans through training and development programs, but also in the establishment of the climate, culture, and competence required for successful strategic change.

The next HRD frontier requires a new breed of HRD professional--

one who fully uses training and development to help both top level executives and frontline contributors to think strategically and to understand the major strategic issues facing the organization; one who personally and actively participates in the development of strategic plans, even when uninvited; and one who exploits HRD's established capability to create competitive advantage through employee competence.

To equip HRD professionals to assume strategic roles, academic preparation needs to emphasize -- not only how best to facilitate the learning processes of the individual employee -- but also how to be a catalyst for effective strategic planning and subsequent organizational change. Business-academic partnerships may provide the best means of preparing both managers and HRD professionals for their strategic roles since learning about strategic planning best occurs when it is embedded in and derives from intimate organizational experience formulating and implementing strategic plans.



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Lifelong Learning and the Professional Nurse

by Patricia A. Wagner

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Edwin L. Simpson, Director

What distinguishes adults who are very persistent learners throughout their lives from those who are not is one question that intrigues adult education researchers. Wagner has attempted to address this question by carefully investigating a special population of adult learners - professional nurses. Her findings have contributed to theory that may guide this line of research in the future. Through her use of grounded theory methodology, six primary categories of influence upon lifelong learning emerged. From her inductive study she was able to arrive at major propositions about how lifelong learning among professional nurses is nurtured.

Recently, the contribution of qualitative research has been recognized as an essential part of the research process in nursing, adding dimensions to the body of nursing knowledge long forgotten or ignored. These dimensions include the feelings, attitudes, beliefs, and first-hand experiences of individuals who practice nursing and who supply a vital ingredient to the pool of nursing knowledge--namely, the affective aspect, that element so crucial to the caring aspect of nursing - the art of nursing.

Over 1,000,000 professional nurses are practicing in the United States today, which makes this group a major population of adult learners. Only a small portion of professional nurses, however, pursue advanced formal education as a part of their lifelong learning activities.

The purpose of this study was to determine what influenced a group of "high learners" in their pursuance of lifelong learning. Many aspects of professionalization have been explored in regard to the practicing nurse, but to date no specific factors

or motivational influences have been identified that relate to continuing formal learning for this group of adult learners.

Based on the literature review and personal concerns and interests of the researcher, several research questions were identified that served as the organizing structure for the collection of data and the discussion of the findings:

- 1) Where does the value of lifelong learning originate, and how is it cultivated?
- 2) What role does the pre-service curriculum play in establishing the importance of lifelong learning and/or nurturing it in the professional nurse?
- 3) What effect does professional role expectation have on the professional nurse relative to contributing to formal professional education?
- 4) What role does mentoring and/or role modeling play in fostering a desire for continuing formal education in the professional nurse?

- 5) What/who are the major support systems professional nurses identify as influencing the pursuit of continuing formal education?
- 6) What are the primary personal and professional benefits experienced by professional nurses who pursue continuing learning?

Methodology

The methodology selected for this study was grounded theory (Glaser and Strauss, 1967). This method requires that the researcher serve as the primary source of research data collection, even though formal instruments or tools may be used to facilitate consistency in data collection (Merriam and Simpson, 1989). Grounded theory procedures use interviews and participant observation to elicit data richly descriptive of the research subjects' experiences or perceptions. What emerges from these data are categories, properties, and hypotheses or propositions that are grounded in the data themselves.

A description of a "professional nurse lifelong learner" was first developed by the researcher using the characteristics of "high learners" developed by Tough (1971): Professional Nurse Lifelong Learners were described as nurses with baccalaureate preparation in nursing who are competent practitioners and have a strong commitment and ability to plan or achieve major personal and professional career goals through learning activities appropriate to these goals. They also take an active role in maximizing their potential to continue to learn and explore the full range of their abilities and are essentially satisfied with their achievements.

The data for the study were obtained from individuals nominated by their peers from membership of the Illinois' Nurses' Association based on the above criteria. Of twenty-four professional nurses nominated by their peers from six districts in northern Illinois, 23 agreed to participate in the study.

After the interviews were transcribed, the text of each was studied and reviewed several times and compared with the other interviews to get a sense of commonalities and differences that existed in comments of the nominees. Common terms, phrases, and ideas that occurred in the data were recorded and tentatively identified as substantive codes. Constant comparison of what had been coded from the first interviews and what emerged from the subsequent interview data was conducted throughout the data analysis phase.

References

Glaser, B., & Strauss, A. (1967). The discovery of grounded theory: Strategies for qualitative research. New York: Aldine.

Merriam, S. B., & Simpson, E. L. (1989). A guide to research for educators and trainers of adults. Malabar: Robert E. Krieger.

for challenge, and the desire to know and the presence of an environment conducive to the fostering of these elements. The family, especially parents, generally provided the environment which fostered lifelong learning with this group of nurse "high learners."

Based on the data, it was concluded that pre-service nursing curricula did effect students' commitment to lifelong learning but the effect was informal and/or incidental, occurring chiefly through the professional socialization process. At the graduate level, most nominees could clearly relate courses and program objectives aimed at fostering continuing learning.

Most nominees were in agreement that continued learning is a part of the role expectation of the professional nurse. High learners differ from the typical professional nurse in their pursuit of graduate education and continuing education activities to keep updated and competent in their specific roles. Mentors and role models played an important role in most of the nominees' lives.

They found support in their pursuit of continuing formal education through conventional channels--their spouses, family, mentors, and peers.

A final relevant finding was that learning meant empowerment to participants in the study. Lifelong learning provided these nurses with a form of transformation and liberation that was not present prior to the experiences they described.

Tough, A. M. (1971). The adult's learning projects. Toronto: Institute for Studies in Education.



The final list of six categories and properties were believed to be descriptive, meaningful, and congruent, with the experience of the 23 "high learner" nurses: Intrapersonal, Socialization/Developmental, Socialization/Professional, Enrichments, Restraints, and Empowerment. The final step in the coding process was to determine relationships among the categories, resulting in two major propositions with sub-propositions.

1. Lifelong learning is a value developed very early in life through a supportive family environment, as a part of the socialization process, and is strengthened in the professional education program (nursing);
2. The major outcome of lifelong learning for the professional nurse is an expanded personal and professional knowledge and understanding of self that provides a source of empowerment.

Socialization was identified as the integrating concept among the categories.

Discussion of Findings

Based on the data, it was determined that both hereditary and environmental influences were important contributors to the development of lifelong learning, but the catalyst was the individual nurse. Nurturing elements of lifelong learning were the individual's own commitment, need

The Educational Theory and Philosophy of Education of Miles Elwood Cary: Implications for Democracy in a Global Civic Culture

by Shirley JoAnn Williams

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Byron F. Radebaugh, Co-Director

This study provides a hitherto relatively unknown example of how a remarkable high school principal in Hawaii organized a "culture" of a school to reflect the philosophy of education of John Dewey. It describes the outcomes of this "vitalized" curriculum and illustrates what a school committed to the values of democracy in a global civic culture can be like. It is a significant contribution to the literature of "progressive" education, John Dewey, and democracy. It illustrates in what I found to be an inspiring way what can happen when teachers and principals trust, respect, and have faith in students.

Miles Elwood Cary (1894-1959) was a progressive educator responsible for the emergence of McKinley High School in Honolulu, Hawaii as an experimental secondary institution for democratic citizenship. Despite his twenty-four year tenure as principal, active legislative and executive involvement in the Hawaii Education Association, and numerous publications in leading educational journals of his time, Cary's dedication to vitalized curriculum and progressive methodologies are largely excluded from written educational history.

This research study examined Miles E. Cary's educational theory and philosophy of education for aspects of democratic schooling which have implications for an emerging global civic culture -- a culture which represents how humans share common space, resources, and opportunities while managing conflict and in-

terdependence (Boulding, 1988). Democracy at McKinley High School was analyzed from the narrative perspectives in *The Daily Pinion*, a school newspaper which reflected true democracy through the words of students who sought choice for the conditions under which they lived. Communication through its daily newspaper, a citizenship "laboratory," and an active forum which engaged students in community, territorial, and world issues were key components of Cary's educational theory. The school functioned as a democratizing institution where a vitalized core curriculum prepared students for adult civic responsibility.

McKinley High School's urban, multicultural student body grew from 2300 students in 1929 to almost 4000 students at the time of Pearl Harbor's bombing. Changing territorial needs, a diverse public school population

reflecting the ethnic composition of the Hawaiian territory, and economic and political arguments made the islands an interesting focal point for education. Cooperative community enterprises promoted democratic process and provided the opportunity for students to criticize the social system and transform the public school population into a citizenry well prepared for Hawaii's statehood. McKinley High School was a crucible for democracy.

Miles E. Cary realized that a significant factor complicating the Hawaiian educational system was criticism by community leadership. Three distinct attitudes toward education had crystallized (Fuchs, 1961). The first was that expanding educational opportunities should contribute to Hawaii's basic industries and serve the economy. A second group felt that education should be curtailed before

it destroyed an economy based on the utilization of masses of uneducated workers. The third position and its principal advocate, Miles E. Cary, urged education to liberate talent and creativity in order to someday transform the social structure of Hawaii. This affect on future Hawaiian leadership reflected the consequences of Cary's faith in "young people who were routinely passed over by those of high status, power, and influence" (Beck, 1989).

Education was promoted as a "deliberate, careful, persistent search for the meaning of democracy" (Black and Gold, 1941). The complex job of the educator in developing human potential and interpersonal relations was reflected in Cary's belief in participatory democracy as an human empowerment process. The high school's aim was to "help young people to discover the wider social meanings and values that may be experienced by those who engage in the common occupations of the community" (Bolton and Cary, 1931). Cary believed that "the real test of education is what people are encouraged to

do in their own community to improve the quality of living" (Cary, 1952).

McKinley High School government included an executive council, a variety of committees and bureaus, school police, and a court system. It was considered a student-teacher-principal cooperative process -- not a student body government. Students were addressed as "citizens" whenever possible to form the connection between their responsibility in the school citizenship laboratory to their roles in the community. Students stressed open minded thinking and attitudes for curriculum and community change.

Thoughtful action and self direction formed a focal point for the philosophy of McKinley High School. Cary viewed students' moral responsibilities as the ability to make decisions regarding the community, educational, and ethical practices on which democracy was founded. Students learned to analyze the results of the work before them, rather than solely evaluate themselves on the results of standardized test scores. Hu-

man development and learning through integrated thought and action furnished the basis for educating the McKinley High School student.

Miles E. Cary was aware of opposition to the core curriculum as a radical idea. His writing defended core studies, as it continued to be criticized both in Hawaii and on the mainland. When the Directing Committee of the Eight-Year Study selected participating schools, McKinley was not included because of the costs which would have been incurred resulting from Hawaii's location (Tyler, 1990). Despite its distance Hawaii's educational program was described by William H. Kilpatrick as "the most interesting experiment under the America flag" (Bolton and Cary, 1931).

Miles Elwood Cary and McKinley High School represented the American democratic scheme of values. They experienced a practical and dynamic way of life -- a means to develop the present condition in such a way that the community can be renewed, re-defined, and reconstructed.

References

- Beck, Robert H. (1989, October 21). Letter to author.
- Black & Gold. (1921-1948). Honolulu: McKinley High School.
- Bolton Frederick E. & Miles E. Cary, (1931, October). "Going to School In Hawaii." Nations Schools, 8 (4), 41-8.
- Boulding, Elise. (1988). Building a global civic culture. New York: Teachers College Press.
- Cary Papers. (1952). New York Ethical Culture/Fieldston Schools Archives. 33 Central Park West, New York City. Cary Papers. Manuscripts, circulars and miscellaneous administrative correspondence.
- Daily Pinion. (1921-1948). Honolulu: McKinley High School.
- Fuchs, L. H. (1961). Hawaii Pono. New York: Harcourt, Brace & World, Inc.
- Tyler, Ralph. (1990, May 20 and July 5). Letters to author.



