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STUDY OF INTERACTIONS OF ADULT LEARNERS WITH LEARNING SITUATIONS

by

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78

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Abstract

This exploratory study sought understanding of how adult learners and learning situations interact and how those interactions might be explained. With a constructivist, interactionist theoretical base, and interpretive, qualitative research methodology, the study was conducted in two parts involving different data sources -- field study and meta-analysis of prior research.

1. Observation of learning situations and interviews of participants were used to seek understanding of adult learner experience in its own terms. Analysis included comparison of multiple learners from the same observed situation, and of individual learners across situations. Elements of learners' experiences were found to include past experience, prior knowledge, purpose, attention level, emotional response, and perceptions.

2. With prior research as data, an interpretive meta-analysis was done to determine the evolving state of theory and findings in the field related to adult learners, situations, and their interactions. Sources of studies which were included in the sample were Adult Education Quarterly, 1979-1984, citations of those studies (ancestry), Social Sciences Citation Index (descendency), and Dissertation Abstracts International, 1979-1984.

Characteristics of the learner analyzed in clusters of related studies included: (a) ego development, (b) autonomy, (c) adult cognition, (d) learning styles, (e) cognitive style, (f)

age and academic ability, (g) developmental tasks, and (h) relevance and curiosity. Clusters of studies on learning situations were related to (a) Telecourse, (b) Lecture, and (c) educational orientation of teachers. Interaction between learners and situations were identified in clusters of studies on (a) learner participation in planning, (b) learner perception of teacher behavior, and (c) interaction between content organizers and prior knowledge.

The Person Situation Process Model (Nystedt) was used as a consistent organizing framework for data in both parts of the study to enable integrative analysis of the two perspectives. The study was designed and conducted to provide a base for theory development and empirical research on adult learner/situation interaction.

The present state of theory and research on this phenomenon was found to be rudimentary. Cumulative findings, theoretical foundations, and dialogue between proponents of competing theories were absent or rare. Conclusions from the integrative analysis of field study and research review data included:

(1) that learner perceptions, and momentary states such as attention level and emotional responses, are important elements in the learner's experience and have received almost no attention in prior research, and

(2) that individual adult learners exhibit unique combinations of characteristics, such as prior knowledge, past experience, and purpose, which are related to the ways they experience learning situations and which help to

explain idiosyncratic responses.

TABLE OF CONTENTS

CHAPTER ONE: DEVELOPMENT OF THE RESEARCH PROBLEM 1
Characteristics Of The Adult 3
Research In Andragogical Assumptions 6
Research Streams In General Education 9
Teacher Effectiveness And Classroom Observation Studies 9
Attribute-Treatment Interaction 12
Constructivism 13
Student-Teacher Interaction 15
Statement Of The Research Problem And Its Significance To Adult Education 17
Summary 18
CHAPTER TWO: DEVELOPMENT OF THE THEORETICAL FRAMEWORK 20
Interactionism 20
Selection Of A Model For Study Of Adult Learner/Situation Interaction 25
Summary 37
CHAPTER THREE: DEVELOPMENT OF THE RESEARCH METHODOLOGY 38
Selection Of A Research Paradigm 38
Development Of Research Method 44
Meta-Analysis, Prior Research 46
Field Study 48
Limitations Of The Study 49

Summary 55
CHAPTER FOUR: ANALYSIS AND SYNTHESIS OF PRIOR RESEARCH 56
Process For Collection Of Data 56
Process For Analysis 59
Analysis Of Data Clusters 60
Studies On Characteristics Of The Learner 61
Studies On Characteristics Of Learning Situations ...145
Studies On Interaction Between Learners And Situations 170
Summary And Conclusions 216
CHAPTER FIVE: PROCESS FOR COLLECTION AND ANALYSIS OF FIELD DATA 220
Literature Background 221
Decisions For Analytic Approach In This Study 227
Process For Collection, Transformation, And Analysis Of Observation Data 230
Collection Of Observation Data 230
Transformation And Analysis Of Observation Data 235
Process For Collection, Transformation, And Analysis Of Interview Data 237
Collection Of Interview Data 237
Transformation And Analysis Of Interview Data 240
A Priori Categories And Intrarater Reliability 241
General Coding, Reducing And Organizing The Data 247
Second Coding -- Patterns And Analytic Categories ...251
Describing The Learners' Experience 258

Comparing Learner Responses Within Situations 258
Comparing Learner Responses Across Situations 259
Summary 260
CHAPTER SIX: SITUATION OBERVATIONS AND LEARNER INTERVIEWS .261
Situations As Observed And Experienced By Learners 262
Situation Two 263
Situation Four 318
Situation Five 337
Experience Of Individual Learners Across Situations 361
Alice 361
Celia 373
Ione 376
Donna 379
Jean 382
Abstract Structure 382
Summary And Analysis Of Experience -- Within And Across Situations 385
Summary 388
CHAPTER SEVEN: SUMMARY AND INTEGRATION OF FINDINGS 389
Summary, Research Review 390
Summary, Field Study 391
Integration Of Findings 392
Abstract Structure 393
Momentary States 410
Perceptual-Cognitive Structure 413
Chapter Summary 418

CHAPTER EIGHT: CONCLUSIONS, IMPLICATIONS AND LIMITATIONS OF THE STUDY 419
Reexamination Of The Research Problem 419
Reexamination Of The Theoretical Perspective 422
Person Situation Process Model As A Specific Model Of Adult Learner/Situation Interaction 423
Recommendations For A Research Agenda 425
Critique Of This Study 427
Comments On The Research Method 427
Use Of The Person Situation Process Model 428
Limitations Of The Study 432
Significance Of The Study 435
BIBLIOGRAPHY 437
APPENDIX A: PILOT ANALYSIS: PERSON SITUATION PROCESS MODEL 459
APPENDIX B: SAMPLE PAGES FROM DECISION LOG FOR RESEARCH REVIEW 465
APPENDIX C: TABLES: ELEMENTS FROM CLUSTERS OF DAI ABSTRACTS 468
APPENDIX D: OBSERVATION GUIDE 488
APPENDIX E: A PRIORI CATEGORIES FOR CODE/RECODE 490

TABLE OF TABLES

Table 1 Quantitative Summary Of Included Studies By Source 57

Table 2 Comparison Of Younger And Older Students, Omnibus Personality Inventory (Kasworm, 1980) 120

Table 3 Summary Of Major Constructs From Studies On Learner Characteristics 143

Table 4 Typology For Modes Of Distance Education Proposed By Moore 148

Table 5 Summary Of Major Constructs From Studies On Situation Characteristics 167

Table 6 Teacher Behavior Factors, Correlation With Course Content Area And Type (Solomon, 1966) 187

Table 7 Summary Of Major Constructs From Studies On Interaction Between Learners And Situations 216

Table 8 Distribution Of Learner Interviews Across Situations 239

Table 9 Illustration Of Data Display: Reducing And Organizing The Data 248-249

Table 10 Patterns And Analytic Categories Identified From Two Interviews 252-254

Table 11 Illustration Of Data Matrix: Pattern Coding ..257-258

Table 12 Relationships Between Selected Elements In Betty's Abstract Structure And Her Experience Of Situation Two .270

Table 13 Relationships Between Selected Elements In Celia's

Abstract Structure And Her Experience Of Situation Two .278
Table 14 Relationships Between Selected Elements In Donna's Abstract Structure And Her Experience Of Situation Two .286
Table 15 Relationships Between Selected Elements Of Ethel's Person System And Her Experience Of Situation Two 290
Table 16 Relationships Between Selected Elements In Faye's Abstract Structure And Her Experience Of Situation Two .296
Table 17 Comparison Of Elements Of Abstract Structure And Momentary States For Five Learners In Situation Two 299
Table 18 Relationships Between Selected Elements In Alice's Abstract Structure And Her Experience Of Situation Three 309
Table 19 Relationships Between Selected Elements Of Gail's Person System And Her Experience Of Situation Three 313
Table 20 Comparison Of Abstract Structure And Momentary States For Two Learners In Situation Three 315
Table 21 Relationships Between Selected Elements In Helen's Abstract Structure And Her Experience Of Situation Four 322
Table 22 Relationships Between Selected Elements In Ione's Abstract Structure And Her Experience Of Situation Four 327
Table 23 Relationships Between Selected Elements In Jean's Abstract Structure And Her Experience Of Situation Four 331
Table 24 Comparison Of Abstract Structure And Momentary States For Three Learners In Situation Four 334
Table 25 Relationships Between Selected Elements In Celia's Abstract Structure And Her Experience Of Situation Five 343

Table 26 Relationships Between Selected Elements In Donna's Abstract Structure And Her Experience Of Situation Five 348

Table 27 Comparison Of Abstract Structure And Momentary States For Four Learners In Situation Five 358

Table 28 Relationships Between Selected Elements Of Alice's Abstract Structure And Her Experience Of Situation One .366

Table 29 Summary Of Major Elements Identified From Prior Research And Field Study Analyses 394

Table 30 Dissertation Abstracts Related To ABE And Marginal Ability Students 469

Table 31 Dissertation Abstracts Related To Cognitive Development Of Adults 471

Table 32 Dissertation Abstracts Related To Learning Style (Kolb) 473

Table 33 Dissertation Abstracts Related To Field Dependence-Independence 474

Table 34 Dissertation Abstracts Related To Use Of Lecture .478

Table 35 Dissertation Abstracts Related To Teacher Behavior As Perceived By Students 480

Table 36 Dissertation Abstracts Related To Student Evaluation Of Teacher Effectiveness 484

Table 37 Dissertation Abstracts Related To Use Of Content Organizers 486

TABLE OF FIGURES

Figure 1 Person Situation Process Model (Nystedt, 1981, P. 382) 28

Figure 2 Triangulation Of Data Sources 46

Figure 3a Problem Of Low Literate Adult Learners As Described By Boyd And Martin 63

Figure 3b Summary Of Elements Identified In Studies Of Achievement For ABE And Marginal Ability Students 70

Figure 4a Paradox Of Autonomous Learner As Developed By Chene 77

Figure 4b Autonomy As Choice Relative To Goal Attainment Within A Specific Situation 80

Figure 5a Various Theories Of Adult Cognition 92

Figure 5b Illustration Using King's Reflective Judgment Model To Compare Two Learners In Lecture 94

Figure 5c Illustration Using King's Reflective Judgment Model To Compare Two Learners In Problem Posing Situation 95

Figure 6a Concepts Employed By Pigg Et Al. in Study Of County Extension Agents' Learning Styles 98

Figure 6b Learning Style Modes And Environmental Complexity (Kolb & Fry) 100

Figure 7a Field Dependence-independence And Success In A High School Completion Program (Donnarumma Et Al.) 109

Figure 7b Summary Of Concepts Related To Research Studies On Cognitive Style 117
Figure 8a Socioemotional Orientations Of Older Undergraduate Students (Kasworm, 1980) 121
Figure 8b Self-efficacy In The Older Undergraduate Student (Rebok & Offerman) 123
Figure 8c Interactive Elements Identified From Studies Of Adults In Academic Settings 127
Figure 9a Perceived Importance Of Havighurst's Developmental Tasks 131
Figure 9b Hypothesized Relationship Between Developmental Tasks Of Adults And Learning Situations 136
Figure 10a Surprise (curiosity), Perceived Relevance And Desire For Knowledge (Rossing & Long) 138
Figure 11a Research On Telecourse Reviewed By Wiesner 146
Figure 12a Research On Use Of Lecture Reviewed By Oddi 151
Figure 12b Effect Of Instructional Method On Personality And Knowledge Acquisition (Bubenzer) 152
Figure 12c Interaction Between Personality And Teaching Methods 154
Figure 12d Personality Characteristics, Preference, And Teaching Method (Stanton's Phases 2 & 3) 155
Figure 13a Educational And Interpersonal Behaviors Of Teachers (Holmes) 160
Figure 14a Participation In Course Planning, Achievement And Satisfaction (Rosenblum & Darkenwald) 172

Figure 14b "Better Course" Hypothesis For Effect Of Participation In Planning 178
Figure 14c "Ownership" Hypothesis For Effect Of Participation In Planning 180
Figure 15a Student Perception Of Teacher Behavior (Kerwin) 183
Figure 15b Student Perception Of Teachers And Ratings For Course Value And Teaching Ability (Deshpande Et Al.) ...185
Figure 15c Summary Of Elements Related To Student Perception And Evaluation Of Course And Teacher 199
Figure 16a Introductory Material And Prior Knowledge Level (Grotelueschen) 203
Figure 16b Conditions And Effect Of Advance Organizers, Assimilative Theory (Mayer) 208
Figure 16c Concepts Related To Prior Knowledge And Content Organizers 213
Figure 17 Elements Of Betty's Experience In Situation Two .267
Figure 18 Elements Of Celia's Experience In Situation Two .274
Figure 19 Elements Of Donna's Experience In Situation Two .281
Figure 20 Elements Of Ethel's Experience In Situation Two .288
Figure 21 Elements Of Faye's Experience In Situation Two ..293
Figure 22 Elements Of Alice's Experience In Situation Three 307
Figure 23 Elements Of Gail's Experience In Situation Three 311
Figure 24 Elements Of Helen's Experience In Situation Four 321
Figure 25 Elements Of Ione's Experience In Situation Four .325
Figure 26 Elements Of Jean's Experience In Situation Four .329

Figure 27 Elements Of Celia's Experience In Situation Five, First Segment 340
Figure 28 Elements Of Celia's Experience In Situation Five, Second Segment 342
Figure 29 Elements Of Donna's Experience In Situation Five 346
Figure 30 Elements Of Ione's Experience In Situation Five .350
Figure 31 Elements Of Jean's Experience In Situation Five .354
Figure 32 Elements Of Alice's Experience In Situation One .364

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CHAPTER ONE

DEVELOPMENT OF THE RESEARCH PROBLEM

THE ADULT LEARNER'S EXPERIENCE OF EDUCATIONAL SITUATIONS

If adult education is unique as a form of education, the nature of the adult learner is central to that uniqueness. "There seems to be increasing agreement that the maturity of the adult learner and the needs and problems of adulthood are what give adult education its special quality" (Darkenwald & Merriam, 1982, p. 11). While definitions of adult education vary in other dimensions, they are consistent in inclusion of the adult learner (Verner, 1964, Houle, 1972, Darkenwald & Merriam, 1982).