Type A Behavior and Measures of Success Among Women Business Owners

by Michael Agnew

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The present study examined the relationship between women business owners' Type A Behavior Pattern (TABP) and measures of business success. The subjects in this study were a randomly-selected sample of active members of the National Association of Women Business owners (NAWBO), Chicago chapter. TABP was measured by the Jenkins Activity Survey (JAS; Jenkins, Zyzanski & Rosenman, 1979). Three measures of business success were used:

- (a) the ability to establish and manage a business was defined as a non-economic measure of business success;
- (b) financial performance and organizational growth were used as measures of economic success in business. Financial performance was operationally defined as the level of return on investment; organizational growth was operationally defined as the level of sales revenue growth over the past three years.

Various authors found TABP to be positively associated with the professional level of employees (i.e., "occupational success," Boyd, 1984; Howard, Cunningham, & Rechnitzer, 1976; Kittel, 1987), yet there are few studies, if any, which have examined if there is a prevalence of TABP among women business owners. The studies by Boyd (1984) and by Howard et al. (1976) went beyond the prevalence issue to examine if those business managers who were Type A tended to be able to impact the success of the firm. Boyd's results supported an association between the small business owner's Type A behavior and the firm's growth and performance, yet the sample was almost exclusively men (346 of 368).

This replication of Boyd's study had one variation in focusing on women who own and manage a small business. The research questions are:

- (a) Is there a higher prevalence of Type A than Type B behavior among women business owners?

- (b) Is there a relationship between the woman business owner's TABP and measures of business success?

It has been assumed that Type A executives are more likely to achieve success in business since they are achievement-oriented and motivated to action when faced with deadlines, challenges, and difficult situations (Schmied & Lawler, 1986). Whether Boyd's results for a population of dominantly male business owners can be generalized to a population of women business owners is an open question (Schmied and Lawler, 1986).

Of the 201 NAWBO members who were sent the JAS and the survey of women business owners, 99 (49%) were returned usable. According to the JAS, 85% of the respondents were classified as Type A, a high prevalence of TABP for this group. Normative data on large samples of predominantly middle managers showed 50%; among a large sample of senior managers in Belgium showed 58%

(Kittel, 1987); a group of chief executives in large Canadian corporations showed 61% (Howard et al., 1976); and male-dominated group of small business owners showed 84% (Boyd, 1984). Differences between large and small firms were discussed as well as the unique barriers to business entry that exist for women that do not exist for men.

No relationship was found between either measure of economic success employed; results which conflict with the findings of Boyd (1984). Three extraneous variables were implicated as being possible causes of the inconsistency:

- (a) since the small businesses of the present study were much younger and smaller than Boyd's (1984) sample, these women-owned businesses may have been too young and too early in their development to accurately reflect profits;
- (b) women business owners faced barriers to economic success that men business owners did not face (U.S. Department of Commerce, 1986); and
- (c) women business owners of the present study had fewer years' experience in managing a business.

The above three reasons related to the fact that one study investigated men-owned businesses and another examined women-owned businesses. A fourth suggested reason relates to possible differences between the nature of men and women. Women may use different measures of business success than men (Hennig & Jardim, 1977).

Overall, the present study confirmed the hypothesis that women who successfully achieved business ownership tended to be Type A. Yet being a Type A women business owner did not relate to the firm's financial performance or organizational growth in this sample.

References

- Boyd, D.P. (1984). Type A behavior, financial performance, and organizational growth in small business firms. Journal of Occupational Psychology, 5, 137-140.
- Hennig, M., & Jardim, A. (1977). The managerial woman. Garden City: Anchor Press/Doubleday.
- Howard, J.H., Cunningham, D.A., & Rechnitzer, P.A. (1976). Health patterns associated with Type A behavior: A managerial population. Journal of Human Stress, 1, 24-31.
- Jenkins, C.D., Zyzanski, S.J., & Rosenman, R.H. (1979). Jenkins activity survey manual. New York: The Psychological Corporation.
- Kittel, F. (1987). Type A and other psychosocial factors in relation to coronary heart disease. In T.H. Schmidt, T.M. Dembroski, & G. Blumchen (Eds.), Biological and psychological factors in cardiovascular disease (pp. 63-84). Berlin: Springer-Verlag.
- Schmied, L.A., & Lawler, K.A. (1986). Hardiness, Type A behavior, and the stress-illness relation in working women. Journal of Personality and Social Psychology, 51, 1218-1223.
- U.S. Department of Commerce. (1986). Women and business ownership. Washington, DC: Government Printing Office.



Stressors, Coping Behaviors, and Burnout in Secondary Teachers

by Carol J. Dean

Carol J. Dean is a Psychology and United States History teacher at Lake Park High School, Roselle, Illinois.

This study was an investigation of the relationship between teacher burnout and specific stressors, stress themes, and coping behaviors. Specifically, nine basic relationships were examined:

- (a) the relationship between teacher burnout and specific stressors and stress categories,
- (b) the relationship between teacher burnout and stress themes,
- (c) the relationship between teacher burnout and the frequency of use of specific coping behaviors vis-à-vis external stressors,
- (d) the relationship between teacher burnout and the frequency of use of specific coping behaviors vis-à-vis internal/emotional feelings,
- (e) the relationship between teacher burnout and the perceived effectiveness of specific coping behaviors vis-à-vis external stressors,
- (f) the relationship between teacher burnout and the perceived effectiveness of specific coping behaviors vis-à-vis internal/emotional feelings,
- (g) the relationship between teacher burnout and years of experience,
- (h) the relationship between teacher burnout and gender, and
- (i) the relationship between teacher burnout and age.

Teachers (N=155) from six high schools in the northwestern suburbs of Chicago completed two instruments. A Teacher Stress and Coping Scale (TSCS) was developed by this investigator to measure the perceived intensity of specific stress categories, the perceived intensity of specific organizational stress themes, the frequency of the use of specific coping behaviors, and the perceived effectiveness of specific coping behaviors. The scale was developed to measure quantitatively those variables found by Blase (1984, 1986) in his qualitative studies. The product was a five section Likert-type rating scale.

Subjects also completed the Maslach Burnout Inventory (Form Ed) which consisted of three subscales:

- Emotional Exhaustion,
- Depersonalization, and
- Personal Accomplishment.

Correlations were run between the scores on the three subscales of the MBI and the stressors, stress themes, frequency of uses of coping behaviors, and perceived effectiveness of coping behaviors. Comparisons were made between the mean scores on the burnout scales for males and females using a t-test. Comparisons were also made between the

mean scores on the burnout scales for age and experience groups using a one-way analysis of variance.

A large number of stressors and stress themes across the entire school environment were significantly related to burnout ($p < .05$). Several researchers have cited the issue of time as it relates to stress (Blase, 1986; Cox, 1980). The results of this study were consistent with the literature. Time as an organizational stressor and the stress theme Control of Time were both significantly related to all three measures of burnout.

Previous research indicates that administrative factors can play a major role in teacher stress (Litt & Turk, 1985). This study offers strong support for these findings.

There was also evidence in this study to show that work overload is related to teacher burnout. Quantitative overload was related to all three measures of burnout. Qualitative overload was related to emotional exhaustion and depersonalization. This is consistent with the work of Blase (1986) and Sutton (1984).

An interesting pattern emerged which was related to coping behaviors that are used to deal with external stressors. Teachers who were burned out tended to use avoidance, acquiescence, and withdrawal. None of these were, however, viewed as effective. It would seem that some burned out teachers continued to use behaviors

that they did not consider to be effective.

Low burnout teachers judged direct confrontation, social support, rationalization, repression, and intellectualization as effective means of dealing with stress. Direct confrontation tended to be used by teachers who have a low degree of depersonaliza-

tion and a high sense of personal accomplishment. This is consistent with the results of a study by Howard, Rechnittzer, and Cunningham (1975).

This study supported findings by Maslach and Jackson (1986) that male teachers tend to be more depersonalized than females. It was speculated that this may have been due to sex-

role socialization that sometimes results in different career expectations for males and females.

It was recommended that the focus of stress reduction efforts should be on diminishing the organizational sources of stress, the training of administrators, and personal management skills of teacher trainees.

References

Blase, J. (1984). A data based model of how teachers cope with work stress. *The Journal of Educational Administration*, 22, 173-191.

Blase, J. (1986). A qualitative analysis of sources of teacher stress: Consequences for performance. *American Educational Research Journal*, 23, 13-40.

Cox, T. (1980). *Stress*. Baltimore: University Park Press.

Howard, J., Rechnittzer, P., & Cunningham, D. (1975). Coping with job tension--Effective and ineffective methods. *Public Personnel Management*, 4, 317-326.

Litt, M.D., & Turk, D.C. (1985). Sources of stress and dissatisfaction in experienced high school teachers. *Journal of Educational Research*, 78, 178-185.

Maslach, C., & Jackson, S. (1986). *Maslach Burnout Inventory Manual*. Palo Alto: Consulting Psychologists Press.

Sutton, J.I. (1984). Job stress among primary and secondary school-teachers: Its relationship to ill-being. *Work and Occupations*, 2, 7-28.



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A Comparative Analysis of the Personal and Organizational Impact of a Merger of Two Hospitals from the Perspectives of the Hospitals' Employees and the Administration of the Parent Corporation

by Michael Douglas

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Mergers and Acquisitions

The trauma associated with mergers and acquisitions significantly affects thousands of people each year. Although a commonplace phenomena in the workplace, there is increasing evidence that these transitions cause considerable organizational and personal stress.

A significant body of literature exists regarding strategies and planning for mergers and acquisitions from a business perspective. Top executives responsible for mergers and acquisitions typically consider these financial and market advantages expected from the transaction. However, the business world has been indifferent to, or unaware of, the impact of a merger or acquisition on the lives of those most affected by the experience.

There is evidence that the manner in which employees are treated is a significant factor in whether a merger or acquisition transaction will be successful. If employees are critical of a transaction, they have the potential to be involved in overt and subtle ways which will either make it

work or doom the most well-crafted transaction. Since relatively little is known about the strategies which might be helpful in coping with this change, tremendous human costs are experienced in terms of lost jobs, lowered morale, reduced status, internal tensions and anxieties, and family conflict.

In assessing the impact of a merger on the employees of two hospitals, it was expected that a deeper understanding of the impact of the transactions would emerge. Additionally, it was expected that more effective management strategies of such transactions could be designed which minimize the negative features of the transaction for employees and facilitate a smoother transaction.

Methodology

The present study used a naturalistic design. Naturalistic inquiry was considered an appropriate method because of the relatively unexplored phenomenon of the impact of mergers and acquisitions on employees, especially those in a health-care setting. The naturalistic method typically studies human behavior in

the context in which it occurs and attempts to understand that behavior from the subject's point of view or reference. In the present study, this methodology was expected to surface new information, reveal clues which might help understand and explain human behavior associated with a merger, and suggest ideas for interventions and further research.

Data gathering was achieved primarily through the use of guided structured interviews with hospital management personnel and executives of the parent corporation along with an opinion survey distributed to eligible managers of the merged hospital. The opinion survey supported the naturalistic design of the study by exposing interview data to employees' opinions, attitudes, and perceptions.

Seventeen interviews (ranging from one to one and one-half hours each) were conducted with randomly selected managers at the merged hospital. These participants had been employed at the hospitals prior to the merger. Six interviews of similar length were conducted with executives of the parent corporation. A 10-item Likert-type survey was dis-

tributed to all eligible managers prior to the interviews. One hundred and five surveys were distributed; 91 were returned for a return rate of 87%.

Findings

The study's findings centered on participants' feelings of loss, anxiety, and insecurity about their jobs. There were also findings regarding the manner in which information about the transaction was communicated to employees, the assistance offered employees to help them cope during the merger, and the leadership style of hospital executive management. Results also suggested that healthcare workers might experience the impact of a merger differently from employees in a non-healthcare setting.

The dissemination of adequate and accurate information to employees during a merger emerged as essential to the well-being of employees and their attitudes regarding the transaction. The present study revealed that, although attempts were made to provide employees with adequate in-

formation, hospital administration's credibility suffered when employees heard information about the merger second-hand through rumors.

Employees reported significant insecurity and stress related to their continued employment following the merger transaction. Interestingly, most employees expressed a strong desire to know the immediate impact on their jobs while top management appeared to try to "soften" the impact by postponing job reductions and position changes as long as possible. With early information, the employees could make decisions perceived as necessary to get on with their lives.