What are the characteristics of adults as learners and how do those characteristics influence the educational process? Knowles (1970) put forth a description of characteristics of the adult. Set under the subtitle "Andragogy versus Pedagogy," Knowles' work became a focal point for debate. There were two primary issues which received considerable attention. First, are adults and children different as learners and if so what are those differences? Second, ought the teaching of adults to be different from the teaching of children and if so what are those differences?

Cross (1982) compared and contrasted various perspectives in the ongoing debate and concluded that the confusion begins with the nature of andragogy. She reviewed arguments developing

it respectively as learning theory, as a philosophical position, a political reality, or a set of hypotheses subject to scientific verification. In each of the arguments a central issue seems to emerge--the adult versus the child as learner.

The arguments have bypassed a critical line of analysis for adult educators. What characteristics of adults influence their response as learners? How do adults vary, and how do those variations affect their interactions with learning situations? For adult educators, it is important to understand the range of variations among the clients served, and how those variations influence response to educational activities. These questions seem more crucial than to continue debate of adult/child differences which treat each in their homogeneity rather than in their diversity.

The research problem for this study pertains to the nature of interaction between adult learners and their learning situations: how multiple learners vary within the same learning situation, and how the same learner varies across learning situations. For the development of that problem, this chapter presents a review of literature on: (a) characteristics of adults, (b) research on andragogical assumptions, and (c) research streams in general education. Lastly, the problems for inquiry, and the significance of the study are described.

CHARACTERISTICS OF THE ADULT

There is no lack of discussion on the definition of adulthood and its characteristics. Age, psychological maturity, and acceptance of social roles ascribed to adulthood, are commonly included in determining adult status (Darkenwald & Merriam, 1982), yet become elusive with efforts to pin them down. Adulthood frequently is defined in contrast to childhood. Adults are adult because they are older than children (Paterson, 1979).

While some definitions and expositions regarding adulthood imply a static condition, others include a developmental perspective. Erikson (1982) reflected that we have only recently, in an historical sense, come to acknowledge adulthood as a developmental phase in its own right, rather than merely the mature end of all development. From this perspective, adulthood is seen to evolve over time as the individual develops, and adult characteristics vary across individuals and life spans. While there may be order in developmental patterns (Erikson, 1963, Gould, 1972), adults are not a homogeneous mass. They differ from one another as well as from themselves at different points in the life cycle.

Paterson (1979) developed the concept of adulthood as one of expected maturity. He suggests that adults vary in physical, mental, psychological, social, and skill attributes. Such attributes do not themselves constitute adulthood. In fact,

some precocious child may have them all, while some adults may be missing one or more. When someone is called an adult it is not claimed that he has any one set of characteristics but rather a certain status which is significant in contrast to the status of a child. Adults are not necessarily mature, but they are supposed to be, and that necessary supposition defines adulthood.

In a revised edition of the earlier work cited, Knowles (1980) presented four assumptions about the characteristics of adults,

> that as individuals mature: 1) their self-concept moves from one of being a dependent personality toward being a self-directed human being; 2) they accumulate a growing reservoir of experience that becomes an increasingly rich resource for learning; 3) their readiness to learn becomes oriented increasingly to the developmental tasks of their social roles; and 4) their time perspective changes to immediacy of application, and accordingly, their orientation toward learning shifts from one of subject-centeredness to one of performance-centeredness. (1980, pp. 44-45)

Knowles assumptions are stated in developmental terms. He presents the adult learner as in the process of maturation, becoming increasingly experienced, not as a set of fixed attributes.

In a review of educational research, Kowalski (1984) reported notable differences between children and adults with

regard to the adult's (a) higher motivation, (b) lower physical speed, (c) more fixed behavior, (d) regressive vision and hearing, (e) greater freedom and independence and (f) expectation for higher levels of relevance. Adults are more often the initiators of their own experience, exert more control over processes and outcomes and have more power and autonomy than do pre-adults. Prior knowledge, experience, and orientation to life tasks characterize adult development (Beder & Darkenwald, 1982). While these descriptions are used to differentiate children and adults, experience supports the observation that those same factors also differentiate adults from one another. Adults vary in motivation, physical speed, vision, and so forth.

Charnley (1984) stated that techniques found in adult education research tended to suggest homogeneity where none existed and thus to misrepresent a diverse clientele. Observation supports the conclusion that adults do vary along many dimensions. It seems reasonable to ask how those variations influence the adult in a learning situation.

Cross presented a conceptual framework, Characteristics of Adult Learners, which includes personal characteristics in physiological, sociocultural, and psychological domains as well as situational characteristics. Situational characteristics are limited, in the model, to part-time versus full-time learning, and voluntary versus compulsory learning. While the framework, acknowledged to be bare-bones and tentative, offers an interesting perspective on the adult learner as interacting with

situations, its "explicit purpose . . . is to elucidate differences between adults and children as learners and ultimately to suggest how teaching adults should differ from teaching children" (1982, p. 234). The problem for development in this study is to find the differences which exist among adults and how they interact with learning situations in which they engage.

RESEARCH IN ANDRAGOGICAL ASSUMPTIONS

Andragogical assumptions have become a prevailing view of the adult as a learner for many adult educators. Jarvis (1984) argued that andragogy emerged and acquired the status of established doctrine in adult education without being grounded in sufficient research to justify its dominant position. It was successful in becoming incorporated into the mainstream because the general values of society were compatible with it, and it remains significant because it embodies many of the ideals of adult educators.

Studies of andragogical assumptions have tended to focus on the educator to determine the degree to which the assumptions are held and used as a basis for practice. Beder and Darkenwald posed the question, "Do teachers teach adults differently from pre-adults and, if so, what are these differences and what factors determine their magnitude?" (1982, p. 142). It was concluded that teachers do teach adults differently and that most of the variance is attributed to the teachers' perceptions

of learning-related differences. The study, with measures of teaching behaviors derived from extensive interviews with teachers, generally supports andragogical assumptions as factors teachers use in their practice. The differences were not large, and inferences that classroom practice differs sharply as a function of student age were not supported. However, when teachers perceived students to be more motivated, serious, and self-directed (more adult-like?) they were more responsive and learner-centered.

In another study using the same data, Darkenwald (1982) sought to determine if the differences exhibited a meaningful underlying structure. Principal components analysis yielded two factors, Responsiveness and Control, which resemble learner-centered and teacher-centered concepts in the andragogical/ pedagogical formulation. Darkenwald points out the similarity of those factors with the concepts, progressivism and traditionalism, which have been demonstrated in studies of teachers of younger students (e.g. Adevere-Boamah, Delay, & Jones, 1982). This observation casts doubt on conclusions that such orientations differentiate teachers of adult and pre-adult students since they can be found in teachers across age groups. Teachers of adults do not consistently report andragogical views of adults. Kitchen (1972) found that evening college faculty had a less favorable attitude toward adult students than toward their ideal concept of the college student.

Beder and Darkenwald demonstrated that teachers who teach both adults and pre-adults, report some differences in teaching

behavior when they perceive differences in the student groups. The characteristics usually attributed to adults were found to be more important than adult/pre-adult status in reported teaching differences.

Differences in educational orientation also have been found to distinguish adult educators from one another (Holmes, 1980) with 50% of the respondents in his study expressing each orientation. Though significant differences were found between the means for the two orientations, Holmes suggested that andragogical and pedagogical concepts were best expressed as extremes on a continuum. Other factors, such as purpose of education, nature of learners, the learning process, and relationship of educator to learner, may generate a peculiar blend of attitudes within either orientation. Holmes found significant associations between educational and interpersonal orientations (FIRO-B) suggesting that teaching orientation may exist within a larger personal or interpersonal framework. Characteristics of the teacher may determine andragogical orientation toward learners.

Citing several studies which support the proposition that teacher beliefs can serve as self-fulfilling prophecy, Purkey stated as a basic assumption of the theory of self-concept, that we behave according to our beliefs. "If this assumption is true, it follows that the teacher's beliefs about himself and his students are crucial factors in determining his effectiveness in the classroom" (1977, p. 151).

RESEARCH STREAMS IN GENERAL EDUCATION

Evolving research streams in the education of children and college students offer potential insight into the nature of the problem posed for this study. Traditionally focused on the teacher, in or out of the classroom setting, there is increasing study of student perception, and student-teacher relationship as factors in the educational process.

Teacher Effectiveness and Classroom Observation Studies

Over a period of decades, researchers have attempted to determine the characteristics and behaviors that make teachers effective. There is substantial agreement that those efforts have provided limited results. Some reviewers have attributed disappointing results to methodological or conceptual problems, others to the reductionist paradigm used in most of the studies. On a more optimistic note, Gage (1978) and Glass, McGaw, and Smith (1981) suggest using analytic and statistical approaches to produce the more positive findings which they believe the reviewed studies really represent. "The path to increasing certainty becomes not the single excellent study, which is nonetheless weak in one or more respects, but the convergence of findings from many studies, which are also weak but in many

different ways" (Gage, 1978, p. 35). Using that approach, Gage and associates "carefully sifted" detailed information for several hundred variables and developed a set of inferences for third grade teachers of reading (and perhaps mathematics) to maximize achievement.

While there are optimistic supporters of the 'teacher effectiveness' stream of research, there also are detractors. "Despite thousands of research studies, books, and articles, there is still little or no agreement about what good teaching is!" (Brophy & Evertson, 1976, p. 4).

Doyle (1978) criticized the process-product paradigm of teaching effectiveness research as too narrow and based on the arguable assumption that causal influence always flows from teacher to student. According to Doyle, the conceptual framework tends to be individualistic while classrooms are collective settings. He recommended research on classroom contexts and concern for how teachers and students make sense of classroom events. Doyle proposed broadening the framework from the 'teacher process-product' paradigm to take into account mediating, or student processes. For example, 'attending' is a mediational process which could explain why teachers who move around, are enthusiastic, gesture more, are effective. He asserts that many teacher behaviors may result in the same student responses. By the same token, the same teacher behavior may evoke different student responses. It is the student's own mediating response which brings about learning.

A substantial body of the research on teacher effectiveness

evolved from development of Interaction Process Analysis techniques (Bales, 1950), and Interaction Analysis (Flanders, 1970). This approach to studies of classroom interactions involves use of an observational system to reduce the stream of classroom behavior to small-scale, predetermined units for computation. Various systems (Simon & Boyer, 1974) cover slightly different units of analysis, but most focus predominantly on one side of the interaction, the teacher, and on a limited sample of classroom behavior, 'teacher-talk' or overt behavior.

Delamont (1976) attributed failure of much educational research to over-emphasis on this type of interaction analysis, and the restricted range of techniques which are too limited to tap the complexity of the classroom interaction. High-inference variables may be more then the sum of their low-inference counterparts. An additional flaw in previous research has been suggested as a focus on teacher behavior toward the entire class rather than toward individual students (Brophy & Good, 1974).

Getzels and Thelen (1960) described the classroom as a unique social system in which there is conflict between role-expectations and personality dispositions. Leadership styles shift as requirements of the institution in the form of role expectations or requirements of the individual learner are maximized or minimized. In a nomothethic style, role is maximized, person minimized. The opposite is true in an idiographic style. In a transactional style, the situation is used to determine which is maximized. Thelen stated that

"classrooms are microsocieties which have salient and distinctive tendencies of the 'larger society'"(1981, p. 100).

Attribute-Treatment Interaction

Cronbach (cited in Biggs, 1976) proposed the Attribute-Treatment Interaction model (ATI) based on the idea that 'treatments' may be differently effective for sub-groups of students. A substantial body of research has been done using this model. Reviews of ATI studies have demonstrated disappointing results and, according to Biggs, the studies seem to have missed Cronbach's most important point, that each treatment will call out different person characteristics.

In a critical review, Cronbach and Snow (1977) found few demonstrated interaction effects. Assessing two decades of disappointing results, Cronbach (1975) concluded that the predominant experimental strategy has concealed rather than revealed interactions which exist. He attributed some of those results to a consistent willingness to accept Type II errors for the sake of holding Type I errors in check. The cost has been repeated findings of 'no significance.'

Hunt (1975a) attributed the disappointing results of ATI research to an excessively restrictive definition of person-environment interaction. Acceptance of a specific statistical criterion to define an ATI has limited its usefulness as a person-environment concept. According to Hunt, use of the ATI paradigm has trivialized person-environment interaction into a

form of statistical interaction. According to Cronbach (1975), it is not that interactions do not occur, but rather that there are many of them. More complex interactions hide simpler ones ad infinitum. Increasingly sophisticated statistical designs have continued to yield disappointing results. The experimental strategy dominant since 1950 has only limited the ability to detect interactions. The failure to demonstrate significant interactions between aptitude and treatment, or person and situation in a broader context, may be due to methodological rather than theoretical flaw (Magoon, 1977).

Constructivism

Magoon (1977) outlined a rationale for use of a constructivist theme in educational research. Based on serious doubts which have been raised regarding traditional approaches, he proposed a reverse in priority from building generalizations to careful attention to particular cases first. Basic assumptions of the constructivist approach were identified:

1. "Subjects" are considered knowing beings who use knowledge to interpret actions, and who form complex sets of meanings.

2. Control of behavior resides initially within the subjects although it is constrained by social norms.

3. Human beings have highly developed capacities to organize complexity, to attend to meanings rather than

surface elements, and to reconstruct social roles. The prime phenomena for educational research are, at their most basic levels, sophisticated and highly organized.

On a similar theme, Driver and Erikson (1983) reviewed a growing body of literature using the "student as scientist" metaphor which stems from a constructivist perspective. Students are found to hold certain "theories-in-action," or constructed meanings, regarding science concepts which influence their learning of those concepts. Saljo (1981) identified different basic approaches in learning strategy used by students in how they went about understanding material. On a similar theme, Dahlgren and Marton (1978) found that students pre-conceptions of subject matter were directly related to their ability to comprehend it. In both instances, how students went about making meaning was related to learning outcome.

In a summary of work on academic tasks, Doyle (1983) identified an emerging constructivist theme:

1. Comprehension of texts is an active constructive process, not merely reception or rehearsal of information.
2. Prior knowledge plays a significant role in that construction, in problem solving, and in learning.
3. Solution strategies are learned "naturally" through experience; from these natural strategies students invent procedures for solving routine problems.
4. Academic work requires both domain-specific knowledge and complex solution strategies.
5. Age and ability of the learner influence

subjective complexity of academic tasks.

Not only do students construct meanings related to content, and the academic task, they also perceive and construct meanings about the school experience itself. In a review of research on student perceptions of school, Cohen and Manion (1981) concluded that how children are taught is of more importance to them than what they are taught. Woods (1976) found that students could view their work as odious or enjoyable, and that the difference was not so much the nature of the work but relations with the teacher concerned.

Good (1983) reported that classroom observational research has shown distinct differences in the ways teachers interact with individual students but little is known about how such variations are interpreted by students.

Student-Teacher Interaction

An increasing focus can be found on learning context which involves an interactive process between student and teacher. Medley (forward in Ober, Bentley, & Miller, 1971) asserted that from studies over the past two decades, it has become more and more apparent that the effect of a given teacher behavior is specific to the teacher, the pupil, and the situation. "If there are any universally effective behaviors, their number is small indeed" (p. xi). Ober et. al proposed a system of classsroom observation which incorporated student behavior and socio-emotional climate. Delamont (1976) argued that complex

individual effects of teachers' personal style cannot be tapped by orthodox research means, and that methods are needed which allow categories to emerge during research.

Centra and Potter (1980) reviewed "between school" studies and found inconsistent results, with more variation within schools and classrooms than between them. They concluded that more information is needed about how schools affect teacher behavior and interaction with students. "In the final analysis, learning is something children do. . .,not something which schools or teachers do to them" (p. 287).

In a review of research on school climate, Anderson (1982) reported agreement that (a) schools possess something called climate, unique to each organization, (b) such differences, while discernable, are elusive and complex, (c) climate is influenced by such dimensions as student body characteristics or classroom processes, (d) climate affects outcomes, and (e) understanding climate will improve understanding and prediction of student behavior.

Using direct observation of classroom settings, Furlong found that the behavior of individual students changes within different situations and with different teachers. "Classroom situations change in the meaning they have for pupils and, as they change, so will the pupils assessment of how to behave" (1976).

The teacher is an important factor as well. Citing studies of teacher integration, Brophy and Good (1974) observed that well integrated (self-controlled) teachers were effective for

all students while weakly integrated (fearful) or turbulent (defensive) teachers were effective for students who were "strivers." They concluded that highly achievement motivated students do well even with ineffective teachers. Teacher expectation has been demonstrated to affect achievement. Cooper (1979) reviewed research on pygmalian effect and found solid support that teacher expectations do affect achievement but not invariably. He concluded that the process is probably cyclic between achievement and expectations.

STATEMENT OF THE RESEARCH PROBLEM AND ITS SIGNIFICANCE TO ADULT EDUCATION

The starting point for interest in the problem was the observation that andragogical assumptions were treated by many practitioners, including the researcher, as prescriptive for practice. That is, behaviors which flow from these assumptions constitute the "right way" to practice adult education. The extent to which that may be true has not been empirically demonstrated. Attempts to develop a study to provide that demonstration led to the realization that the assumptions may be idealized values of adulthood rather than descriptions of adults. Still holding the values embodied in the assumptions, the inquiry led to the empirical question: What are adults really like, and how do they experience situations in which they learn?

It is argued that adults are not a homogeneous mass, but

exhibit a wide range of characteristics which vary. Reported research findings have barely begun to demonstrate what those potential variations might be and even less is known about how they influence the adult as a learner. For the most part, studies related to the adult learner have been atheoretical and non-cumulative so that a solid base of research on this phenomenon does not exist.

There is need for exploratory study and theoretical development as a starting point for understanding adult learners, and how they perceive and relate to learning situations. If such a contribution were made and used as a basis for further empirical study to verify, expand or modify its findings, the field of adult education would be enriched by a fuller understanding of its clients.

SUMMARY

The nature of adults and adulthood has been defined in a variety of ways. The idea that adults continue to develop and differ in important ways from one another is of interest to the adult educator. Research in teacher assumptions about adults has demonstrated an andragogical orientation held by many as a basis for their practice. No research was found which tested how those assumptions relate directly to the adult learner.

Research streams in general education have demonstrated disappointing results in search for teacher characteristics or methods related to effective teaching. Attribute Treatment

Interactions for aggregate subgroups of learners has also led to little that can be established as conclusions. Relatively newer strains of educational research based on Personal Construct and Interactionist theories offer insights which may be useful in adult education study.

The research problem identified for study is further explored in Chapters Two and Three with the development of theoretical and methodological perspectives respectively.

CHAPTER TWO

DEVELOPMENT OF THE THEORETICAL FRAMEWORK

AN INTERACTIONIST PERSPECTIVE

The research problem, as it was developed in Chapter One, involves the perspective that adults vary in ways that are important in their experience of learning situations. It is assumed that situations also vary, and a reciprocal influence between the learner and the learning situation occurs. Given those observations and assumptions, interactionism, as an area of theoretical formulation from a number of social science perspectives, offers a useful underlying framework for the proposed study.

INTERACTIONISM

Personality psychology has been summarized in four main models: the trait model, psychodynamic model, situationism, and interactionism (Endler & Magnusson, 1976). In trait and psychodynamic models, behavior is determined by latent, stable dispositions within the person. Situationists regard stimuli in the external environment to be determinants of behavior. According to interactionism, behavior is a result of a continuous reciprocal interplay between the person and the

situation which he encounters.

In interactionism, a prime conceptual distinction is made between the objective "external world" and the subjective "internal world" as the individual perceives and reacts to it. Data for actual and perceived environments are complementary, include both physical and social environmental factors, and can be analyzed at different levels of generality, that is, micro and macro environments can be described and discussed (Endler, 1982).

The interactionist perspective has a long history. In a translation of his earlier writings, Kurt Lewin asserted that "from a certain constellation -- comprising a situation and an individual -- there results a certain behavior. . . B=f(PE)" (1935, p. 73). Behavior as a function of both person and environment offers an alternative to the dicotomous view that behavior must be determined by either person or situation characteristics alone. Lewin included the meaning of the situation to the person (psychological situation) in the concept of environment. "An analysis of environmental factors must start from a consideration of the total situation. Such an analysis hence presupposes an adequate comprehension and presentation in dynamic terms of the total psychological situation as its most important task" (1935, p. 73). He further acknowledged the dynamic, reciprocal nature of the person-situation interaction.

In an extension of Lewin's field theory, West and Foster (1976) presented a formulation in which personal characteristics

were more fully specified. "The probability of a specific behavior is a function of external stimuli, internal stimulation, and behavioral capacity of the person for that class of behavior" (p. 79). The external stimuli are mediated through a frame of reference which includes concepts, structures, affects, values, needs, and interests. According to West and Foster, these six components are best viewed as continuous variables, not fixed attributes. This model acknowledges the influence of both person and environmental factors in behavior determination.

In another approach to interactive phenomena, James and Sells (1981) describe the construct, psychological climate, as the individuals' cognitive representations of proximal environments, expressed in terms that represent personal or acquired meanings of those environments to the individuals. In effect, the environment that an individual "knows" is a product of various forms of filtering, abstractions, generalizations and interpretations.

Kelly's (1955) theory of personal constructs posits that the most fundamental characteristic of human beings is their capacity to construe situations, to represent the external environment. Because people are free to construe the external situation, it can be construed by each in different ways (Nystedt, 1981). Interaction between the person and the environment is reciprocal. Not only do events affect the behavior of the person, but the person is an active agent who

influences environmental events (Endler & Magnusson, 1976, p. 13).

Assumptions underlying a constructivist approach are complimentary to interactionism, providing potential explanations of the manner in which an individual might interact with the environment. Magoon (1977) asserts that persons are "knowing beings" who use their knowledge to form complex sets of meanings and who engage in purposive behavior based on those meanings.

Acknowledgment of the interactionist construct can be identified within adult education literature. Houle stated, as the first of seven major assumptions, "Any episode of learning occurs in a specific situation and is profoundly influenced by that fact" (1972, p. 32). For each person, every activity is unique. For every situation, each person who shares in it, perceives it uniquely.

Mezirow recommended "inductively formed generalizations with which educators can understand and predict behavior of adults in educational situations" (1971, p. 136). He identified the individual actively assigning meaning to the situation as a critical mediating process. Boyle defined "reality in the educational sphere as being mutual; that is, it neither lies in the learner alone nor in the instructional environment alone" (1981, p. 23). The relationship between educator and learner is viewed as reciprocal.

In studies of participation and dropout behavior, Boshier (1973) concluded that these phenomena stem from an interaction

between internal psychological and external environmental variables. Rubenson also described an interactive process in studies of participation. "Attitude toward adult education -- which in turn influences participation in adult education -- is dependent upon a person's psychological field, . . . events during previous stages of his life-cycle, and his current situation" (1975, p. 276).

Selection of an interactionist perspective for this study was based on its perceived explanatory potential for the research problem. That is, the question "How do adults vary, and how do they perceive and relate to learning situations" is seen as an interaction between the learner and the situation in which a reciprocal relation probably exists.

Neither trait theories nor situation theories offer promise for explaining how one person (the learner) with given traits is influenced by another (the teacher) within a situation. Theories which acknowledge no situational influence may be useful for understanding consistent responses, but do not account for varied behavior across situations. Theories which propose that behavior is situationally determined fail to account for the varied response of different individuals within the same situation.