The use of outside consultants to help employees process the dynamics of organizational change also emerged as an essential need. Employees desired help in understanding their own experience and help in understanding changes in organizational dynamics resulting from the merger. Consistent, coordinated, planning of interventions focusing on employees' emotional and psychological needs during the transition were necessary

for a successful, or at least minimally disruptive, transition.

Understanding an organization's culture and its influence on people was important for those managing the merger transition. An organizational audit which attempted to understand organizational culture was suggested as an important tool for those managing such transactions, in order to have adequate information to make sound decisions regarding planning for, and management of, the transition.

Other findings identified the role of the parent corporation which, in the present study, had oversight responsibility for the merger; the possibility that gender was a factor to consider in a hospital setting where executive management is typically male-dominated and middle management is female-dominated; the importance of the role of the administrators prior to the merger; and the use of checkpoints during a merger at which times progress could be assessed, direction could be changed, and facilitative interventions could be planned.



Factors in Career Decision Making in Gifted Young Adults

by Judith Emmett

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Carole W. Minor, Director

While many in the general population would not see gifted young adults as having problems with career decisions, those who work with these students recognize that they do have special problems and pressures in the making of career decisions. Dr. Emmett's study has identified five clusters of issues important in the career decision-making of gifted young adults. Four of these clusters have to do uniquely with the characteristics of being gifted, while one was a normal developmental issue. The knowledge of these particular factors will help teachers, counselors and others design programs to better meet the career development needs of gifted young adults in high schools and colleges.

Research indicates that many gifted youth experience great difficulties with career decision-making that often persist throughout their lives (Kerr, 1986; Post-Krammer & Perrone, 1983). These difficulties are often attributed to some of the very characteristics that define giftedness. Multipotentiality (the ability to succeed at any one of a number of occupational choices) is often experienced as a burden rather than a blessing. An increased sensitivity to the expectations of others and to their own high standards (perfectionism) can also negatively impact career decision-making. Many gifted youth delay commitment to careers because they fear making the wrong (i.e., less than perfect) choice (Perrone, Male, & Karshner, 1979).

Most studies were done with gifted youth making initial career choices almost a generation (or more) ago. This last decade had brought increased emphasis on the importance of work in the lives of both men and women. In addition, there is growing

recognition and acceptance of career decision-making as a lifelong process (Super, 1990) rather than a one-time choice. This study was designed to investigate the effects these societal shifts may have had on the career decision-making of today's gifted youth.

Participants were 30 graduates of a centralized gifted high school program in Rockford, Illinois. Ten students were randomly selected from the graduating classes of 1989, 1987, and 1985. Since this research was conducted in the summer of 1989, these participants had faced career decisions including college selection, selection of academic major, and selection of graduate school or first professional job within the preceding academic year.

A qualitative approach was chosen as the method most likely to illuminate the factors considered by gifted youth as they made career decisions. Data were collected by means of semi-structured interviews which were tape-recorded and then

transcribed verbatim. These transcripts were then subjected to a content analysis as described by Strauss (1987).

Participants discussed a total of 180 career decisions, and the content analysis identified 20 factors that they considered in making those decisions.

These factors clustered into five groups:

- (a) heightened sensitivity (both to the expectations of others and to societal problems);
- (b) perfectionism;
- (c) psychosocial development;
- (d) superior intelligence; and
- (e) multipotentiality. Issues of heightened sensitivity and perfectionism were the factors considered most frequently when making career decisions.

Issues of heightened sensitivity

- (a) the expectations of parents and peers,
- (b) a sense of responsibility to others whose lives may be affected by the career choice,
- (c) a desire for a respected occupation, and
- (d) a desire to help others by one's work.

Issues of perfectionism

- (a) obtaining the best preparation for future choices,
- (b) not having enough talent for a given career, and
- (c) doing meaningful work that makes a real difference in people's lives.

Issues of psychosocial development

- (a) the autonomy to do one's work in one's own way,
- (b) being true to self, and

References

- Kerr, B. (1986). The career development of creatively gifted adults. In J. V. Miller & M. L. Musgrove (Eds.), *Issues in adult career counseling* (pp. 59-70). San Francisco: Jossey-Bass.
- Perrone, P. A., Male, R. A., & Karshner, W. W. (1979). Career development needs of talented students: A perspective for counselors. *The School Counselor*, 27, 16-23.
- Post-Krammer, P. & Perrone, P. (1983). Career perceptions of talented individuals: A follow-up study. *Vocational Guidance Quarterly*, 31, 203-211.
- Strauss, A. (1987). *Qualitative analysis for social scientists*. New York: Cambridge Press.
- Super, D. E. (1990). A life-span, life-space approach to career development. In D. Brown, L. Brooks, & Associates, *Career choice and development* (pp. 197-261). San Francisco: Jossey-Bass.

(c) choosing the easiest option or what seemed likely the only option available at the time of the decision.

These factors seemed to be age-related issues rather than factors unique to gifted young adults.

Issues of superior intelligence

When discussing future considerations, several participants mentioned making decisions based on the desire to keep options open for the future.

When questioned about what made career decision difficult, the gifted youth in this study referred most frequently to the need they felt to meet others' expectations and to their own perfectionistic pressure to do really well in making the right choice. A few mentioned that making one choice seemed a rejection of equally attractive alternatives. All 30 of the participants identified themselves as the source of their greatest pressure.

The heightened sensitivity to others' expectations and the perfec-

tionism seen in career decision-making permeate all of a gifted person's life.

Attempts to facilitate career decision-making in a gifted population will require, therefore, a holistic approach. This approach will demand the cooperative involvement of parents, teachers and counselors of the gifted, permeating the entire curriculum of gifted education. The acquisition of the social and emotional skills and attitudes necessary to deal with heightened sensitivity and with perfectionism must be given equal priority with the acquisition of purely academic knowledge. Training and reinforcement for self-identification of goals and for self-evaluation of learning will encourage a sense of responsibility for a personal definition of success which is transferrable to the career decision-making process. Gifted youth who are supported and valued more for who they are rather than for what they may accomplish will be best equipped to make the very career choices most likely to result in their own greatest satisfaction and their greatest contribution to the lives of us all.



A Transition Program for Hearing-Impaired Students: Their Perceptions of the Process of Change

by Deborah L. Gough

Deborah L. Gough is an Associate Professor, Department of Communicative Disorders, Northern Illinois University, DeKalb, Illinois.

Harry Canon, Director

Gough's dissertation research yielded new and previously inaccessible information about a population of hearing impaired students. This qualitative study employed both her substantial experience base with the hearing impaired and her significant signing and associated skills in communicating with these students. Without her application for the various subcultures that exist within the hearing impaired community, it is doubtful that the subtle changes that occurred during the transition program would have been detected. Finally, Dr. Gough has been graced with the kind of intelligence that allowed her to process these interview data and derive the concepts that emerged in her findings.

Adolescents face many challenges in the realms of identity resolution, interpersonal relationships, and future planning for academic and vocational goals. Essential to these young adults in meeting the challenges are support from their social network, a broad base of knowledge to call upon for appropriate decision making, and access to information and resources in life planning. Some young persons are well prepared to deal with this transition into adulthood, while others confront substantial barriers in their development. One such group of adolescents is comprised of those who are hearing-impaired or deaf.

In addition to the numerous impacts of deafness, including lowered English language skills, limited familial and social interactions due to lack of communication, the employment outlook for disabled teens has been markedly discouraging. In 1987, the President's Committee on

the Employment of the Handicapped predicted that of the 650,000 persons with disabilities leaving the school system that year, "Only 21% will be fully employed, 40% underemployed and at poverty level, 26% on welfare" (Johnson & Atkins, 1987, p. 15). With the addition of hearing loss, the outlook may prove even more grim.

The concept of the "transition program" was introduced in response to the psychosocial and vocational needs of hearing-impaired young adults. The general goal of such a transition program is to assist the deaf student in "bridging the gap" from secondary education to work (or post-secondary or training program setting). The areas typically addressed include: vocational and academic exploration and counseling, enhancement of independent living skills, and skills related to effective personal and social interaction.

The purpose of this study was to gain an understanding of the process of "transition" from the perspective of the hearing-impaired participants. A qualitative approach was deemed most appropriate since the attempt was to understand a specific "culture", and the experience of living in that culture. As Kirk and Miller (1986) have stated, qualitative methods are best utilized

"... where meanings rather than frequencies assume paramount significance" (p. 5).

Central to the qualitative approach is the notion that persons make interpretations about their world, then act on the basis of these beliefs.

"Language, whether in oral or written form, is central to most qualitative research because of the emphasis on symbolic understanding and communication. Qualitative

data take the form of narrative rather than numbers" (Biklen & Moseley, 1988, p. 156.).

The informants' perceptions and interpretations of their experiences were elicited by a series of interviews and observations. Analysis of transcribed videotaped interviews assessed students' perceptions of personal change in the areas of personal, social and vocational skills. The ten informants participating in this study were enrolled in the Program for Hearing Impaired (PHI) located on the campus of Northern Illinois University. All had severe to profound hearing loss, and seven experienced additional disabling conditions. The age range was 19 to 26. All interviews were conducted in the sign language or oral mode preferred by the informants.

The analysis of the data revealed several distinct dimensions, or areas of similar experiences and change. These dimensions were compared over the period of the year at PHI for each informant, and among informants.

These dimensions included issues of identity (as a deaf person), family and social relationships, communication, concerns about the future, personal values, students' perceptions of change, and the informants' evaluations of PHI.

Perhaps the most pervasive and meaningful change experienced by the informants in this study related to the development of an identity that integrated their deafness. Early in the study, most of the students rejected their hearing loss and denied any connection with deaf persons as a group. Through interaction with other deaf students, and developing awareness of the meanings of deafness, the informants were able to integrate their disability into their sense of who they are. This clearer sense of identity led to an acceptance of their own deafness, and a sense of community with other persons sharing similar deafness-related issues.

Other changes were interconnected, and dealt with developing autonomy and assertiveness leading

to enhanced self-concept. In turn, family/social relationships improved as well as confidence in communication. Early in the year the informants had ill-defined, inadequate or unrealistic goals for the future in terms of education or employment. By the end of the program, all ten informants had clearly defined, specific plans for the future that were challenging yet attainable.

In all, students sensed their level of maturity had improved, as well as their sense of identity and independence. The shift from the isolation of deafness to a genuine sense of community seemed to bring about substantive personal changes over the course of a relatively brief (ten month) period. By reducing the sense of isolation within the family, school and society, deaf persons may face developmental tasks and challenges of the future with more adequate resources within themselves, their families, and from the world around them.

References

- Biklen, S.K., & Moseley, C.R. (1988). "Are you retarded?" "No, I'm Catholic": Qualitative methods in the study of people with handicaps. Journal of Association for Persons with Severe Handicaps, 1 (3), 135-162.
- Johnson, S. & Atkins, B.J. (1987). Building bridges: Transition school to work for youth who are disabled. Journal of Applied Rehabilitation Counseling, 18 (2), 15-20.
- Kirk, J. & Miller, M.L. (1986). Reliability and validity in qualitative research. Beverly Hills: Sage Publications.



The Development of Intimacy in Women's Friendships: A Naturalistic Study

by *Christine Ruther Hibbard*

Christine Ruther Hibbard is in private practice as a clinical mental health counselor, St. Charles, Illinois.

The friendships that women share appear to be unique relationships. In contrast to women's roles as wives, lovers, daughters or mothers, the role of friend is not defined by law or kinship. The rules of friendship are not structured around assigned roles in organizations or institutions.

This study was concerned with generating information and hypotheses, and exploring the factors that contribute to the development of intimacy in the friendship of adult women.

A naturalistic design, using multiple case studies, was the method of inquiry (Lincoln and Guba, 1985). Fourteen adult women who reported achieving intimacy with their best female friend were intensively interviewed using semistructured interview techniques. Interviews were analyzed using the constant-comparative method of qualitative analysis. This process categorized statements into 11 factors that were found to influence intimacy in these women's friendships.

Factors Influencing Intimacy

Likeable Attributes

All women stated the importance of liking their friend. In the

initial attraction stages of the friendships, these positive attributes provided the building blocks on which future, more complex processes developed.

Similarities

All women mentioned similarities as an important variable in the process of bonding, a precursor to intimacy. Similarities fell into status variables and attitude/value similarities which came closest to explaining the "clicking" phenomena that was often mentioned.

Dissimilarities

Some women found dissimilarities attractive because they provided an opportunity for them to broaden their perspectives or compensate for missing personality traits in themselves. These differences took their form as temperamental variables such as being bubbly, assertive or uninhibited, rather than in radical differences in status variables (age, race, class).

Life Cycle Position

The life cycle imposed a great influence on these women's friendships. The commonality of being in a similar stage with its corresponding predictable issues gave women the

sense of "being in the same boat". The life cycle also heavily influenced their availability for friendship.

Adventures

Responses of 5 of the 14 women indicated that adventures facilitated intimacy. Many adventures flirted with the boundaries of social acceptability. It appeared that "being crazy together" facilitated intimacy.

Self-Disclosure

All women talked of the importance of self-disclosure in their friendships. It was not possible to give a definition of "appropriate self-disclosure" as what one woman believed to be revealing her inner soul, another would find inconsequential. Self-disclosure did not necessarily predict intimacy or closeness, but was indeed an important factor.

Time

Time played a significant role in the friendships of women. Time was necessary for the development of intimacy and the lack of time (because of role strain) hindered the development of new friendships and prevented the sustenance of closeness in existing friendships.

Self-Sacrifice and Favors

This category was defined by physical acts of giving time, energy or resources. It was mentioned by all women. These sacrifices included such things as help with cleaning, babysitting, cooking, or other physical tasks.

Emotional Support

Whereas favors implied a physical gesture, emotional support was defined as the ability to give faith and courage in another's time of emotional need. Routine support, as well as encouragement during a difficult period of life was important to all women.

Affirmation and Unconditional Acceptance

All women stressed the importance of this category for they talked of cherishing their best friend with emotional intensity. Affirmation was described as an active process of vali-

dating another whereas unconditional acceptance implied a more passive dimension of giving unconditional love.

Fulfillment of Psychological Needs

This was, by far, the most complex and challenging category of responses. Throughout each woman's interview, themes emerged that indicated the presence of a psychological need. Many women were able to describe childhood factors or former or current marriages that contributed to need deprivation. Interpersonal relationships were one way these women chose, repeatedly, to deal with deprivation.

The research of Aronoff and Wilson (1985) and Maslow (1970) was critical in the study of this factor. Aronoff & Wilson suggested that the dominant characteristics of people seek the most powerful social rewards from the environment. They investigated the influence that the

quest for basic need fulfillment had on interpersonal relationships. Their research, as well as this study, illustrated how Maslow's basic needs (safety and security, love and belongingness, esteem, and self-actualization) were motivators in choosing friends. Narratives were provided that illustrated this connection between the search for need fulfillment and one's choice of a friend.

Allan (1979) asserted that the explanations for how people become friends have not been uncovered. They appear to be processes that happen naturally. There is no explanation to date for the "we just clicked" phenomenon between women. This study was a start in addressing the need for knowledge on what facilitates the process of emotional intimacy between women by identifying 11 factors that appear to influence the development of intimacy. Additionally, this study confirmed the high priority that women place on their interpersonal relationships with one another.

References

- Allan, G. A. (1979). A sociology of friendships and kinship. London: George Allen & Unwin.
- Aronoff, J., & Wilson, J. P. (1985). Personality in the social process. Hillsdale: Larence Erlbaum.
- Lincoln Y.S. & Guba, E. G. (1985). Naturalistic inquiry. Beverly Hills: Sage.
- Maslow, A. H. (1970). Motivation and personality. (2nd ed.). New York: Harper & Row.



An Investigation of the Functional Relationship Between Task Demand and Stereotypic Responding: Implications for Instruction

by Kathryn G. Karsh

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Alan Repp, Director

Maladaptive behaviors such as self-injury, stereotypy, and aggression are common among persons with severe or profound retardation. In some cases, these behaviors are due to specific physiological variables. In most cases, however, they are not. Instead, they are occasioned by specific environmental events. The paper by Kathryn Karsh represents an important step on the understanding of these behaviors. On the one hand, it identified specific, manipulable environmental correlates of these behaviors. On the other hand, it established a methodology for the study of these behaviors, a methodology which has since led to many publications.

Stereotypic behaviors are generally described as highly repetitive, rhythmic motor movements which are excessive and appear to have no adaptive function (Baumeister, 1978). Typical examples of stereotypic behaviors are arm flapping, body rocking, head weaving, finger manipulation, and object twirling. The incidence of these behaviors among persons with developmental disabilities has been shown to be as high as 66% (Barton & Repp, 1981).

The reduction or elimination of stereotypic behaviors for persons with developmental disabilities is important for both the educational and social consequences of these behaviors. Stereotypic responding has been shown to interfere with the individual's interaction with the environment, learning, and engagement in adaptive behavior. This behavior can also result in an individual's placement in more restrictive settings such as large group homes and institutions rather than integrated community settings because of the conspicuous and inappropriate nature of these behaviors.

Many of the currently available interventions to reduce these behaviors

have shown immediate effects, but often the results have not been maintained over time or generalized to other settings (La Grow & Repp, 1984). The treatment failures and inconsistencies reported in the literature may be due to the fact that stereotypic behaviors are multiply determined across individuals. One approach to improve treatment interventions is to conduct a series of functional analyses of stereotypic responding across individuals in their natural environments. A functional analysis allows the researcher to determine whether a lawful relationship exists between specific conditions in the environment and an individual's stereotypic behavior (Skinner, 1953). The results of this analysis can reveal the cause of the behavior or reveal conditions which are maintaining the behavior. In addition, a functional analysis of the behavior provides the information necessary to manipulate specific environmental variables as part of a successful treatment intervention.

One environmental variable which may be functionally related to stereotypic responding is task demand. The hypothesis proposed by Carr (1977) for the occurrence of self-injurious behavior may

apply to stereotypic behavior and its relationship to task-demand. The three major hypotheses Carr (1977) has proposed to explain self-injury include:

- a) a negative reinforcement hypothesis where self-injury serves as an escape or avoidance strategy;
- b) a positive reinforcement hypothesis where self-injury serves an attention-seeking function; and
- c) a stimulation hypothesis where self-injury adjusts arousal level or provides self-stimulation.

Recent studies which examined the relationship between task demand and self-injury under analogue conditions demonstrated that some individuals exhibited little or no self-injury except during a difficult task demand. In attempting to determine the functional relationship between task demand and stereotypic responding, two related studies were done. The first study intended to provide an analysis of the functional relationship between specific task-demand conditions and stereotypic responding in the natural environment. This determined:

- a) whether the overall level of stereotypic behavior differed across task-demand conditions for individual responders;
- b) whether these differences, if any, were consistent across individuals; and
- c) whether the onset of a task-demand condition was functionally related to stereotypic responding in any or all of these individuals.

The second study further differentiated task demand according to the presence or absence of the opportunity to respond. Opportunity to respond implies that the teacher arranges the classroom environment and uses instructional tactics so that students can make desired adaptive motoric or verbal responses as opposed to passive responses such as watching, listening, and waiting.

Both studies used subjects with severe mental retardation (AAMR criteria). All five of the students were enrolled in classrooms for students with severe handicaps in public schools in a large suburban area. Each student was observed in the school setting for the entire school day for five consecutive school days. Trained observers used a notebook microcomputer programmed for continuous, real-time data entry (Repp, Harman, Felce, Van Acker, & Karsh, 1989) to record the frequency and duration of individual task-demand conditions and stereotypic responding. In the first study the task-demand conditions included:

- a) overt task demand (teacher present);

- b) covert task demand (teacher absent); and
- c) no task demand.

Three subjects exhibited significant differences in the overall levels of stereotypic responding across the three task-demand conditions with stereotypy occurring more often under overt demands. For one subject, time-based lag sequential analyses indicated a conditional probability greater than chance that stereotypic behavior would follow the onset of an overt demand and not follow the onset of a no-demand condition. These results provide empirical support for the hypothesis that maladaptive behavior may be maintained by negative reinforcement for some individuals. Interventions which are indicated to reduce stereotypic responding include errorless learning strategies, easier or modified tasks, a distributed trial instructional format, or alternating easy and difficult tasks.

In the second study five task-demand conditions were observed:

- a) overt task demand with the opportunity to respond;
- b) covert task demand with the opportunity to respond;
- c) covert task demand without opportunity to respond;
- d) no task demand with opportunity to respond; and
- e) no task demand without opportunity to respond.

Significant differences were found in the overall level of stereotypic responding across the demand conditions for three subjects, with the highest level of stereotypic behavior occurring under no-demand conditions that did not provide the opportunity to respond. For all five subjects in the second study, time-based lag sequential analyses indicated a conditional probability greater than chance that stereotypic behavior would not follow the onset of an overt demand with the opportunity to respond. For these subjects stereotypic responding may serve some stimulation or self-regulatory function. Implications are evident in terms of the time allocated for direct instruction, the opportunity for active responding during instruction, the arrangement of stimuli in the environment that promotes adaptive responding, and curricula that teach appropriate play and leisure skills. If these subjects are provided with opportunities for active adaptive responding in their environments, then stereotypic behaviors may decrease.

Clear differences were observed in the overall levels of stereotypic behavior under task-demand conditions for the majority of the students observed in these studies. The observation methods and data analysis procedures used in this investigation should provide a methodology for continuing to analyze task-demand variables in natural classroom environments. If functional relationships are established between task-demand variables and stereotypic responding, then specific instructional variables can be manipulated to decrease stereotypic behaviors while providing instruction to increase adaptive behaviors.

References

- Barton, L. E., & Repp, A. C. (1981). Naturalistic studies of institutionalized retarded persons: Relationships between stereotypic responding, secondary handicaps, and population density. *Journal of Mental Deficiency Research*, 25, 257-264.
- Baumeister, A. A. (1978). Origins and control of stereotyped movements. In C. E. Meyers (Ed.), *Quality of life in severely and profoundly retarded people: Research foundations for improvement*, (pp. 353-384). Washington, DC: *American Association on Mental Deficiency*.
- Carr, E. G. (1977). The motivation of self-injurious behavior: A review of some hypotheses. *Psychological Bulletin*, 84, 800-816.
- LaGrow, S. J., & Repp, A. C. (1984). Stereotypic responding: A review of intervention research. *American Journal of Mental Deficiency*, 88, 595-609.
- Repp, A. C., Harman, M. L., Felce, D., Van Acker, R. M., & Karsh, K. G. (1989). Conducting behavioral assessments on computer-collected data. *Behavioral Assessment*, 11, 249-268.
- Skinner, B. F. (1953). *Science and Human Behavior*. New York: Macmillan.



The Interrelationships of Emotional and Cognitive Attributes Among Junior High Students

by Terri Kleczkowski

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Robert A. Rosemier, Director

This research is particularly noteworthy because of its analytical methodology which employed path analysis to test the efficacy of a four-variable model. Because the model was non-recursive, this is to say that it involved two-way relationships, the method of choice, latent structure analysis, was not possible. Instead, the model was viewed from the perspectives of four different user groups, thus sequentially specifying each of the variables as an endogenous, or outcome, variable. Both direct and indirect effects of exogenous variables were assessed through an extensive series of paths. This is a new visit (the methodology) with old friends (the variables).

With each human being an intermingling of physical, emotional, psychological, and cognitive factors determine behavior. Among these influences are self-esteem, anxiety, and cognitive ability. During the adolescent years, success in school, as determined by a level of academic achievement, is an integral component in personal evaluation and the perceived acceptance by others. This study examined the interrelationships of some of these psychological, emotional and cognitive entities. These variables are part of a model dealing with relevant factors effecting adolescent students today (Rosenberg, Schooler and Schoenbach, 1989). Several other authors have also commented

on these relationships (Coopersmith, 1976; Gurney, 1987; Wine, 1982).

The causal model shown in Figure 1 reflects the anticipated relationships between these four variables.