Selection of a Model for Study of Adult Learner/Situation Interaction

Interactionism, which postulates a reciprocal influence between person and situation, offers potential for exploring the learner/situation interaction and the respective roles played by each.

For purposes of this study, these assumptions are made:

1. The adult learner is considered in a developmental perspective: adulthood is seen as evolving, rather than static, for each individual.

2. Andragogical assumptions represent variables, not limited to adult years but more frequently found there, and are potentially important factors in adults' responses to learning situations.

3. Adults exhibit an unknown variety and range of additional characteristics which could be important in their response to learning situations.

4. Situations in which adults learn are varied and complex in themselves and include teacher, content, teaching methods, and setting as a minimum set of variables.

5. Each learner makes his/her own meaning of the situation. Some of that meaning is idiosyncratic, and some is intersubjective or consensual with other learners.

6. A learner's response to a situation is directly related to the meaning s/he makes of it.

The selection of a model for use in this study took into account these criteria: (a) that the model provide a framework for analysis of attributes within the learner as well as situational factors which might contribute to the learner's response within a learning situation, (b) that it provide a framework for analysis of the interface between the learner and the learning situation, (c) that it reflect a balance between parsimony and the complexity of the learner and the learning situation, and (d) that it not pre-specify the salient variables for the learner or for the situation, but provide a framework for their study. Hunt (1975b) specified four characteristics of his Behavior-Person-Environment paradigm which also served as screening criteria. The characteristics were: that it should be interactive, that it should view the person in developmental perspective, that it should consider person-environment interaction in reciprocal terms, and that it should be possible to generate practical implications.

Based on those criteria, the Person-Situation Process Model (Nystedt, 1981) was selected as a theoretical framework for studying the adult learner/educator interaction. Relationships between elements or units of the model, as well as its boundaries, provide a means to organize information about the person, the situation, and the interaction between them.

The model lends itself to analysis of an individual learner interacting with a specific situation and can be adapted to

explore relationships of an "average" or aggregate learner within a situational context or type. The model is theoretically neutral except as it represents an interactionist theoretical perspective. It does not suggest which person or situation elements are salient in a given interaction, nor does it impose a particular relationship among those elements.

The Person Situation Process Model could be considered a "sensitizing framework," as defined by Denzin (1978). He differentiated an operationalized concept from a sensitizing one. The former defines a concept by stating how it will be observed, while the latter is not operationalized until the processes representing it and the meanings people attach to it are observed in the field.

Person Situation Process Model

Based on Brunswik's lens model (cited in Nystedt, 1981), the Person Situation Process Model (see Figure 1) distinguishes the situation as it is, from the situation as perceived by the person. The external situation is described as having substance, quality, and relation. Substance refers to the situation as it is and the elements of which it is composed. Elements may be things, people, events, processes, rules, norms, and so on. Quality refers to the characteristics or qualities of those elements. The qualities may be overt, concrete or covert, abstract. Relation refers to the nature of the interaction between elements and can include spatial, time, and causal relations.

The external situation is also described in regard to

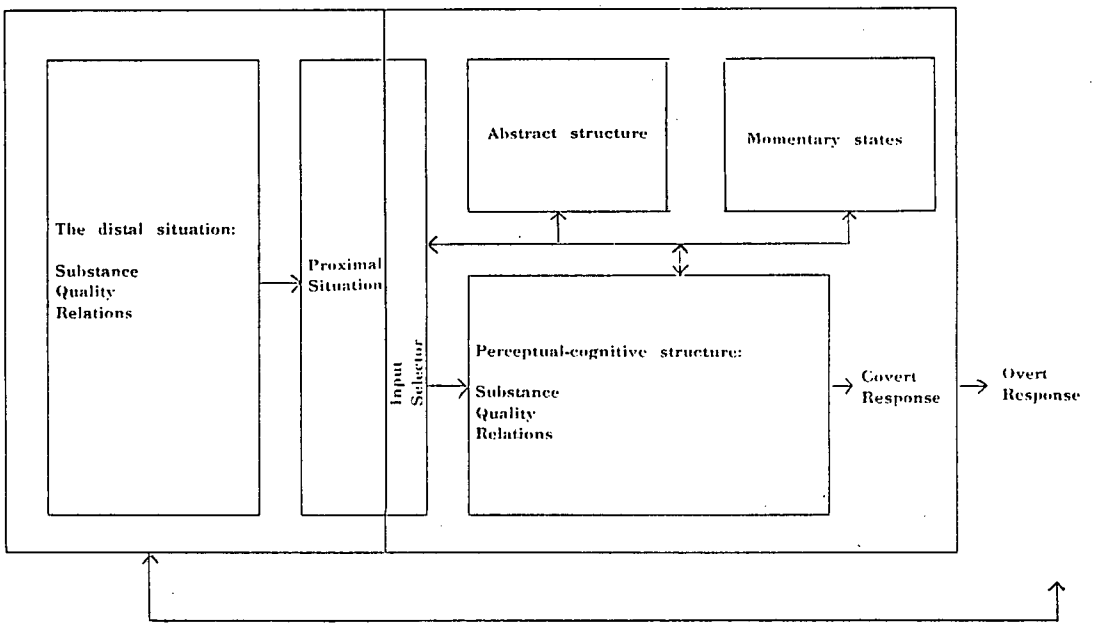

Figure 1. Person Situation Process Model (Nystedt, 1981, p. 382)

proximity to the person. The proximal situation in the model represents the part of the total situation to which the person pays attention and includes all external factors that affect the person's responses. This means that one person's proximal situation can be different from anothers, independent of objective characteristics of the distal situation. It is derived from the person's observations, past experiences, and expectations for the future. The concept of time is important in the defining and redefining of situations, and is a function

of how the person construes the situation.

The person system represents an individual interacting within an external situation and is composed of four systems: the perceptual-cognitive structure, the abstract structure, momentary states, and the input selector.

The perceptual-cognitive structure is the person's representation of the immediate external situation. As such, substance, quality, and relation are the cognitive representations of those same factors from the external situation. It is the meaning the person attaches to the situation and thus is dependent on both the immediate situation context as well as other components of the person system.

The abstract structure refers to the person's life situation or cognitive universe. It contains knowledge of the past, attitudes, opinions, categories, rules, and long-term expectations. Assumed to be relatively stable, this structure provides meaning and continuity under changing circumstances. The abstract structure has a directive effect on the input selector for selection of information, and on the perceptual-cognitive structure for making meaning from the information. It establishes a person's characteristic way of perceiving situations.

Momentary states refer to transitory influences such as emotions, motivation, intentions, degree of intensity of involvement. Momentary states influence input selection and the perceptual-cognitive process, and account for uncharacteristic ways of perceiving situations. Nystedt acknowledged that

differences between the momentary state and abstract structure are not clear. They may represent end points on a dimension that influences the perceptual process. Nevertheless, he believes it is useful to make the distinction.

As the diagram illustrates, response is a function of meaning attached to the proximal situation through the perceptual-cognitive structure. Not identified by Nystedt, elements of the covert response can be assumed to include intellectual, attitudinal, physiological responses that are not directly measurable or measured; while overt responses could include observable behaviors as well as measured covert responses.

Utility of the Model for this Study

For the proposed study, adult education is defined as an interactive process between an educator and an adult learner in a situational context. Interaction between the educator and the learner is reciprocal, that is, each influences the other. Each construes the situation in a manner which is unique to the person, and that construction mediates the person's response to the situation.

The Person Situation Process Model is suited to study of such a phenomenon. For each actor, the other is a part of the substance of the external situation. Thus, a given interaction can be analyzed within a situational context as it is construed by the learner, the educator as part of the situation; or as it is construed by the educator, the learner as part of the

situation.

The Person Situation Process Model provides a framework for organizing multiple situation and person variables which could be encountered in the study. Relationships among the elements can be described and postulates can be identified for further exploration or experimentation.

While the model provides a framework for organizing information about the interactions of interest, it does not provide postulates or theories about the nature of those relationships. The model is general for any person in any situation. This relative theoretical neutrality is considered an advantage for an exploratory study.

A selected research report was studied to determine the degree of fit with the model and its utility for organizing elements and analyzing their interactions (see Appendix A). The goal was to determine whether interactionism would have provided a meaningful construct and framework for organizing the variables in the reviewed study. A second goal was to determine if the model suggested additional variables which could enhance the understanding of the phenomena studied. Finally, how might the findings of the reviewed study contribute to development of adult learner/situation interaction theory.

Through that process, the Person Situation Process Model was judged to be useful for purposes of this study. Several limitations were recognized in its use. For example, representation of the concepts in two dimensions fixed in print, limits its capacity to show interaction across time, and to

reflect a continuously changing process of interaction. An emotional reaction (covert response) to a particular perception of the situation would, within moments, fit the definition of "momentary states," and contribute its share of influence to continuing perceptions. Using visualization of the model as though it were one frame in a motion picture helped to counteract that limitation for use in analysis but the limitation remains for use of the model in reporting the analysis and conclusions. A two dimensional model does not easily capture multivariant, dynamic, temporal situations.

Related Models

A number of other interactive models were considered and provide different perspectives for study of educational phenomena. While something of benefit may be found in each model, other aspects were found to be incomplete or incompatible with perspectives developed for this proposed study.

Attribute Treatment Interaction

In the years since its introduction, there has been an abundance of Attribute Treatment Interaction (ATI) research studies. It has been suggested that failure to demonstrate significant interactions may be due to methodological rather than theoretical flaw (Magoon, 1977). That is, significant interactions may occur but not be accessible through traditional research design. Increasingly sophisticated statistical designs and experimental strategies have continued to yield

disappointing results. Hunt (1975a) attributed failure of ATI research to its having been treated as synonymous with statistical interaction.

ATI studies have treated interaction in nomothetic terms. That approach seeks to determine how much variance is attributed to main effects and interaction effects. In those instances where "how much variance to each" is itself relatively invariable, such knowledge would be useful. However, in some cases, the interaction effect may be a dynamic result of infinite combinations of variables and the interaction itself would be a variable. Such patterns of interaction would not be demonstrated through ATI methods. In their review of controlled experimental studies on ATI, Cronbach and Snow (1977) acknowledged that a major role may also be played by naturalistic studies which can consider more variables and often prcvide richer observations.

How interaction might occur, rather than how much, is a purpose of the present study. Endler (1973) asserted that the question of whether person or situation is more important is a pseudo-issue. It is more sensible to ask how individual differences and situations interact in evoking behavior, rather than how much each contributes. While the theoretical foundation of the ATI construct is consistent with the proposed study, the methodological approach is not. Thus, the ATI was not a useful model for the study.

Flanders' Interaction Analysis Model

Flanders' (1970) model for interaction analysis focuses on classroom communication and the effects of classroom climate on pupils. Purposes for interaction analysis in the model were given as (a) to study teacher behavior, (b) to help teachers develop and control teaching behavior, and (c) to explain the chain of classroom events. Classroom climate is defined as generalized attitudes toward the teacher and class that pupils share in common in spite of individual differences (Flanders, 1967).

Several limitations of this model were identified. The principal direction of influence is teacher to learner. There is little evidence of a reciprocal nature of interaction and there is emphasis on the superior-subordinate relationship of teacher-pupil interactions, which, even if appropriate for teaching of children, would not be a useful model for adult education. Measurement in the model is limited to verbal communication. Finally, use of consensus attitudes as descriptive of "climate" does not account for any idiosyncratic experience of the situation for a given individual.

Delamont and Hamilton (1976) identify advantages of this system to be its simplicity, reliability and the wealth of numerical data it generates. They also identify several disadvantages of this and similar systems: (a) most ignore temporal and spatial context, (b) they are concerned only with overt, measurable behavior, (c) they may obscure, distort, or

ignore the qualitative features they seek to investigate, (d) they deal with small bits of action rather than global or holistic, (e) categories are prespecified, and (f) there are artificial boundaries for continuous phenomena. They further dispute claims of objectivity in Interaction Analysis systems. By rejecting data such as subjective accounts as invalid, the approach risks furnishing only a partial description, thus superficial objectivity is obtained with loss of validity.

Hunt's B-P-E Paradigm

Based on the Lewinian formula, Hunt (1975b) developed a model for study of interactions. The model requires identifying each of three components -- Behavior, Person, and Environment -- in the specific situation. Hunt equates Behavior with 'dependent variable,' Person with 'kind of subject,' and Environment with 'independent variable.'

For the present study, several limitations of the B-P-E paradigm were identified. First, the elements were both too broad and too narrow to be useful. Too broad in that there was no organizing framework within Person or Environment elements to assist in understanding their interaction. Too narrow in the definitions as dependent and independent variables, suggestive of an experimental design for their study.