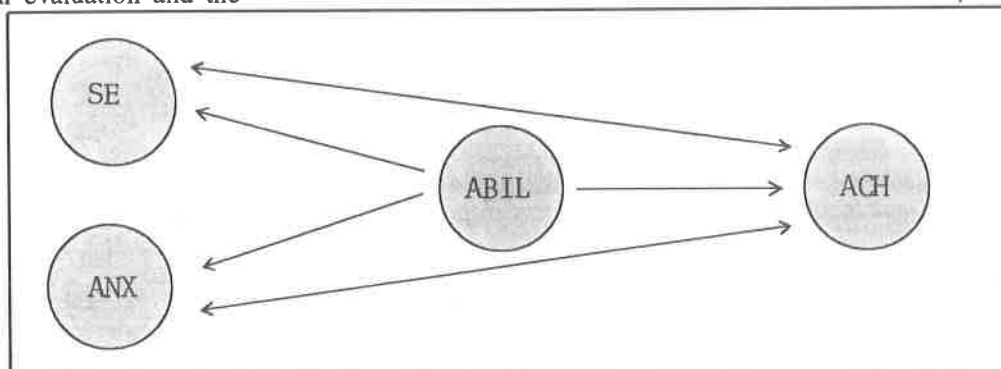
Population and Data

The population of the study was the 385 seventh and eighth grade students in the regular education program of a suburban junior high school. The Coopersmith Self-Esteem Inventory (SEI) was used to assess self-esteem; Sarason's General

Anxiety Scale for Children (GASC) and Test Anxiety Scale for Children (TASC) measured anxiety. Reported grade equivalent

scores on the Vocabulary, Reading, and Math subtests of the Iowa Test of Basic Skills (ITBS) assessed academic achievement; standard age scores from the Verbal, Quantitative,

The Causal Model



SE = Self-Esteem
ANX = Anxiety
ABIL = Cognitive Ability
ACH = Academic Achievement

and Nonverbal batteries of the Cognitive Abilities Test (CAT) reflected cognitive ability.

Analysis of Data

The causal model (Figure 1) reflects the theoretical formulations regarding the relations among the variables under consideration. This complex model was decomposed in order to examine the direct, indirect, and total effects of exogenous (cause) variable(s) on the endogenous (effect) variable(s); terms recommended by Kenny (1979) for nonexperimental research. Academic achievement, self-esteem and anxiety were identified as endogenous variables in models resulting from each of the three decomposed perspectives and path analysis was undertaken on each. Path analysis has been suggested as an appropriate method of analyzing the direct and indirect effects of variables in nonexperimental data (Keith, 1988). A path coefficient indicates the amount of expected change in standard deviation units for the presumed effect for each standard deviation change in the presumed cause. A path coefficient is equal to a zero-order correlation coefficient whenever a variable is presumed to be the effect of a single cause and a residual. In the present study, path coefficients were determined to be equal to the beta weights, or standardized partial regression coefficients, from ordinary

multiple regression analysis. Indirect effects of a variable were obtained by multiplying and summing path coefficients. Total effects were determined by summing the direct and indirect effects from the decomposed models, avoiding duplicate paths. A path of .05 or greater was considered as being of potential utility (Keith, 1988).

Results and Discussion

When achievement was identified as the endogenous variable, cognitive ability was the overwhelming predictor of increases in achievement, followed in magnitude by the inverse path coefficients of the achievement-anxiety relationship and finally the low increases in achievement related to increases in self-esteem.

In the second decomposed perspective, ability and achievement served as predictors of self-esteem. Generally speaking, Verbal ability showed the strongest effect on self-esteem and Nonverbal ability the weakest. Only the total effects of Vocabulary and Reading achievement were shown to have meaningful effects on self-esteem when TASC was the mediating variable, while the path coefficients of all three areas of achievement on self-esteem were meaningful when GASC was a mediator. The expected increase in self-esteem was greater for increased Vocabulary and

Reading achievement than for increased Math achievement.

In the final perspective, anxiety was identified as the endogenous variable. When comparing their relative total effects on anxiety, self-esteem appeared to have a stronger effect on both TASC and GASC than did ability or achievement. Verbal ability tended to have a stronger effect on anxiety than did Quantitative or Nonverbal ability. All ability measures exhibited a stronger effect on TASC than on GASC. Increased Vocabulary and Reading achievement meaningfully reduced both TASC and GASC.

The inverse relationship of self-esteem on test anxiety is as strong as the effect of ability on achievement. Analysis of total effects showed a symbiotic relationship between self-esteem and achievement. Increased achievement in the areas of Vocabulary and Reading showed a larger expected effect on self-esteem and anxiety than increased Math achievement.

Educators and parents continually search for means to facilitate the total development of students. Each group has its own needs and perspectives with regard to the functioning of the child. Results of this analysis suggest the need for the continued exploration of models involving the interrelationships of self-esteem, anxiety, achievement and cognitive ability.

References

- Coopersmith, S. (1967). *The antecedents of self-esteem*. San Francisco: W. H. Freeman and Company.
- Gurney, P. (1987). Self-esteem enhancement in children: a review of research findings. *Educational Research*, 29, 130-136.
- Keith, T. A., (1988). Path analysis: An introduction for school psychologists. *School Psychology Review*, 17, 353-362.
- Kenny, D. A. (1979). *Correlation and causality*. New York: John Wiley & Sons.
- Rosenberg, M. J., Schooler, C., & Schoenbach, C. (1989). Self-esteem and adolescent problems: Modeling reciprocal effects. *American Sociological Review*, 54, 1004-1018.
- Wine, J. D. (1982). Evaluation anxiety: A cognitive-attentional construct. In Krohne, H. & Laux, L. (Eds.), *Achievement, stress and anxiety* (pp. 207-219). New York: Hemisphere Publishing Corporation.



Relationship of Enriched Input to Intermediate Grade Children's Verbal Abstracting Performance: Effect of Age, Grade, Sex, Level of Fluid Intelligence, Discrimination Reaction Time, and At Risk Status

by Roberta W. Nauman

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Harvey Switzky, Director

Currently, standardized psychometric measures of intelligence (individual tests of intelligence) are undergoing examination regarding their adequacy to measure truly a student's latent learning potential. IQ tests may be a reflection of the products of past learning experiences rather than an indicator of future learning potential. Other more experimental methods have been proposed which may more accurately measure a student's true learning potential: mental chronometric testing and the presentation of enriched stimulus input on a verbal abstracting task. Advocates of the presentation of enriched stimulus input have demonstrated that students who are at risk for academic failure have greater learning ability than would have been predicted by traditional standardized psychometric measures of intelligence. Dr. Nauman's research investigated the relationship of mental chronometric testing to problem solving behavior, the presentation of enriched stimulus input on a verbal abstracting task, and measures of fluid intelligence in order to develop innovative strategies to measure learning potential in students.

There is on-going concern about whether standard psychometric intelligence tests adequately measure the learning potential of an individual, especially that of persons who are considered culturally disadvantaged. Indeed, even use of the latter term has been questioned.

For this group, interest has focused on nonverbal measurements which, for the most part, have not been satisfactory. These nonverbal measures have tended to parallel those of verbal measures and have not succeeded in identifying latent learning potential (Nauman, 1989).

Jensen (1987) has been investigating chronometric measures of reaction times. He believes mental speed is an important factor contributing to general intelligence. His rationale, based on an information-processing model, contends that: (a) the brain is a system of limited capacity which governs the

amount of information and the number of operations which can be performed simultaneously; (b) speed gives an advantage in that more operations per unit of time can be performed without overtaxing the system; (c) speed facilitates any operations to be performed on information since there is rapid decay of stimulus traces and information in working memory; (d) the processes of rehearsal and storage in intermediate or long term memory, which may compensate, take time and use up capacity, resulting in a trade-off between the storage and processing of incoming information; (e) the more complex the information, the greater the advantage of mental speed (Jensen, 1984).

Jensen devised reaction time apparatus and a computer program for timing, recording, and averaging of reaction time data for simple reaction times, reaction times in which a choice is involved, and reaction times in which

discrimination is required between competing stimuli. He has consistently found negative correlations in the range of 0.3 to 0.4 between simple reaction times and scores on psychometric tests of general intelligence, such as the Raven Standard Progressive Matrices (Jensen, 1987).

Concurrent with Jensen's research on mental chronometry, a number of theorists and researchers have proposed a dynamic view of intellectual potential as a function of one's receptivity to some form of instruction or mediation (Haywood and Switzky, 1974; Narrol and Bachor, 1975; Vygotsky as quoted by Brown and Ferrera, 1985, p. 273). Dweck and Elliott (1983) also investigated the relationship between student achievement and teachers' beliefs that intelligence is either fixed (entity view) or capable of being increased (incremental view). They found that the incremental view

and instructional strategies congruent with it lead to higher student achievement.

Despite their limitations for use with students who have language problems, verbal stimulus enrichment instruments of the type described by Haywood and Switzky (1974), were used as a possible means of assessing learning potential. In the stimulus-enrichment paradigm, additional examples of a target category constitute the enrichment. No mediating as advocated by Vygotsky or Feuerstein is done. The current study utilizes Jensen's apparatus and discrimination reaction times. The latter are more complex and should theoretically be more closely related to general intelligence (Nauman, 1989).

Intermediate grade pupils were given a similarities test like those of the Wechsler Intelligence Scales, in which they were asked to explain how two examples of a target category were alike. In the retesting, control subjects received the same two-examples questions while experimental subjects received five examples.

If the presentation of additional stimulus words results in correcting or improving a previous response, the student must have had the rudiments of the target category in memory, and the additional examples in some way facilitated its retrieval. The types of concepts, categories, and possible mechanisms of retrieval are discussed in some detail.

References

- Brown, A. L. and Ferrara, R. A. (1985). Diagnosing zones of proximal development. In J. V. Wertsch, (Ed.), Culture, communication, and cognition: Yygotskian Perspectives (pp. 273-305). New York: Cambridge University Press.
- Dweck, C. and Elliott, E. (1983). Achievement motivation. In Mussen, P. (Ed.), Handbook of child psychology, Vol 4. New York: Wiley.
- Haywood, H. C. and Switzky, H. N. (1974). Children's verbal abstracting: Effects of enriched input, age, and IQ. American Journal of Mental Deficiency, 78, 556-565.
- Jensen, A. R. (1984). Mental speed and levels of analysis. (An open peer commentary on R. J. Sternberg). Behavior and Brain Sciences, 7, 295-296.
- Jensen, A. R. (1987). Individual differences in the Hick paradigm. In P. A. Vernon (Ed.), Speed of information processing and intelligence (pp. 101-175). Norwood, NJ: Ablex
- Nauman, R. (1989). Relationship of enriched input to intermediate grade children's verbal abstracting performance: Effects of age, grade, sex, level of fluid intelligence, discrimination reaction time, and at-risk status (Doctoral dissertation. Northern Illinois University, 1989). (University Microfilm No. 9020053).



Social Problem Solving and Social Competence Among Severely Emotionally Disturbed Adolescents

by Edward A. Nieminen

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Jean W. Pierce, Director

Edward Nieminen's study was a well-constructed cognitive examination of information processing deficits in Severely Emotionally Disturbed (SED) adolescents. His message is that programs which try to modify SED students' behaviors may not be effective if they do not identify the cognitive roots of individual students' problems. Indeed, some behavioral problems may reflect cognitive limitations in interpreting the meaning of others' behaviors (e.g., assuming another person meant to hurt them) and in thinking of more than one way to respond. Future investigations need to address the degree to which certain SED students can be trained to use these cognitive skills to modify their behavior.

This study examines social problem solving and social competence in a group of 76 Severely Emotionally Disturbed (SED) adolescents, 60 males and 16 females, who were attending three special education schools in the Chicago suburbs. All of the students demonstrated extreme deficits in appropriate social behavior and had great difficulty forming satisfactory relationships with others, whether peers or adults. These schools all offer training to their students in appropriate interpersonal skills.

The study examined the skills of these SED students in the context of an information processing model of social competence developed by Kenneth Dodge (1985). The model explains social competence as a function of three factors: the person's ability to understand subtle social cues, to generate a range of possible responses to a social situation, and to select an appropriate response.

This research study chose to assess these components through:

- (1) the Profile of Nonverbal Sensitivity (PONS) to measure the students ability to decode nonverbal social cues;
- (2) the Means-Ends Problem Solving Test (MEPS) to measure the student's ability to generate alternative solutions to social problems; and
- (3) the Matson Evaluation of Social Skills in Youth (MESSY) to assess appropriate and inappropriate interpersonal behavior, in a self-report by the student. In addition, a measure of the student's social competence as perceived by others was obtained via the Child Behavior Checklist (CBCL), completed by the student's teacher.