The separation of Behavior as a component distinguished from Person and from Environment was not consistent with the basic assumptions used in this study. While behavior is viewed as a function of environmental and person characteristics (the

Lewinian formula), it also is viewed as an integral part of the behaving person. The separation in the B-P-E formula was not seen as helpful in understanding that relationship.

Doyle's Mediating Processes

Doyle (1978) criticized the narrow focus of the "process-product" paradigm in educational research and proposed student mediating processes as an additional factor. Gage (1978) represented Doyle's paradigm as an elongation rather than a replacement of the "process-product" approach with pupil's "cue resources and interpretation" and "mediating responses" as intervening variables. There are conceptual parallels with the Person Situation Process Model -- Teaching processes/External situation; Pupil cue response/Input selector; Interpretation/Perceptual-cognitive structure; and Products/Covert and Overt Responses. However, definitions in the Person Situation Process Model provide a more complete situational context, and more potential for holistic study of the learner. Doyle's construct, at least as represented by Gage, is linear and only partially represents either the situation or the learner.

SUMMARY

Interactionism was described as the broad theoretical perspective for the study. The process for selection of the Person Situation Process Model was described and related models were critiqued.

Chapter Three presents the selection of a methodological perspective and design of the study.

CHAPTER THREE

DEVELOPMENT OF THE RESEARCH METHODOLOGY

AN EXPLORATORY, QUALITATIVE APPROACH

This chapter presents (a) the selection of a research paradigm based on a critical review of the literature, (b) the development of method within the selected paradigm, and (c) the limitations of the study.

SELECTION OF A RESEARCH PARADIGM

Research methods represent lines of action taken toward the empirical world. Rather than neutral tools, research methods are the researcher's stance toward the environment for study. The adoption of a method necessarily leads to actions that are different from those that would have resulted from a different method. Further, the researcher's approach to the method employed serves to make the final observations in some way different from any others (Denzin, 1978).

Lines are drawn and tension exists between various interpretations of the research enterprise. Sometimes the basis for tension is epistemological -- different views of knowledge and the process of knowing. In other cases the arguments are metaphysical -- different views on the nature of man, or

methodological -- different views on the nature of science.

The hypothetico-deductive model, and a logical-positivist, rationalistic tradition have enjoyed a prominent position in the definition of scientific method which for many is equated with research. Kaplan (1964) declined to define "scientific method" because he believed that there is no one thing to be defined. "If a definition of 'scientific method' is specific enough to be of some use in methodology, it is not sufficiently general to embrace all the procedures that scientists may eventually come to find useful" (p. 27). Research has one basic purpose, pursuit of truth. According to Kaplan, standards which govern it emerge from inquiry and are subject to further inquiry.

Kuhn (1961/1977) challenged the notion of a steady accumulation of discovery based on a value-free scientific process. He identified predominant paradigms which contain their own internal rules. Most research within a paradigm attempts to force nature into that particular preformed and relatively inflexible box. A new paradigm is created though revolution which provides a theoretical breakthrough and brings with it, its own 'box.' Kuhn described the textbook picture of measurement as producing facts to which the scientist must make theories conform. In reality, the scientist more often seems to struggle with data, "trying to force them into conformity with a theory he does not doubt" (p. 193).

The literature abounds with debate which is consistent with Kuhn's view of tension between competing paradigms. Brenner, Marsh, & Brenner (1978) assert that the positivist tradition is

a non-social paradigm used to study social phenomena. They see a fundamental paradox in application of a natural science paradigm to social inquiry. While the theories we use are of a social nature, the methods are not true to those same theories.

Smith (1983) defines the issue as an epistemological difference. Quantitative research seeks laws which make prediction possible and is based on a view of social reality as existing outside of and independent of us. Objectivity is seeing the world free of personal biases. Qualitative research seeks interpretive understanding and is based on a view of reality dependent on the human mind and perception. Objectivity is viewed as social agreement.

Owens (1982) identified basic assumptions of both rationalistic and naturalistic world views. For the rationalist: (a) variables can be singled out, (b) objectivity depends on separation of inquirer and subject, (c) goal is context-free generalization, (d) quantitative methods are preferred, (e) a priori theory and hypothetico-deductive methods are preferred, and (f) preordinate design specifies steps of research. For the naturalist: (a) events and phenomena cannot be teased out from context, (b) inquirer interacts with the subject, (c) generalizations are suspect, knowledge is embedded in context, (d) qualitative methods are preferred, (e) theory emerges from the data, and (f) design unfolds over time.

Others see the qualitative/quantitative dichotomy as spurious. Brodbeck (1968) asserts that, although quantification has merit, it is not a necessary nor sufficient condition for

science. A concept used in research is only significant if we know something about its referent, whether or not it is quantified, (e.g. "height X age - number of hairs X annual income" is not a significant concept). In both quantitative and qualitative approaches understanding of the underlying concepts is important. Eisner (1981) believes that all research must of necessity pay attention to qualities, therefore the distinction is not between quantitative or qualitative but between scientific and artistic forms of research, each with its own criteria for conduct and appraisal. Cohen and Manion (1981) believe the normative and interpretive paradigms to be necessary and complementary aspects of a full understanding of man's behavior and experience. Easley (1982) makes the distinction that naturalistic, qualitative research is oriented to search for understanding of underlying mechanisms which could serve as a useful guide for quantitative research.

According to Cohen and Manion "phenomenology is a theoretical point of view that advocates the study of direct experience taken at face value; and one which sees behaviour as determined by the phenomena of experience rather than by external, objective, and physically described reality" (1981, p. 19). Marton (1981) advocates research aimed at finding and systematizing ways in which people interpret significant aspects of their own reality. Complementary to other forms of research, and labeled phenomenography, it seeks to describe, analyze, and understand experiences. Similar to phenomenology in many respects, Marton makes an important

distinction between the two. Phenomenology aims at describing various aspects of the world by investigating how people experience it--a first order perspective. Phenomenography aims at describing a person's experience of the world--a second order perspective. He argues that the different ways people perceive experience is sufficiently interesting for study in its own right, and further, that descriptions of the second order perspective cannot be derived from data drawn from the first order perspective.

These assumptions guided the selection of a paradigm for use in the study. Naturalistic, interpretive, and normative, rationalistic paradigms are considered appropriate and complementary ways of knowing. Both a natural and a social order are viewed as reality. Man is complex and exists in and contains elements of both. For example, a person has both a nervous system with its neurons and synapses (a part of the natural order) and roles, intentions, and choice (a part of the social order). The nature of the research problem and the theoretical perspective within which it is studied may relate to either reality and will suggest an appropriate approach for study.

Cohen and Manion (1981) suggest that either normative or interpretive research perspectives could be used to study the learner's point of view. In normative studies, learners would be asked to respond to a predetermined framework through a "filter" chosen by the investigator. In interpretive studies, the investigator is concerned with how the learner perceives,

interprets, gives meaning to an experience. Consideration of the problem posed for this study suggests the latter approach. Little is known from earlier studies about how the adult learner perceives the learning situation and how that perception might influence her/his response to it. The learner's own experience is the subject of interest for this study. The development of a pre-determined and focused design could inappropriately constrain its exploration.

The theoretical perspective used in the study also is seen as consistent with either a normative or interpretive paradigm. Magnusson and Endler (1977) stated that interactions occur either in a statistical sense, based on a mechanistic view of man, or in an interpretive sense based on an organismic model of man. On the other hand, Hunt (1975b) asserts that the interactionist perspective is itself a paradigm which differs from the traditional "general effects" paradigm. (Hunt's use of those terms seems consistent with "interpretive" and "normative" terminology). Hunt stated that while many researchers have used interactionism as a theoretical construct, most of the resulting research has been methodologically within the general effects paradigm. He attributes the disappointing results of earlier research in Attribute Treatment Interaction to this methodological perspective.

Within this study, learning situations are viewed as socially constructed phenomena. It is consistent with the organismic part of man's nature to construe and experience them. "Every field of inquiry must begin with the phenomena that

everyday experience reveals, and with the distinctions it contains. Further inquiry may modify our understanding of them, but the phenomena themselves will never be replaced" (Hunt, 1975b). The methodological perspective for the proposed study is, in summary, based on the organismic nature of man, one who actively participates in construction of reality in the external world by his perceptions of it and by interacting with it. While both normative and interpretive designs are viewed as complementary means to achieve understanding, the design of choice for this study comes from the interpretive tradition.

DEVELOPMENT OF RESEARCH METHOD

The purposes of this study are to understand how adult learners experience learning situations and to seek plausible explanations regarding that interaction. Alternative methods suited to those purposes were reviewed.

Denzin (1978) recommended triangulation in naturalistic studies. The use of multiple methods and multiple perspectives enables the researcher to better unravel the processes under study. Working back and forth between subject's accounts and an emerging theoretical scheme, the researcher seeks explanations that ring true for both. Methods represent different relationships between the researcher and the environment and thus present different angles or perspectives on the problem under study. Selltiz, Wrightman & Cook (1976) suggested that a search for interpretive understanding involves at least two

sources, what other investigators say about the phenomenon, and the phenomenon itself. For study of situations, Pervin (1976) recommended use of data about both "actual" and perceived environments whenever possible.

Triangulation of data sources seemed an appropriate choice for the present study (see Figure 2). Two distinct components of the study involved three sources of data. Prior research in adult education provided data on the evolving state of theory and findings related to adult learners, situations and their interactions. Field study integrated data from both direct observations of learning situations and interviews of learners. Observations provided a perspective on the "actual" situation, and interviews of learners yielded data on their perceptions of the situation.

The interview schedule was designed to study how individual learners varied in response to different situations as well as how learners varied within the same situation.

The broad purposes for the study are to understand how adult learners experience situations and to seek plausible explanations regarding that interaction. The research review and field study were treated as discrete components for design contributing to those purposes.

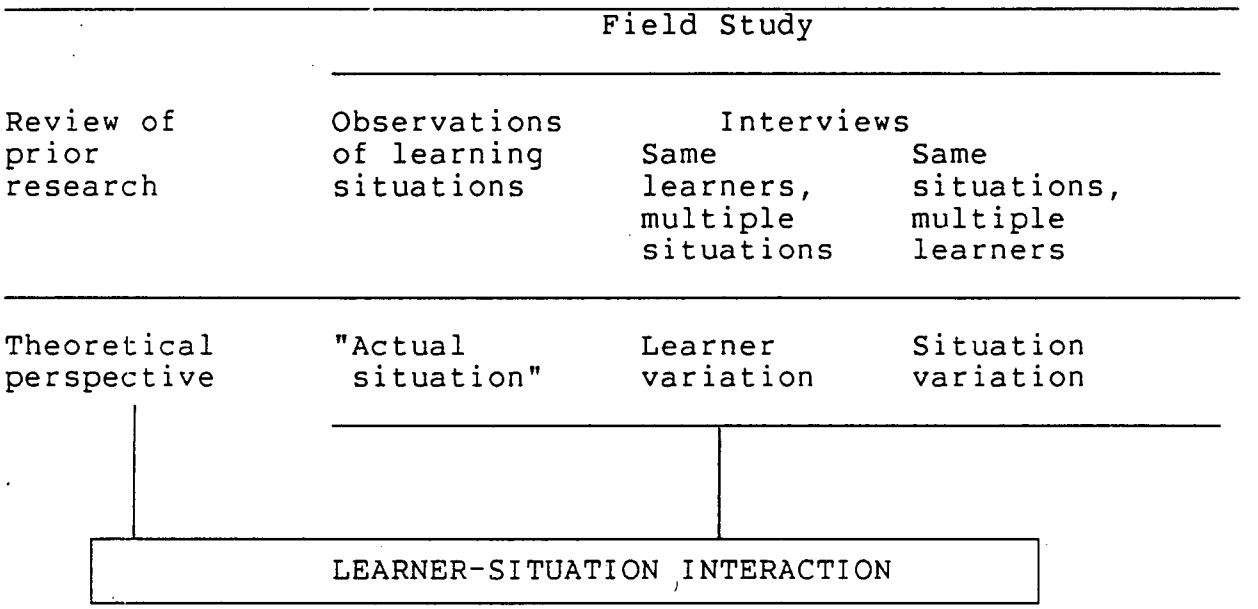

Figure 2. Triangulation of data sources

Meta-Analysis, Prior Research

Jackson (1980) identified four purposes for research reviews as follows: (a) size up new substantive or methodological developments in a given field, (b) verify existing theories or develop new ones, (c) synthesize knowledge from different lines of research, or (d) infer generalizations from a set of studies directly bearing on substantive issues.