Three major findings emerged from this research:

1. These SED students differ significantly from normal adolescents on the measures of social competence.

First, the SED students were a full standard deviation below the mean of normal adolescents on the total MESSY score, indicating that they perceived themselves as less competent in interpersonal situations. Second, the SED students were nearly three standard deviations below normal peers in their ability to understand subtle social cues (the PONS). Third, these students scored lower than peers in the ability to generate possible responses in a social situation (MEPS). And fourth, teachers perceived the social competence of these students as significantly be-

low the mean of normal peers on the CBCL.

2. Teachers' perceptions of the students' social competence (CBCL) were significantly related to the measures completed by students themselves.

The students who had the most difficulty in understanding social cues or in generating possible responses in social situations were also rated lower than other students in maturity and popularity by their teachers. In addition, the girls who were least able to interpret social cues were rated more depressed than other girls by their teachers. The students' own perceptions of social competence were strongly related to the teachers' perceptions; students who saw themselves as more competent in interpersonal situations were also viewed as more competent by their teachers.

3. Four separate clusters of students emerged, who differed significantly from each other in the pattern of their responses.

Cluster A:

This small group of 6 students appeared to have fewer problems than

the other subjects in this study. Their teachers perceived them as more interpersonally competent, and they perceived themselves similarly. In addition, this group was much closer to normal peers in their ability to decode social cues, although about the same as SED peers in displaying appropriate responses in social situations.

Cluster B:

Consisting of 23 students, this group was judged by teachers to be at the mean of the total group of subjects, and the students perceived themselves similarly. However, these students were better than their SED peers at understanding social cues and generating alternative interpersonal responses.

Cluster C:

This group of 20 students scored at the SED group mean on the PONS, MEPS, and CBCL, but described themselves as more competent than the average SED student on the MESSY. That is, these students were very similar to their SED peers, but were less aware of or denied the extent of their problems.

Cluster D:

The largest cluster, consisting of 27 students, showed more problems than the rest of the subjects. They appeared less perceptive of social cues and less able to generate alternatives, and were perceived by their teachers as less competent. Further, these students are aware of their high level of problems, as shown by their score on the MESSY.

This study concluded that, while the subjects were below the mean of normal populations on all aspects of interpersonal competence, the most significant deficit among these students was in their ability to understand subtle social cues. This finding suggests that special education programs designed to improve social skills may be overlooking a crucial deficit exhibited by the majority of this group of students, a deficit that may hinder their attaining social competence. Further, the four clusters that emerged from this analysis present differing profiles of social problem solving abilities that should also have an impact on placement and treatment.

Reference

- Dodge, K.A (1985). A social information processing model of social competence in children. In M. Perlmutter (Ed.), Minnesota symposium on child Psychology (Vol. 18, 77-126). Hillsdale: Erlbaum.



A Systematic Analysis of the Peer Relations of Elementary-Aged Students with Learning Disabilities

by Diane E. Ormsby

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Diane E. D. Dietz, Director

The majority of students with learning disabilities have social skills deficits, and little systematic research has been conducted to identify and address these deficits. The research conducted by Diane Ormsby is important in several ways. First, Dr. Ormsby's work resulted in specific information about the social interactions of students with learning disabilities and their peers. This information can be related directly to important programming decisions made by educators who work with students with learning disabilities. In addition, the research results should serve as a basis on which to build future research in this area. Finally, the methodology used to conduct this research is a major contribution in itself, as it extends the depth to which social interactions of any population can be explored. This dissertation was awarded the Distinguished Dissertation Award from the Kappa Delta Pi Honor Society, and this award attests to the strength and importance of the work.

Students with learning disabilities not only experience difficulties with their academic studies, but also experience problems with their peer interactions (Ray, 1985). Though this group of students appears to be heterogeneous with regard to peer relations, students with learning disabilities typically are less well liked and less accepted by their peers and their teachers (Bruininks, 1978). Moreover, while their interactions with peers appear to be similar in quantity, these interactions are likely to take on qualitative differences (e.g., appropriateness, negativity) (Bryan & Wheeler, 1972).

The importance of investigating these qualitative differences has been stated by various researchers (Hinde, 1976). Variables which could be studied to address qualitative differences

include interaction content and intensity of interaction. A second need often cited by researchers is for data which reflect a representative sample of peer interactions across school activities and structures for extended periods of time (Asher & Hymel, 1981).

The purpose of this study was to determine the quantitative and qualitative aspects of the peer interactions of 24 elementary-aged students with learning disabilities in integrated school settings. Peer interactions included those interactions between target students and

- (a) peers without handicaps and
- (b) peers with mild handicaps.

In addition, the extent to which activity type (instruction, noninstruction) and interaction content (task-re-

lated, nontask-related) were conditionally related to peer interaction was examined.

The Epson HX-20 computer system (Repp, Harman, Felce, VanAcker, & Karsh, 1989) was used to collect data on nine noninferential categories of behavior, each of which was operationally defined. Each of the target students was observed for one full school day. Data were collected in 17 elementary classrooms across three elementary schools. Observer agreement on the frequency and duration of behaviors was established prior to the actual recording of data and was maintained across randomly-assigned sessions throughout the study. Data were summarized across subjects for descriptive purposes and were tested for significance using a mixed-design analysis of vari-

ance measure and a log-linear analysis measure.

The peer relations of target students with learning disabilities were found to vary according to:

- (a) peer type;
- (b) positive and negative initiation type;
- (c) who initiated the interactions;
- (d) activity type; and
- (e) interaction content.

Specifically, target students emitted more initiations directed toward non-handicapped peers than directed toward handicapped peers. More subject initiations were positive in nature than negative. Consistent across both peer types was the finding that target students initiated more interactions during noninstruction than during instruction. Furthermore, more non-task initiations than task initiations were emitted by target students.

Both peer types responded positively to positive initiations emitted by target students. Additionally, non-handicapped peers sometimes responded positively to negative initiations emitted by target students. However, handicapped peers responded

negatively or not at all to negative interactions initiated by target students. In general, activity did not seem to influence patterns of peer responding.

Additional results involving interactions initiated by peers and directed toward target students were reported. A comparison of how peer relations differed according to who initiated the interactions (target student or peer) was completed. For example, target students initiated more positive interactions with non-handicapped peers than non-handicapped peers initiated with target students. Considerable variability occurred across activity when interactions involved target students and their non-handicapped peers (e.g., less interactions occurred during instruction than during noninstruction). Conversely, little variability occurred across activity when interactions involved target students and their mildly handicapped peers (e.g., similar rates of interaction occurred during instruction and noninstruction).

These findings imply that a comprehensive description of the peer interactions of students with learning disabilities is a necessary requisite to prescribing an appropriate and comprehensive program for these stu-

dents. The assessment process must reflect the consideration of multiple measures (e.g., frequency, duration) and multiple factors (e.g., social partner, setting).

The consideration of multiple factors also is necessary to meet the challenge of facilitating behavior changes which maintain over time and transfer from one situation to another situation. For example, students with learning disabilities might benefit from learning various mechanisms for coping emotionally with being ignored as well as from learning cooperative social skills.

Finally, the complexity of the peer relations between students with learning disabilities and their peers has implications for teacher training programs in relation to training teachers and related professionals. Teachers need to be trained comprehensively and effectively in the areas of social development as well as social-skills training. In conclusion, the findings of this study led to specific programming and training considerations; the findings also indicate the need for additional research in the area of peer interactions of students with learning disabilities.

References

- Asher, S., & Hymel, S. (1981). Children's social competence in peer relations: Sociometric and behavioral assessment. In J.D. Wine & M.D. Syme (Eds.), *Social competence* (pp. 125-157). New York: Guilford Press.
- Bruininks, V.L. (1978). Actual and perceived peer status of learning-disabled students in mainstream programs. *Journal of Special Education*, 12, 51-58.
- Bryan, T.H., & Wheeler, R. (1972). Perceptions of children with learning disabilities: The eye of the observer. *Journal of Learning Disabilities*, 5, 484-488.
- Hinde, R. (1976). *Towards understanding relationships*. New York: Academic Press.
- Ray, B.M. (1985). Measuring the social perception of the mainstreamed handicapped child. *Exceptional Children*, 52, 566-2.
- Repp, A.C., Harman, M.L., Felce, D., VanAcker, R., & Karsh, K.G. (1986). *A real-time, parallel entry, portable computer system for observational research*. Manuscript submitted for publication.
- Serafica, F.C., & Harway, N.I. (1979). Social relations and self-esteem of children with learning disabilities. *Journal of Clinical Child Psychology*, 8, 227-233.



Mental Status, Behavior, and Morale Among Cognitively Impaired Elderly in Adult Day Care

by Donna Rane-Szostak

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Cognitive impairment affects between 3 and 6 million Americans over the age of 65. Between 1 and 5 million older adults have mild to moderate memory impairment (Cross & Gurland, cited in U. S. Congress, 1987). Unfortunately, the health care system has not adequately addressed the care needs of these individuals.

Many memory-impaired older individuals enter nursing homes because of a lack of practical alternatives. Not only is the cost of nursing home placement often prohibitive, but nursing home placement of the mild to moderately memory-impaired adult is frequently inappropriate. Most of these facilities were designed to meet the needs of those requiring physical rather than custodial care. They tend to oversupply services, thereby contributing to increased dependence. Activity-oriented adult day care programs may offer the needed alternative to nursing home placement for the mild to moderately impaired older adult. These activity-oriented programs serve a community-based population needing social rehabilitation and the alleviation of social isolation. They focus on providing recreation and nutrition (Weissert, 1976). Unfortunately, outcome measurement of this type of day care program remains underdeveloped. Most studies have focused on health care oriented day care programs which

tend to serve a population needing extensive rehabilitative services

The theoretical basis for utilizing activity-oriented day care programs to care for older adults with cognitive impairment comes from activity theory, which suggests life satisfaction is enhanced by social interaction and activity (Palmore, 1968). The therapeutic milieu found in such programs is structured to increase social interactions and maximize independence. Coons (1983) speculated that participation in such a therapeutic milieu may be associated with more appropriate behavior and an increase in function.

The outcomes of day care participation may be determined not only by the program itself, but the level of mental function prior to entry. Wan et al. (1980) reviewed findings from a larger study conducted by the National Center for Health Services Research. The profile of participants with positive outcomes included individuals with a fairly high level of mental functioning at the beginning of that one-year study. However, as stated earlier, outcome measurements of activity-oriented day care programs remain limited.

Thus, a study was undertaken to examine the components of mental status, behavior and morale (life satisfaction) before, during, and after participation in such an activity-oriented day care program. The present

study hypothesized the increased activity and change in current life situation through participation in adult day care would be positively related to behavior and life satisfaction.

This study utilized a longitudinal single-group design. The independent variable was length of participation in an activity-oriented adult day care center. The dependent variables were changes in mental status, behavior and morale.

All day care participants who entered the program after the study began were tested in all three dependent variables prior to entry into the day care program. The same measures were again carried out after 16 visits, 3 months, and 6 months for all individuals consistently attending the day care program throughout the study period (N = 19).

Data were analyzed from assessments conducted at a social enrichment program for non-institutionalized older adults with organic memory impairment. This activity-oriented adult day care program provided assistance to approximately 20 individuals each day, and was located in suburban Chicago. Study participants attended the program three or five days a week on a regular basis.

Analysis of measurements taken at the time of entry and at selected intervals throughout the 6 month study period (paired t-test) showed a significant positive relationship be-

tween length of participation and changes in several aspects of behavior and morale of participants--particularly when mental status prior to entry was considered.

Length of participation was positively related to changes in all aspects of morale for participants with higher pre-entry mental status ($p = .01$). Particularly noteworthy was the decrease in feelings of lonely dissatisfaction for this higher-function-

ing group ($p = .001$). Family and staff observers also reported significant improvement in overall behavior for this higher-functioning group ($p = .012$). For participants with lower pre-entry mental status, family members noted a decrease in agitated behavior ($p = .04$), while staff members observed improved self-care function ($p = .007$).

The findings of this study suggest several areas for future research,

including: the most appropriate programs, populations best served, cost effectiveness, and the effect of day care on family burden of care. The trends noted in this study indicate activity-oriented adult day care may help promote the well-being of cognitively-impaired participants, help family members cope, and delay institutionalization through improved behavior and satisfaction.

References

- Coons, D. (1983). The therapeutic milieu: Social-psychological aspects of treatment. In W. Reichel (Ed.), Clinical aspects of aging (3rd edition) (pp. 137-150). Baltimore: Williams & Wilkins.
- Palmore, E. B. (1968). The effects of aging on activities and attitudes. The Gerontologist, 8, 259-263.
- U. S. Congress, Office of Technology Assessment. (1987, April). Losing a million minds: Confronting the tragedy of Alzheimer's disease and other dementias (Report no. OTA-BA-323). Washington, DC: U. S. Government Printing Office.
- Wan, T. T. H., Weissert, W. G., & Livieratos, B. B. (1980). Geriatric day care and homemaker services: An experimental study. Journal of Gerontology, 35, 256-274.
- Weissert, W. G. (1976). Two models of geriatric day care. The Gerontologist, 16, 420-427.



An Analysis of Student Data Relating to the Predictability of Student Selection of the Program

by Jean Rutherford

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Robert A. Rosemier, Committee Member

Simple questions do not always require simple research procedures to derive simple answers. The concern with reasons for a widespread trend toward selection of a general education curricular program is one of these simple-sounding questions. Multiple discriminant analysis is one of those more complex tools now at the disposal of the educational researcher. Dr. Rutherford's conclusions, although producing some insight about the variables affecting curricular choices, raises some perplexing issues. Methodologically, it offers a technique by which the question can continue to be studied. As a consequence, her answer to us is anything but simple.

A focused educational program is essential to student success. According to Dale Parnell (1985), an unfocused educational program was and continues to be the poorest preparation for any post-secondary opportunity. The William T. Grant Foundation Commission of Work, Family, and Citizenship (1988) indicated that today's graduates face a series of high hurdles in their search for a rewarding career for which a loosely-planned curricular experience cannot prepare them. Parnell and The Grant Commission both warn against program fragmentation that leads to a "general" plan leading to nowhere. In addition, Parnell suggests that unfocused learning remains one of the prime barriers to achieving excellence for a host of high school students. Early identification of those students who are most likely to select a general program of study could

provide an early intervention opportunity.

Through an ex post facto research study, the relationship between a student's selection of the general education curricular program and readily available data from student records was examined. Data from the student records included sex, composite achievement score, aptitude, mother's educational level, and grade point average. These variables were used to discriminate among the three criterion groups which represented the curricular programs which the students might select. The criterion groups were:

- college preparatory,
- vocational education, and
- general education.

The multivariate technique of discrimination analysis was used to statistically discriminate among these three curricular programs. By distinguishing among groups, discriminant analysis serves as a tool for handling classification problems.

Twelfth-grade students from two secondary school districts formed the sample for this study (School A and School B). The differences among the three criterion groups was presented with respect to the analysis by the five predictor variables simultaneously for each of the two schools. In addition, a stepwise analysis for each of the two schools was presented. The SPSS computer program (Nie, Hull, Jenkins, Steinbrenner, and Bent, 1985) was used to conduct these analyses.

Both the multivariate analysis and stepwise analysis provided information on the discrimination variables for purposes of classification.

Kachigan (1986) states that "the most meaningful evaluation of the discriminant function will be in terms of the actual errors of classification, both in number and in type" (p. 371). In the present study, accuracy in classification of the student's curricular choice using predictor variables could provide early identification of students for potential advising interventions.

The derivation of the discriminant classification functions for School A and School B were based upon calibration groups consisting of approximately 50% of the subjects within the respective schools. These functions were then applied to the remaining portion of the sample, i.e., the validation group. This cross-validation approach protects overestimation of classification accuracy in a sample and provides better estimates of population parameters (Tatsuoko, 1971).

In the discriminant analysis of School A, only one statistically significant discriminant function was derived which discriminated among the three criterion groups. In the discriminant analysis of School B, two statistically significant discriminant functions were derived, although the second was weak in comparison to the first. Once it was determined that the set of variables could provide discrimination among the groups, the

best combination of those predictor variables was achieved through the stepwise procedure.

In School A, four of the five variables were included in a stepwise analysis--sex, achievement, aptitude, and grade point average. This analysis produced one statistically significant discriminant function. In School B, three of the five variables were included in the stepwise analysis--sex, achievement, and grade point average. Two statistically significant discriminant functions were obtained in School B.

In terms of classification accuracy, the split-sample validation technique produced a derived function from the stepwise analysis for School A which classified 73.5% of the calibration group accurately and 67.3% of the validation group. This gave a total rating of classification accuracy of 70.5%, or placed 160 of 227 group members accurately. When combining the calibration and validation groups, 36 of the actual 66 general education group members were correctly identified for an overall accuracy percentage of 54.5. The highest degree of accuracy among the criterion groups in classification for School A was the college preparatory group (92.1%).

In School B, 66.1% of the calibration group were correctly classified, as compared to 56.9% of the

validation sample for a total accuracy rating of 61.6%. For the general education sample, 36.7% of the total group (26 of 71 group members) were accurately classified. Once again, the greatest degree of classification accuracy for the criterion groups was the college preparatory group (82.7%). For both School A and School B, the reduced set of predictors resulting from stepwise analysis was very accurate in identifying the college preparatory group. The analyses separated the college preparatory students from the vocational and general students quite effectively, but were unable to discriminate between the vocational education and the general education students. This separation adds little to the guidance practitioner's knowledge, since the college preparatory student can be readily identified by a simple perusal of the academic program and the use of the predictor variables would only support this identification. The analyses do, however, indicate a strong similarity between characteristics on the predictor variables for the vocational and general education students. As a result of these analyses, and their inability to discriminate between potential vocational and general education students, increased academic advising and career planning services for all non-college-bound youth are recommended.

References

- The William T. Grant Foundation Commission on Work, Family and Citizenship. (1988). The forgotten half: Non-college youth in America. Washington, DC: Author.
- Kachigan, S. (1986). Statistical analysis: An interdisciplinary introduction to univariate and multivariate methods. New York: Radius Press.
- Nie, H. H., Hull, C. M., Jenkins, J. G., Steinbrenner, K., & Bent, D. H. (Eds.). (1975). Statistical package for the social sciences (2nd ed.). St. Louis: McGraw-Hill Book Company.
- Parnell, D. (1985). The neglected majority. Washington, DC: Community College Press.
- Tatsuoko, M. M. (1971). Multivariate analysis: Techniques for educational and psychological research. New York: John Wiley & Sons.



Marital Happiness, Problems, and Counseling Attitudes Among Married Couples in the Midwest

by Martha R. Smith

Martha R. Smith is in private practice as a Family Therapist in Rolla, Missouri.

Carole W. Minor, Director

This was a comprehensive and extremely well-conducted study. While the implementation of the study was difficult and time consuming, the major findings are simple, yet profound.

The strongest predictor of decreased marital happiness for both men and women was with problems in showing affection. The strongest predictor for women was lack of respect for spouse. Concern about a possible affair and problems with the sexual relationship were strong predictors of decreased marital happiness for males and females.

Knowledge of the importance of these factors can help marriage and family counselors, clergy and others who work with couples help decrease these factors. Discussion of these findings in the popular press can inform the general public of areas of potential difficulty in marriage of which they may not be aware. Reason given for not seeking counseling for a troubled marriage can help counselors market their services to appropriate clients.

Questions of marital happiness have long occupied individuals who study families. A 1981 study by Geiss and O'Leary noted 29 problem areas for couples seeking marriage counseling. Researchers seeking factors associated with marital happiness have identified a multiplicity of variables with interrelationships that are not well understood, but there is much agreement on the significance of communication. Among couples seeking counseling, 80% experience communication problems. Montgomery (1981) has identified quality communication—a complex process consisting of many variables—as one vital variable in a relationship.

A telephone survey was designed to investigate marital happiness and its relation to 21 problem variables, including several communication variables. The study also in-

vestigated attitudes toward marriage counseling.

A random dialing process was used, and the survey sample included 500 currently-married persons (323 females and 177 males), reflecting a 61.5% response rate. The sample had a near-normal distribution for income and education; median for age was 40; for years of marriage, 15. For 70%, the current marriage was the first for both spouses.

Hypotheses tested included the following:

- 1) that responses indicating low levels of marital happiness would exceed those indicating high levels;
- 2) that levels of marital happiness would not be related to any single factor surveyed; and

- 3) that low levels of marital happiness would be related to the number and intensity of reported problem factors.

Participants rated their marital happiness on a 0-10 scale with 0 representing "totally miserable" and 10 "as happy as any couple could possibly be. Average marital happiness score was eight.

A 0-10 scale was used to indicate the presence and severity of various problems. To test the second hypothesis, zero-order correlations using Pearson r were calculated for the marital happiness score with the problem variables and other variables. Each problem variable showed a significant negative correlation with marital happiness, as did total number of marriages and number of children living at home. Thus the second hypothesis also was not supported. The

hypothesis that low levels of marital happiness would be related to number and intensity of reported factors was supported.

A computerized multiple regression was used to investigate the effect of each variable in the presence of all the others. Eleven predictor variables emerged. In separate gender analyses, problems with communicating affection ranked first for both males and females. Lack of respect from spouse was second for females; worry/concern about an affair was second for males and third for females. Conflict over handling of children ranked third for males. Abuse by spouse was fourth for females, while problems in sexual relationship ranked fourth for males. Fifth for females was conflict over use of drugs/alcohol; for males it was occupation of respondent--a positive predictor for marital happiness.

The most frequently acknowledged problems were not the out-

standing predictor variables for decreased marital happiness. While difficulty in expressing "negative emotions" was cited as a problem much more frequently than problems in expressing affection, the former was not a (negative) predictor for marital happiness. The data show the prevalence of a variety of communication problems; however, communication of affection may be the most vital to marital happiness. A possible link between the communication of affection and the communication of respect can not be determined by the data. If the marital happiness of one whose spouse communicates affection, respect, and assurance of fidelity can withstand the presence of a variety of problems, it appears that public school curricula should include specific skill training in communication for personal relationships.

The survey revealed resistance to seeking help for marriage problems. Twenty-eight percent of re-

spondents acknowledged having experienced significant marriage problems for which they did not seek help; only 13% had ever had marriage counseling. The most frequently-cited reason for avoiding counseling was the belief that people are responsible for solving their own problems; next most frequent was an unwilling spouse. A number of respondents indicated little confidence in the ability of counselors, or little knowledge of how to find one. Of those who received counseling, 87% rated it as helpful or very helpful. Counseling satisfaction was not related to type of professional, fee paid, or number of sessions. The professional's demonstration of caring was seen as extremely important. The researcher recommends that professional organizations give greater attention to educating the public about training and qualifications of their members.

References

- Geiss, S. K. & O'Leary, D. (1981). Therapist ratings of frequency and severity of marital problems: Implications for research. Journal of Marital and Family Therapy, 7, 515-520.
- Montgomery, B. M. (1981). The form and function of quality communication in marriage. Family Relations, 30, 21-30.
- Rao, V.P., and Rao, V. N. (1986). Correlates of marital happiness: A longitudinal analysis. Free Inquiry in Creative Sociology, 14, 3-8.



A Case Study of a Rasch Model Application to the Development of a Community College Mathematics Placement Test

by Charles K. Vilim, Jr.

Charles K. Vilim, Jr., is Coordinator of Technology at Triton Community College, River Grove, Illinois.

Peter Abrams, Director

This study involved the implementation of the Rasch Model to the development of measuring instruments for placing students into Community College beginning math courses and the comparison of cohorts entering two different programs. Based upon study of the Rasch Model, both at NIU and the University of Chicago, Dr. Vilim modified and applied the model to fit his situation and research interests. The result was a placement test that is used in the Community College as well as the finding that the two cohorts differed in certain respects, information that can be used in the placement process to increase student retention and success.

The case study herein described had two aims. The first was to develop a mathematics placement test for a specific Community College cohort composed of students enrolled in technology curricula. The second aim was to validate the instrument by using the test to compare the technology cohort with a cohort of students in university transfer studies. Both groups were from the same college.