The contribution of the planned review to this study was related to the first two of Jackson's purposes, that is, to review substantive developments in teacher/learner interactions, and to develop questions or hypotheses for further research.

The sampled research studies were the primary data for analysis.

The review was not intended as a meta-analysis in the sense described by Glass, McGaw and Smith (1981), that is, a quantitative summary of findings from individual experiments using technical and statistical approaches. Studies of varied methodological orientation on a broad range of subjects were used, not limited to experimental studies of similar constructs as would be required for statistical analysis. Emphasis was on the conceptual contribution to understanding learner/situation interaction rather then on aggregate findings, per se. If a sufficient number of studies matching meta-analytic criteria as proposed by Glass et al. were found, such an analysis would have been useful as a part of this review and would have been considered.

Design for the research review involved identification of a main stream of adult education research and development of a systematic approach to its analysis. Preliminary review led to the selection of Adult Education Quarterly with ancestry and descendency traces, and Dissertation Abstracts International as the data sources for this component of the study. Studies in Adult Education and ERIC revealed limited useful material and were not included in the study. Details of the design for collection and analysis are described, and the analysis and synthesis of findings are presented in Chapter Four.

Field Study

The field study included direct observation of selected learning situations by the researcher, and interview of selected learners following each observed situation.

A learning situation was defined as an interaction between educator(s) and adult learner(s), at least two hours in duration, with the primary intent for learning. Learning situations from which learners were to be interviewed were observed, audiotaped, and described by the researcher. Audiotapes were available as a cross check with the observer's notes which served as the primary data for this portion of the study.

The study design was developed to compare multiple learners from the same learning situation, as well as the same learner following more than one situation. The detailed design for collection and analysis of field study data is presented in Chapter Five, and a report of the analysis and findings in Chapter Six.

LIMITATIONS OF THE STUDY

While not all limitations of a study such as this can be anticipated, there are a number which are apparent.

The exploratory, interpretive nature of the study has not only the advantages that have been described but also a number of limitations. McIntyre (1980) described as a problem that those research traditions which have the most potential for the development of interpretive and explanatory theories lack procedures for assessing the strength of the evidence and, especially, for allowing people other than the researcher to assess the strength of the evidence. Accepting something as complex as the learner/situation interaction for study carries with it the risk, perhaps even the liklihood, of overwhelming the data collection and analysis for full comprehension. Partial understanding, questions raised, and hypotheses generated for further research are believed to be an appropriate but limited goal for the study.

Focus on the nature of learner's experience and "meaning making" may underrate the social constraints on behavior. There are limits on the extent to which meanings of the situation are subject to negotiation (Karabel and Halsey, 1977). Social constructs such as group norms and roles were not systematically included in the study.

Samples of convenience for observed situations may not be representative of all those in which adult learners are engaged.

Use of volunteers rather than random selection of learners to be interviewed also affects representativeness. The aim of the study is exploratory, not inferential. However, lack of representiveness may pose difficulty in that the resulting descriptions and hypotheses may have potential for study of some limited and unknown set of the population of adult learners. To partly offset this limitation, careful descriptions of selected situations and learners were planned.

Conduct of the field study in real learning situations as opposed to cognitive representations or contrived laboratory situations has advantages in ecological validity. The phenomena which occur in real situations may be of a different nature than those in contrived situations. The same features of the real situation which are advantageous also pose a limitation. Real situations are highly complex and diverse. Attention to all variables within the situation defies a single observer's capability. By necessity, observation guides, planned to assist in objectivity, focus on some features to the exclusion of others.

Selection of a theoretical frame of reference in part determines what is observed and found. A way of seeing is also a way of not seeing. According to J. Phillips (1981), the facts do not determine theories but rather theories determine what we take to be so. Observations are not pure, but are the product of our ideas, perceptual skills, and sensory limitations. "If we know reality only through our perceptions of it, we have no means of knowing how correctly they reflect it" (p. 98). The

limitations apply to the researcher as observer, interviewer, reviewer and analyst. The fact that a single individual will conduct all phases of the study poses a further limitation. The conduct and analysis of the study may reflect the biases of the researcher and systematically distort the findings. Robinson (1974) identified as a major problem the fact that the researcher inevitably shares part of the perspective of those being studied. First and foremost, it is a matter of familiarity. A tremendous amount of effort is required to stop seeing what is conveniently there to be seen.

There are limitations related to the research review. According to Glass, McGaw, and Smith, "no matter how ambitious and sophisticated are one's efforts to find all empirical research on a topic, the aspiration . . . must be inevitably frustrated" (1981, p. 63). There is simply too much in too many places to find it all. He recommended a conscientious effort be made to be inclusive and that the procedures used be documented. Those recommendations were included in the study design, with the use of a "decision log" to track the process for selection of studies.

The decision not to use fugitive documents from the ERIC search also may limit the study. According to Cooper (1982), it is likely that studies which are not published are different from those which are. The resulting limitation would be more serious for a review which uses statistical inference to generalize findings to a population of studies, than for the present study. However, some loss of data may occur from

limited search for fugitive documents. The decision to establish a time criterion (1979-1984) for systematic search potentially reduced the representativeness of the sample. This limitation was partly offset by inclusion of ancestry and descendency traces without regard to date of publication.

Finally, the use of self-report data represents a potential limitation. Nisbett and Wilson, (1977) in a review of several experimental studies using self report data, concluded that there may be little or no access to higher order cognitive processes. They reported that subjects are sometimes unaware of the stimuli that importantly influenced their behavior. They hypothesized that subjects' reports are based on a priori, implicit causal theories, or plausible causes, rather than introspective awareness of actual processes.

The Nisbett and Wilson arguments have been widely used to discredit verbal reports as data. It often is overlooked that the same internal mental processes may be called upon to respond to questionnaires or to experimental conditions.

The issue may be an artifact of conditions such as those imposed by experimentation. Langer and Newman (1979), in studies of the degree to which subjects used the full information given in experimental conditions, concluded that under some conditions, subjects select a familiar cue and respond mindlessly to the experiment. While Nisbett and Wilson argue that certain cognitive processes are never available to consciousness, Langer and Newman argue that conditions such as overlearning or familiar stimuli, restrict awareness of those

processes which are normally available in awareness. If complex, multicausal factors exist then report of other than the single factor manipulated by the experimenter is not evidence that people are unable to report accurately some causal information.

Morris (1981) attempted to identify the types of processes not open to introspection and those in which introspection may add valuable information. Reviewing the evidence presented by Nisbett and Wilson, he stated that "one might whittle away at the . . . data, but the impression remains that there is a core of truth that many processes . . . are, in fact, opaque to introspection. The question is, which processes, and what implications can be drawn?" (p.191).

Morris identified additional limitations of self report.

1. Even when introspections may be of value, there is no assurance they will be given. It is difficult to know when a subject is giving an honest introspective account and when through incompetence at introspection or social pressure to say the right thing, they are not.

2. Introspection is not likely to be accurate regarding phenomena for which language has not developed.

3. Self report is subject to memory recall and depends on the strength of encoding and the nature of the cues for recall.

In an article refuting the Nisbett and Wilson position, Smith and Miller (1972) recommended that researchers focus, not on the question of whether people have access to mental process

but rather on the conditions of such access. In that vein, Shotter (1981) differentiated "tellings" and "reportings." Tellings (avowals) are prospective in nature and are used to reveal wants and interests to others. Reportings (appraisals) are retrospective in nature and are used to report on one's state of being as a past event. He indicates that tellings are open to introspective accounts as their only source, while reportings may or may not be.

Ericsson and Simon (1980) differentiated information in short and long term memory as an important factor in self-report veridicality. Verbal reports are data. Inaccurate reports can be shown to result from requesting information that was never heeded, asking people to infer rather than remember.

The arguments and counter arguments regarding self-reports as data lead to these assumptions for this study.

1. While the learner may not have had complete access to understanding her/his own experience, s/he remained the only source for those data.

2. It is important to capture the self-report data as close to the time of the experience as feasible to minimize the effect of memory loss.

3. The nature of the interview questions which vary with respect to requiring inference from the learner constitute a limitation of the study.

SUMMARY

A naturalistic, interpretive research paradigm was selected to guide the conduct of research. Triangulation of data sources resulted in selection of methods including meta-analysis of prior research, and a field study with observation of learning situations and interview of the same learners across situations and multiple learners within situations. Limitations of the study were identified.

The following chapters present the process for data collection and analysis, and report the results. Chapter Four covers the meta-analysis, Chapter Five the plan for data collection, data reduction, and analysis of situation observations and interviews, and Chapter Six presents the analysis of the situation and interview data. Conclusions and recommendations are developed in Chapter Seven.

CHAPTER FOUR

ANALYSIS AND SYNTHESIS OF PRIOR RESEARCH

Knowledge of the field of adult eduction is reflected in its cumulative research. The purpose for this review is to use prior studies as data to expand understanding of adult learner/situation interaction. This chapter presents the process for collection of prior research as data, the process for analysis of those data, and the analysis and synthesis of findings.

PROCESS FOR COLLECTION OF DATA

Selection of the sample of studies included: (a) comprehensive review of Adult Education Quarterly 1979-1984, (b) ancestry and descendency traces of included studies, and (c) review of Dissertation Abstracts International, in adult education, educational psychology, educational theory and practice, and educational sociology, 1979-1984. Ancestry traces are those studies which were cited or referenced in the original work, and descendency traces are those studies which later cited the original work (Cooper, 1982) as documented in Social

Sciences Citation Index.[1] Descendency traces were done for the year of the respective study's publication and subsequent years through 1984. Though recent publications were not expected to have yielded descendent studies, the trace was done and reported with each reviewed study for consistency. A preliminary review of Studies in Adult Education and an ERIC search revealed limited useful material and those sources were not included in the study. Table 1 provides a quantitative summary of the selection results by source.

Table 1

Quantitative Summary of Included Studies by Source

Source	Included	Excluded	Unable to locate	Totals
Review, AEQ	19	8		27
Ancestry	32	42	11	85
Descendency	12	9	4	25
Review DAI	86	122		208
TOTALS	149	181	15	345

[1]Throughout this report, SSCI will refer to Social Sciences Citation Index, DAI to Dissertation Abstracts International, and AEQ to Adult Education Quarterly.

Through the AEQ and ancestry/descendency traces it was possible to identify recent works within the context of their foundations as well as their contributions to continued exploration of adult education phenomena. The decision process involved two "cuts" which were documented in a decision log book. In the first level of decision making, titles were reviewed and included if they suggested information about:

-adults as learners

-learning situations in which adults are involved, or

-interaction between adults and their learning situations,

and if they suggested either:

-a research report,

-a review and analysis of research, or

-a conceptual paper.

If titles were close to those criteria, there was a conscious intent toward inclusion. Included titles were documented in the log book. Sample pages of the decision log appear in Appendix B.

In the second cut, the article or abstract was read. Using the additional information, a decision was made and a brief rationale for inclusion/exclusion was logged. The same criteria were used for the second cut, expanded and clarified as follows. All research reports judged to be in the substantive areas (adult learner, situation, interaction) were included. A research review in a substantive area was included if it was judged to provide a focus on theoretical issues or historical

perspective in that area (e.g. Long, McCrary, & Ackerman, "Adult cognition: Piagetian based research findings"). Conceptual papers were included if they dealt with what were judged to be 'central issues' for adult education (e.g. Chene, "The concept of autonomy in adult education: A philosophical discussion").

Methodological type or quality of a study was not used as a basis for exclusion. In a study of research reviews, Jackson (1980) concluded that, while methodological flaws can be found in most studies, they do not always bias findings. He recommended inclusion of all studies in which there was not evidence of bias.

PROCESS FOR ANALYSIS

Analysis is presented in clusters of studies on the same topic. The cluster includes a summary of the primary study from the Adult Education Quarterly, its ancestry/descendency trace, abstracts of related studies identified through Dissertation Abstracts International or through traces of other studies.

Assumptions and concepts used in each study were illustrated with the Person Situation Process Model superimposed as a way to organize the data and to facilitate analysis of the disparate research studies within an interactionist perspective. Concepts were identified which specified (a) elements of the learning situation, (b) stable learner characteristics (abstract structure), (c) temporary conditions (momentary states), (d) cues or observations, (e) perceptions about the learning

situation, and (f) covert or overt learner responses.

Relationships were analyzed in terms of their potential contribution to understanding learner/situation interactions. "If these things be true," might they be explained as part of an interactive process between the learner and the situation? Questions were posed regarding elements in the interactive model which were not filled in by the reviewed studies. Potential hypotheses and implications for theory on the learner/situation interactive process were identified. Though general critique was not the purpose of the analysis, it was included when the merits of a study seemed to bear directly on its usefulness.

ANALYSIS OF DATA CLUSTERS

For presentation of the analysis, clusters were grouped in three categories, those for which the primary source was focused on (a) characteristics of the learner, (b) elements in the learning situation, and (c) both learner and situation elements or the interaction between them. These distinctions were not always consistent between a study and its ancestry/descendency or other studies included with it for analysis. For example, a study limited to person characteristics may have cited studies in which those characteristics were related to situation factors. The inconsistency did not pose a problem for the analysis. In each cluster the focus was toward identifying plausible interactants between learners and their situations.

Studies on Characteristics of the Learner

Eight AEQ studies offered a perspective on characteristics of the adult learner, potential interactants with learning situations. Topics included (a) stages of ego development, (b) autonomy, (c) adult cognition, (d) learning styles, (e) cognitive styles, (f) age and achievement, (g) developmental tasks, and (h) relevance and curiosity. Those studies and related clusters are described and analyzed in the interactive framework.

Stages of Ego Development and Achievement of ABE Students

Boyd and Martin (1984) reported continuing development of an instrument to be "used by teachers to identify the psychosocial factors which may be major contributors to the learning problems experienced by low-literate adults" (p. 85). According to the authors, although progress has been made in practical aids to instruction in Adult Basic and Adult Secondary Education (ABE/ASE), teachers are increasingly aware of learning barriers that students experience. Those barriers are generally traceable to "psychosocial problems," the identification of which would be useful to teachers.

The instrument was based on Erikson's epigenetic ego-stage theory (cited in Boyd & Martin) in which ego development is seen

as occurring in eight sequential stages: (1) trust/mistrust, (2) autonomy/shame and doubt, (3) initiative/guilt, (4) industry/inferiority, (5) ego identity/role diffusion, (6) intimacy/isolation, (7) generativity/stagnation, and (8) ego integrity/despair, disgust. At each stage a crisis is met and resolved more or less positively and subsequent ego development is influenced. Unsuccessful resolution of one stage generally prevents positive resolution of succeeding stages.

Boyd and Martin make these explicit or tacit assumptions: That low-literate adults have psychosocial problems which contribute to learning problems; that those psychosocial problems can be conceptualized as inadequate ego development in the eight stages developed by Erikson; that if teachers can identify and assess those inadequacies, they can take successful measures to overcome them; and that the Self Description Questionnaire (ABE/ASE form) is a reliable and valid tool for assessing inadequate ego development. They cited prior research as evidence of psychosocial factors and learning problems of low literate adults. No direct connection was drawn between those psychosocial factors, associated learning problems, and the ego development model. Such a relationship was a tacit assumption within the report. Further, the means by which teachers might exert such a powerful influence on ego development were not suggested. The generational history of the instrument and its reliability measures were reported. Figure 3a illustrates the problem described by Boyd and Martin.

Boyd and Martin concluded that if teachers were instructed

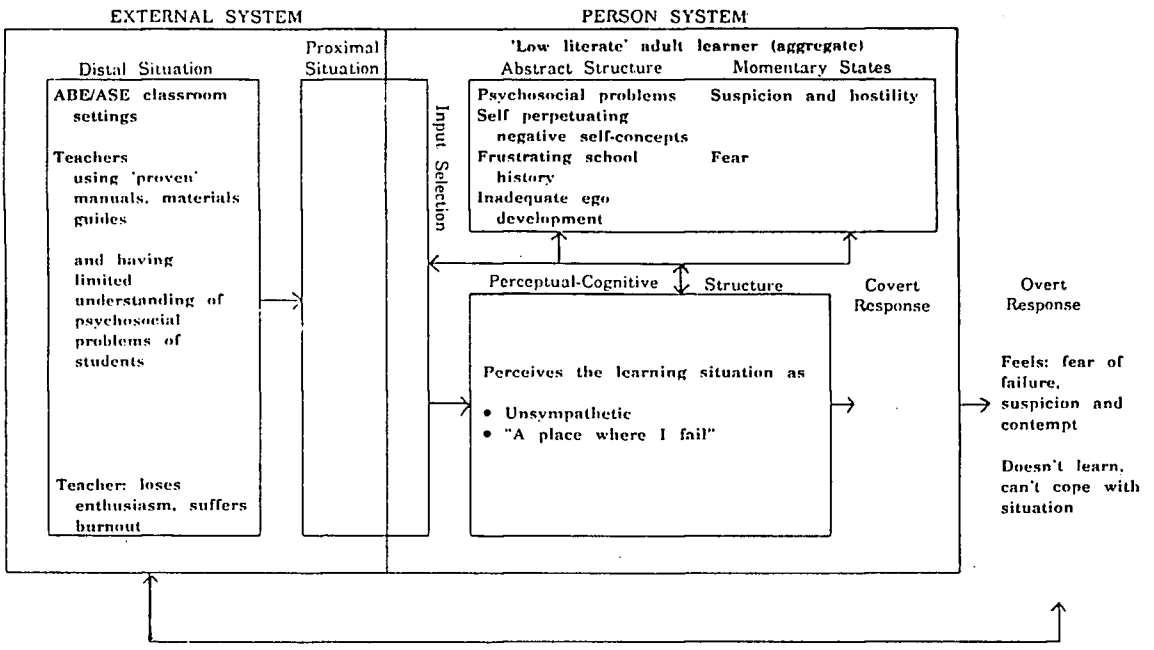

Figure 3a. Problem of low literate adult learners as described by Boyd and Martin -- with interactive model superimposed

in the use of the instrument: More students would be retained because of improved communication; students would work on improved self-image and "a strong and positive self-image enables a student to face the challenges of learning" (p. 92); the teacher would have greater enthusiasm and morale; burnout of teachers would be reduced and the community would profit.

Ancestry

Three studies cited by Boyd and Martin were reviewed. Martin (1979) reported the development and use of an attitude scale called the Self-Description Questionnaire. In combination with a case study method, the instrument was used to study 72

students in Adult Basic and Adult Secondary Education. Descriptive analysis led to these conclusions:

> More students resolved the stages of autonomy, industry, identity, intimacy and generativity positively than negatively. More students resolved the stages of trust, initiative and integrity negatively than positively.
>
> More students had high pertinent concerns, than low pertinent concerns, for the stages of trust and industry. More students had low pertinent concerns, than high pertinent concerns, for the stages of autonomy and initiative.
>
> The students tended to rate the overall positive educational influence on trust, autonomy, initiative and industry to be primarily either intermediate or great.
>
> The students tended to rate the overall negative educational influence on trust, autonomy, initiative and industry to be primarily either intermediate or minimal. (p. 5876A)

Among his conclusions, Martin stated that "ABE/ASE programs generally do a good job of promoting the positive psychosocial development of their students" (p. 5876A).

Mezirow, Darkenwald, and Knox (1975) reported a comparative, descriptive study of ABE classrooms using 'synchronic induction' modeled after grounded theory (citing Glaser & Strauss). Psychosocial factors of students included low income, varied racial and ethnic background, varied number of years in school, periodic unemployment with the majority not

on welfare roles. 'Big city' students were more likely to be employed, and 57% of them were women. While they reported that students came in 'rich variety' and for many reasons, they also identified "distinctive characteristics of educationally disadvantaged adults" (p. 149), including expectation of failure, lack of skill in how to learn, varied conceptions of time and punctuality.

Manzo, Lorton, and Condon (1975) studied characteristics and learning style preferences of ABE students. Using the same battery of instruments with groups of GED students, stock brokers, and sixth grade students for comparative purposes, Manzo et al. concluded that there are greater differences within groups than between them, and that ABE students cannot be labelled 'emotional cripples.' No homogeneous pattern of characteristics and learning style preference emerged.

Descendency

SSCI, 1984, revealed no published research citing Boyd and Martin's study of ego development.[1]

DAI review

Two dissertation abstracts related to stages of ego development, and five related to ABE or marginal undergraduate students, were identified.

1. Related to ego development -- Walasky (1982) studied whether Erikson's integrity/despair stage might be more than a bipolar construct, specifically if it consistently involves crisis. She described four integrity stages: (a) favorable resolution with crisis, (b) unfavorable resolution, (c) favorable resolution without crisis, and (d) in crisis. Semi-structured interviews, and a battery of instruments previously designed to measure Erikson's stages, were used with 40 elderly persons. Responses were consistent with the four identified stages suggesting that integrity-despair is more than a bipolar construct.

Huff (1983) administered Boyd's Self-Description Questionnaire to 94 participants in Elderhostel. The subjects, all over 60 years of age, were more affluent and better educated

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[1]While it is not reasonable to expect that a study published in 1984 would have generated descendent studies already published and cited in SSCI, the descendency trace is reported in each cluster of studies for consistency.

than the average for their cohort. Huff found positive resolution of Stage 7 -- Generativity versus Stagnation, and Stage 8 -- Ego Integrity versus Despair, generally supportive of the expectations of Erikson's schema. However, negative resolution of Stage 1 -- Basic Trust versus Mistrust, prompted Huff to question whether the resolution of stages might be cyclical.

2. Related to ABE or marginal ability students -- Interactive elements from these five studies are presented in Table 30, Appendix C, and findings are summarized.

LaCagnina (1979) failed to demonstrate significant differences between student perception of learning climate for teachers with low and high attrition rates. Clark (1982) reported significant differences in self-concept measures for ABE and GED student, with lower scores for GED students. There were no significant differences between self-concept and career aspiration or length of time in the program for either group. Teacher and student expectancy effects were reported in self-concept and achievement measures for a group of marginal ability, black freshmen students (Haynes, 1981).

Two studies sought to identify treatment conditions which would enhance achievement for ABE or marginal students. Corley (1980) reported Rational Stage Directed Imagery to be more effective overall than Cognitive Restructuring, Relaxation Training, or Traditional Study Skills Counseling, in improving achievement for students on academic probation. Kistler (1984) found that students in traditional classes had significantly

higher life-skills achievement-gain scores than those in competency-based classes.

Analysis

Ego development. If it could be assumed that the instrument used was a valid measure of the eight stages as conceptualized by Erikson, then both the Boyd and Martin (1984) and the Martin (1979) findings raise questions about the epigenetic theory of ego development. Erikson (1963) presented each of the eight stages as systematically related to all others and dependent on proper development in proper sequence. "Each comes to its ascendance, meets its crisis, and finds its lasting solution during the stage indicated" (p. 271). Erikson specifies an age at which each stage is resolved. In both studies, findings of positive and negative resolution were dispersed among the stages, not sequential. While only one individual was reported by Boyd and Martin, it seems reasonable to assume they would not have selected a highly atypical case for illustration. A potential discrepancy between the theoretical framework and their findings is not mentioned in the conclusions of either study. Findings reported by Huff (1983) using Boyd's Self-Description Questionnaire with Elderhostel participants, were generally supportive of Erikson's schema, with questions raised about a possible cyclic effect. Walasky (1982) questioned a bipolar nature for developmental constructs and reported finding more complex structure for Integrity versus Despair.

Erikson cautions against what he calls misuse of his theory, that is, treating the stages as "achievements" of "traits" without first building "a systematic bridge between the conception advanced . . . and the favorite concepts of other investigators" (1963, p. 274). Use of the ego-development model as synonymous with psychosocial problems of low-literate adults is questionable. A relationship between literacy and ego-development has not been demonstrated, nor do Boyd and Martin develop a theoretical link. Until such a relationship may be established, it seems reasonable to treat each construct as different characteristics of a person.

ABE students. Each study in this sample suggests a search for more effective ways to affect achievement for marginal or ABE students. Student perception of learning climate, various teaching methods, as well as teacher and student characteristics were studied. Definitions and achievement measures varied. No theme unified the group of studies for a strong conclusion or cumulative effect.

Interactive elements in studies of ego development and ABE students. Elements identified in this cluster of studies are summarized in Figure 3b, and include four situational elements.