Development of the placement test required making a choice between classical test theory or item response theory (IRT). A comparison of the merits of both theories was presented along with their disadvantages and resulted in choosing IRT, and specifically the Rasch model as the most appropriate for the task.

Existing results from tests in algebra and arithmetic were subject to a Rasch analysis and then linked to allow their items to serve as an item pool in creating the 55-item multiple-choice placement test. Over 600 individual tests were processed. Nine

arithmetic and 11 algebra subject categories were included in the test starting from addition of whole numbers to simple quadratic equations. These items measure the unidimensional latent trait of mathematical ability as determined by Bejar's method for establishing unidimensionality (1980).

The study presents detailed characteristics of the two populations used in addition to the educational attainments of citizens living in the college district. Several comparisons stand out. Technology students were on the average 5.6 years older, almost all male, and were mainly work-oriented; transfer students were nearly evenly divided between males and females, had more minority representation, and were mostly evenly-oriented toward a career and continuing their education at a university.

The Placement Test was given at the beginning of the 1987 Fall semester to 364 students at Triton Community College in River Grove, Illinois.

This group was composed of 165 students from Technology (Tech) and 199 students from Arts and Sciences beginning mathematics courses (Math). Test results obtained from this sample were analyzed with MSCALE (Wright et al., 1987) and IPARM (Smith, 1987). These are Rasch analysis programs for the IBM or compatible personal computer. On the whole, the testing results conformed to the Rasch model but a few items from the arithmetic portion of the test substantially changed calibration. In addition to the above, the test items were divided into two groups by item origin--original algebra or arithmetic test--and each item group was individually analyzed.

Rasch results showed the test calibration mean to be 0 (an artifact of the analysis) with a variance of 2.6244 logits, a standard error of 0.0256 logits, an item separation index of 10.28 which converted to a test height of 14 distinct levels of item difficulty and, a reliability of 0.99.

There were 10 positively misfitting items, i.e., items that do not discriminate very much, and 13 negatively misfitting items with high discrimination.

Person analysis gave the mean person measure of -0.26 logits with a variance of 1.82 logits. This is equivalent to a mean score of 25.2 and a standard deviation of 10.6. Adjusted variance was 1.28 logits and the standard error was 0.40. The person separation index of 3.18 converted into 5 ability levels. Reliability was computed as 0.91 and is equivalent to KR-20.

There were 14 misfitting persons whose removal left the test reanalysis result virtually unaltered. Treating the test as two subtests--one

in algebra and the other in arithmetic--reduced the number of misfitting items but had a mixed effect on person fit.

Performance of the two cohorts on the test was very dissimilar, as determined by tests of hypotheses, and was due mainly to the difference in performance on the algebra items. A hypothesis test equating the algebra and arithmetic subtest variances was rejected at the 0.01 level.

Test validity for the task of placing Tech students was established by dividing the cohort by class (4 classes) and each class by performance (pass, fail and other). Means between classes and within a class between performances were compared. Significant differences existed

between classes and between those who passed or failed the course. Cutoff scores were established from these data by taking the pass mean minus one standard deviation.

It was concluded that the IRT approach yielded a better understanding of the examinees and item function. The person fit statistic signaled a potential problem which could be addressed individually.

The placement test should be given as a two-level test (i.e., arithmetic followed by algebra).

After building a sufficiently large calibrated item pool the testing process can be automated by giving the test in computer adaptive form.

References

Bejar, I. I. (1980). A procedure for investigating the unidimensionality of achievement tests based on item parameter estimates. *Journal of Educational Measurement*, 17, 283-296.

Smith, R. M. (1987). *Probabilistic models for some intelligence and attainment tests* (Expanded Edition). Chicago: University of Chicago Press. (Original work published in 1960).

Wright B. D., Congdon, R. T., & Rossner, M. (1987). *MSCALE: A Rasch program for rating scale analysis* [Computer Program]. Chicago: Department of Education, University of Chicago.



An Analysis of Couple Congruency of Perceived Self-Concept as a Function of Time

by Barry Xavier
Whitehead

Barry Xavier Whitehead is Clinical Director of the Larken Center for Children and Adolescents, Elgin, Illinois.

Rick Meyer, Co-Director

Barry Whitehead's dissertation addresses a question that has eluded a definitive answer for many years. Why do some married couples remain married while other couples do not? To answer this question, Dr. Whitehead investigated the relationship between length of marriage and degree of congruency between spouses. Although, like other researchers, Dr. Whitehead was not able to solve the mystery of why some marriages succeed and others do not, his findings do suggest that counselors should have training in marriage counseling and understand the process and evolution of the marriage relationship.

Sociologists and psychologists have, for several years, attempted to understand why some marriages last for a long time and others end within a short period. One theory has proposed that the answer lies within the interaction of the social, psychological, and personal characteristics that are associated with mate selection (Lantz & Snyder, 1979). Several theories identify common concepts: homogamy, an assumption that people choose others like themselves; heterogamy, which purports that opposites attract; complementarity, which assumes that people choose others who have more strength in the areas in which they themselves are weakest; and values and role expectations (Lantz & Snyder, 1979).

One would believe that the longer a couple is married, the more congruent these spouses would be; and conversely, the more congruent the partners are, the longer term the marriage would be. This study inves-

tigated these relationships for both white and black couples.

Four major questions were investigated:

First, is there a relationship between length of marriage and couple congruency?

Second, do husbands or wives show any differences in congruency?

Third, are there some aspects of a person's self-concept (e.g., identity, acceptance, behavior, physical, moral-ethical, personal, family and social) which are more congruent than others?

And, fourth, do black couples show any differences from white couples with respect to congruency?

Congruency was operationally defined as being how close a spouse came to agreeing with the self-concept rating of his/her marital partner.

This was statistically defined as a husband discrepancy (DH), consisting of the total positive score of the Tennessee Self Concept Scale of the husband (H) minus the total positive score of the wife rating the husband (WrH). Similarly, a wife discrepancy (DW) consisted of the total positive score for the wife (W) minus the total positive score of the husband rating the wife (HrW). The absolute value of the two discrepancy scores were added together to give a measure of couple congruency (DC).

The sample consisted of 50 couples, of which 34 were white and 16 were black. Each spouse was requested to rate himself/herself and also to rate his/her spouse and he/she felt his/her spouse would be rating his/her self. Each spouse, then, was trying to match his/her spousal rating with the self-rating of his/her partner. The statistical analysis calculated the differences between these two ratings

-- the self-rating and the spousal rating.

No significant relationship between length of marriage and couple congruency ($r = -.082$) was found. The under-rating by the husbands with respect to their wives was more strongly related ($r = -.184$) to LOM than was the over-rating by the wives with reference to their husbands ($r = .106$). The correlation between the husband discrepancy and the wife dis-

crepancy scores was sizeable ($r = -.49$) and significant ($p < .001$).

There may be a number of reasons why congruency rate did not increase the longer a couple was married. One might be that as time passes, couples tend to take more for granted about each other. It could be that more assumptions are made and never really verified because the spouse might feel that the information is something he/she should know and

therefore is too embarrassed to try to find out. As time passes, these unverified assumptions can easily become truisms and lead to more incongruence over time.

Two of the major findings noted was that husbands tended to rate themselves lower than their wives rated them and wives tended to rate themselves higher than their husbands rated them. In some respects, this would follow societal trends.

Reference

- Lantz, H. R. & Snyder, E. C. (1979). Marriage, and examination of the man-woman relationship. New York: John Wiley & Sons.



Department of Physical Education

Masters Thesis

Editors' Note: Although doctoral dissertations are the source of much significant research conducted in fields of Education, exceptional research is also conducted at the Masters level. The thesis reported by Fenstermaker is an example of significant research in Physical Education using a secondary analysis of the data generated from Cosky's dissertation research reported previously in this issue.

Cross-Validation of the Rockport Fitness Walking Test in Females 65 Years and Older

by Kathy Fenstermaker

Kathy Fenstermaker is a Flight Attendant for United Airlines.

Sharon Ann Plowman, Director

The significance of Kathy's study is aptly stated in her abstract. Maintaining a healthy, active, independent lifestyle is critical for today's elderly. Assuming clearance from a physician, it is important to have some ideas of the fitness level of such individuals before prescribing exercise sessions. The Rockport Fitness Walking Test (RFWT) has been validated on younger groups. The current study shows that it can be used with females over the age of 65 including 70 year olds. While the test is most accurate when trained personnel assist, it can also be a form of self test to allow individuals to assess their own progress. This can be very motivational.

The percentage of the population that is 65 years of age or older is increasing. Cardiovascular fitness is one means of helping this population maintain a healthy independent lifestyle. In order to aid these individuals in achieving fitness there is a need for a safe simple test to evaluate current fitness levels and to provide a basis for accurate exercise prescription.

The direct measurement of maximal oxygen consumption (VO_2 max) by exercising on a treadmill is considered the most accurate means

of determining cardiovascular fitness. However such tests require highly specialized equipment, trained technicians, and in this age group, medical supervision. The Rockport Fitness Walking Test (RFWT) has been proposed as an alternative field test to estimate VO_2 max. However, this test has not been investigated in individuals over the age of 69 years.

The purpose of this study was threefold: 1) to determine the reliability of the Rockport Fitness Walking Test (RFWT); 2) to cross-validate the

RFWT; and 3) to determine the sensitivity of the RFWT to training in females aged 65 years and older. Both generalized and sex-specific equations were utilized to estimate VO_2 in $l \cdot min^{-1}$ and $ml \cdot kg^{-1} \cdot min^{-1}$ from the time of a one-mile walk, heart rate at the end of the one-mile walk, weight, and age.

The one-mile walk was completed by 16 subjects on four different occasions, three prior to training (W1, W2, W3) and one after training (W4). Reliability improved from .63

for the first three trials (W1, W2, W3) to .96 for the last two trials (W2, W3). The means of all three tests (W1 $x = 18.91 \text{ min} \pm 3.89$, W2 $x = 17.00 \text{ min} \pm 2.14$, W3 $x = 16.73 \text{ min} \pm 2.12$) were significantly different ($F(15,32) = 11.69$, $P.05$).

Cross-validation was determined by correlating the estimated VO_2 max results from the one-mile test with the measured VO_2 max results determined on the treadmill. The results indicated $r = .68$, $\text{SEE} = .15 \text{ l-min}^{-1}$, $\text{Error} = .22 \text{ l-min}^{-1}$ and $r = .78$, $\text{SEE} = 2.05 \text{ ml-kg}^{-1} \text{ min}^{-1}$, $\text{Error} = 4.03 \text{ ml-kg}^{-1} \text{ min}^{-1}$, for the female equations and $r = .67$, $\text{SEE} = .15 \text{ l-min}^{-1}$, $\text{Error} = .29 \text{ l-min}^{-1}$

and $r = .80$, $\text{SEE} = 1.99 \text{ ml-kg}^{-1} \text{ min}^{-1}$ and $\text{Error} = 4.71 \text{ ml-kg}^{-1} \text{ min}^{-1}$ for the generalized equations. On the basis of these results the formula $\text{VO}_2 \text{ max l-min}^{-1} = 5.5597 + 0.0077 (\text{wt in lbs}) - 0.0236 (\text{age}) - 0.1713 (\text{time for mile in minutes}) - 0.0067 (\text{HR bpm})$ is recommended. No significant difference was found between the means of the estimated VO_2 max and measured VO_2 max ($P.05$), indicating there was no average under- or over-estimation of VO_2 max.

Twelve experimental subjects (E) ($x \text{ age} = 70.75 \pm 4.05 \text{ yr}$) participated in a 20-week low-impact aerobics program while four subjects (C) ($x \text{ age} = 65.5 \pm 1.0 \text{ yr}$) served

as controls. The results of the Mann Whitney U Tests indicated that the gain in estimated and measured VO_2 max from pre-test to post-test were not significantly different between E and C groups. Therefore, the RFWT was sensitive to the lack of training change in exercising individuals.

It was concluded that the RFWT is a reliable, valid, safe, sensitive and convenient field test for the estimation of VO_2 max in females 65 years of age and older. However, it is most reliable when an older-aged individual has practiced the test once and has assistance from a test administrator in timing the mile walk as well as determining pulse rate.



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