1. Teacher skill -- Boyd and Martin assumed that teachers are skilled in teaching methods but unskilled in assessment of students' underlying problems. No evidence was used to support the assumption. On the contrary, it is

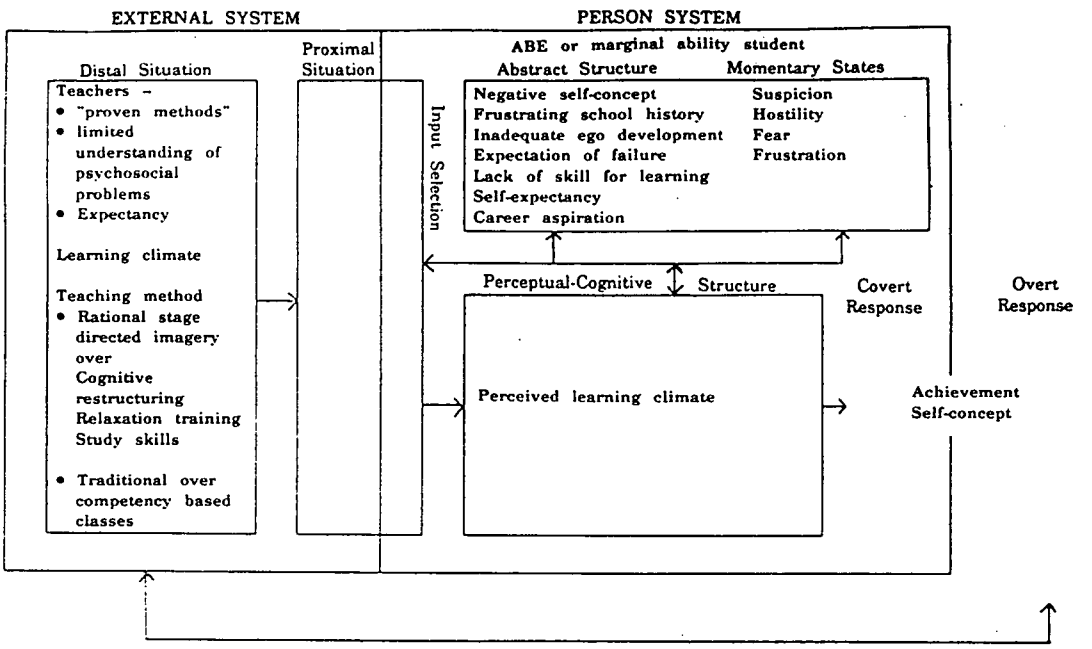

Figure 3b. Summary of elements identified in studies of achievement for ABE and marginal ability students

reasonable to assume that teachers would vary on each of those skill dimensions. If that assumption is accurate, what effect does such variation have on achievement for ABE students? The teacher element was not considered in either of the experiments on method effectiveness.

2. Teacher expectancy -- Haynes (1981) demonstrated that identification of higher expectations for a group of students was significantly related to self-concept and achievement for those students. By what mechanisms do higher expectations for achievement influence the learner's outcomes? Possible explanations include that positive expectations are communicated in some way to the student,

that the teacher puts forth more effort on behalf of the student, or that the expectancy is related to teacher grading bias (when grades are used as achievement measures). There is a substantial body of research on the effect of teacher expectation in the general education literature. Effect of teacher expectation on the child learner has been well documented. What differences are there, if any, in the effects of teacher expectation on child and adult learners? Are there differences for low-literate adults and other groups of adult learners?

3. Learning Climate -- There is an underlying assumption in Boyd and Martin and related studies that learning climate variables influence achievement for this group of students. One study dealt directly with the issue by measuring student perceived learning climate. While there were no significant findings, the concept of learning climate offers a major area of potentially useful study both in direct measures of situational factors believed to be associated with it as well as measures of student perception of climate factors.

4. Teaching methods -- Two studies suggested that varied teaching methods may influence response for these learners. How do various methods interact with other situational factors (e.g. teacher expectancy, skill), to enhance achievement? Is a method more effective when the teacher believes it to be effective? When the teacher is skilled in its use? Perhaps the method is less important

for student achievement than other variables which may be associated with it.

On the person side of the interaction a number of factors were suggested by this sample of studies.

1. Abstract structure -- Characteristics of the student, (e.g. negative self-concept, frustrating school history, inadequate ego development) tend to be used both as explanations for disappointing results in learning and as results of some fault within the educational process. The concept of cyclic effect between the two is suggested throughout the reviewed studies. Efforts to raise self-concept, expectations, and learning skill were reported with mixed results.

Boyd and Martin introduced the concept of ego development as a variable for ABE students. Setting aside questionable assumptions (e.g., that "psychosocial factors" which are related to learning difficulties can be equated with "inadequate ego development"; or that use of the instrument would result in global benefits to the community), the work does suggest additional implications for further study of learner/situation interaction.

Assuming the eight stages as adequate representation of ego development, each adult could be conceived in terms of attainment along those dimensions. Viewed as an independent variable, how does that attainment relate to the adult learner's perception of learning situations? How does each stage of ego development relate to learning

outcomes? Is each stage stable for an individual or does it vary with situations? Viewed as a dependent variable, is ego development responsive to educational intervention? What interventions are effective, and for what stages? Are the assumptions of correlation between inadequate ego development and low levels of literacy supportable?

2. Momentary states -- Suspicion, hostility, frustration and fear are emotions assumed to be experienced by ABE and marginal ability students. No studies verified those emotions directly. In a comparison of ABE students with stock brokers and sixth grade students, Manzo (1975) reported more differences within groups than between them, and concluded that ABE students cannot be labelled "emotional cripples." What range of emotional states actually characterize the experience of these students? What factors are associated with transitions between positive (e.g. hope, excitement) and negative (e.g. anger, frustration) emotions?

3. Perceptual-cognitive structure -- Perceived learning climate was suggested as a variable for study and found not significantly correlated with high and low attrition records of teachers. The implicit assumption underlying the study was that teachers do something right or wrong that systematically results in aggregate attrition. How do individual student perceptions of learning climate relate to their own achievement or satisfaction? With their own persistence or attrition?

Conclusions. While the cluster of studies pertaining to ego development each used Erikson's epigenetic theory, there were no other consistent features among the studies. Underlying assumptions and study populations varied, and there is no compelling synthesis of findings from the studies themselves. Conclusions from this sample of studies were:

1. There was no demonstration that the construct of ego development does or does not influence the adult as learner.

Conceptual or empirical bridges between stages of ego development and the adult learner would facilitate more meaningful research. Underlying assumptions in use of the model were not supported by argument or evidence. For example, the relationships between Erikson's stages and various levels of literacy, various socio-economic parameters, or adult learner interaction with learning situations were not theoretically developed nor empirically demonstrated.

2. Efforts to find methods to enhance achievement for ABE or marginal students show no unifying theme in this sample of studies.

It is reasonable to assume that such students demonstrate some common characteristics, and that they vary in important dimensions as well. Studies of treatment conditions to enhance achievement tended to treat the learner as a "black box" or as a constant. Increased attention to understanding the person systems of those

learners and how they vary may provide new directions for fruitful research.

Learning situations also tended to be treated as unidimensional, for example, teacher expectancy or attrition records as single variables expected to have a significant effect. It is argued that the interaction of learner variations with situations which are seen as multidimensional be developed theoretically as a basis for further study.

Autonomy

In a philosophical discussion, Chene (1983) developed the concept of autonomy of the adult learner, and critically examined the idea of freedom from conventional forms of knowledge and from traditional pedagogical methods. She defined autonomy in relation to three criteria -- freedom from established rules or norms, freedom to set goals for one's actions, and freedom to judge value. Full autonomy thus represents a paradox for adult learning. The learner, not having a knowledge or competency, cannot independently set goals, establish standards, and judge the adequacy of such knowledge or competency.

Chene suggests that a learner capable of becoming autonomous is different from an autonomous learner. Relative to the degree of maturity, an adult learner might be conceived as independent from external constraints and able to make choices. However, when learning is postulated as a process leading to competency, then autonomy can be only conditional. Chene's development of the paradox of the fully autonomous learner is presented in Figure 4a.

Ancestry/Descendency

No cited sources were identified for review, nor were there published research studies identified in SSCI, 1983-1984, which cited Chene.

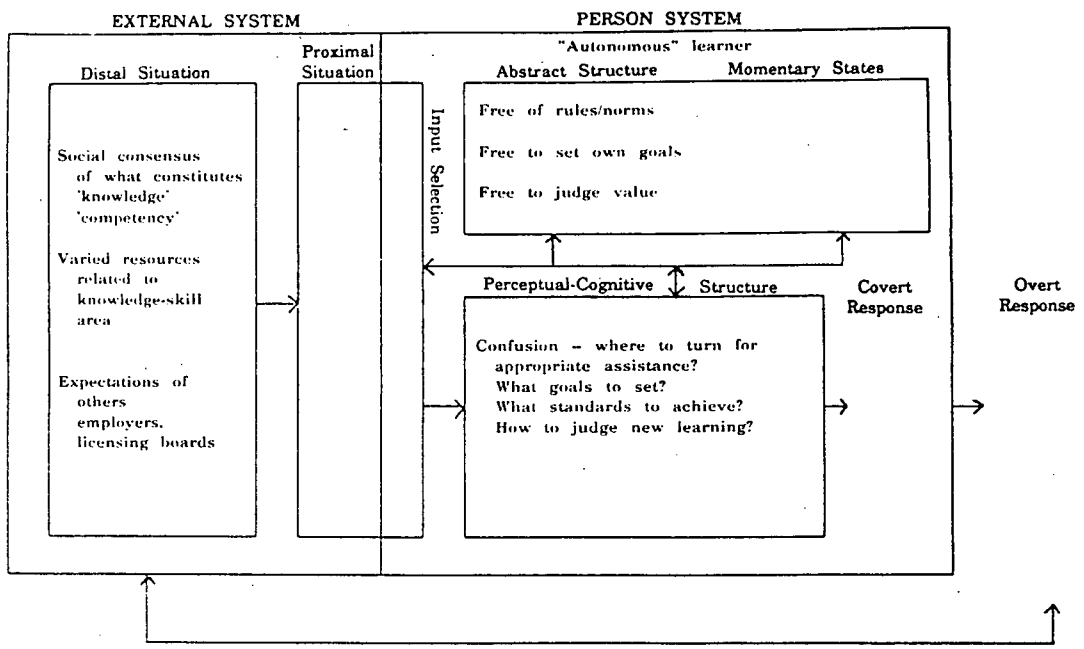

Figure 4a. Paradox of autonomous learner as developed by Chene -- with interactive model superimposed

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DAI review

Two dissertation abstracts were identified as related to autonomy of the learner. Maras (1979) sought to identify autonomous learners and their reciprocal interaction with a college setting. Thirty students, identified by faculty and peers as autonomous learners were interviewed. These characteristics were identified. Autonomous students: (a) structured their own academic programs early in college career, (b) were serious, committed, organized, (c) had sustained relationships with faculty mentors, (d) had small and stable groups of friends, (e) were "syllabus-free," and assumed

academic risks, and (f) had long-range professional goals. The role of the college was identified as expectation of student maturity, tolerance for idiosyncracies, and encouragement of independent decisions. Maras asserted that the student exerts a reciprocal effect on the ethos of the college.

Finney (1980) found neither self-actualization nor need for autonomy differentiated between adult and traditional age undergraduate students. He concluded that adults in his study did not perceive education to be a self-actualization experience, nor was a need for autonomy evident.

Other related studies

On the subject of autonomy as a dimension of independent learning, Moore (1972) defines the autonomous learner as a seeker of knowledge, one who exercises a degree of control over his own learning. "Not to be thought of as an intellectual Robinson Crusoe, cast away and shut off in self-sufficiency," the autonomous learner may turn to the teacher for direction but, if truly autonomous, does not relinquish the overall control of his learning process.

Differentiating components of teaching and learning as preparation, execution, and evaluation, and relating those components to autonomy, Moore developed a typology of distance education. Each of the three components were conceptualized as being under the control of the teacher or the learner (i.e.,non-autonomous or autonomous). The pure types, those in which all three components are fully autonomous, or fully non-autonomous,

"cannot exist in reality" (p. 82), since no learner is entirely dependent on others or entirely free from influence of others. The relationship of the learner to the situation is seen as contextual, that is, instructional programs differ in the degree to which they can accommodate the autonomous learner. The hypothesis put forward by Moore is that there is a positive relationship between autonomy and distance as measured by individualization and dialogue with teachers.

Analysis

Chene develops learner autonomy as a paradox. Moore's work suggests a paradox as well. He hypothesized that contiguous teaching somehow suppresses autonomy while distance teaching inherently promotes it. In this hypothesis autonomy is treated as a dependent variable -- that is, a result of the degree of distance from the teacher, which seems antithetical to the concept of autonomy. How is autonomy of the learner compatible with the idea that instructional programs determine the extent to which the learner may be autonomous? The learner who is highly autonomous, may choose the extent to which s/he will be subjected to situational control, and thus in a sense, retains autonomy in that choice. These suggestions on the concept of autonomy are presented in Figure 4b.

Lack of agreement on the nature of the concept of autonomy is evident in comparing the reviewed studies. Chene treats autonomy as an absolute, related to freedom from rules, freedom to set goals for action and to judge results. Moore considers

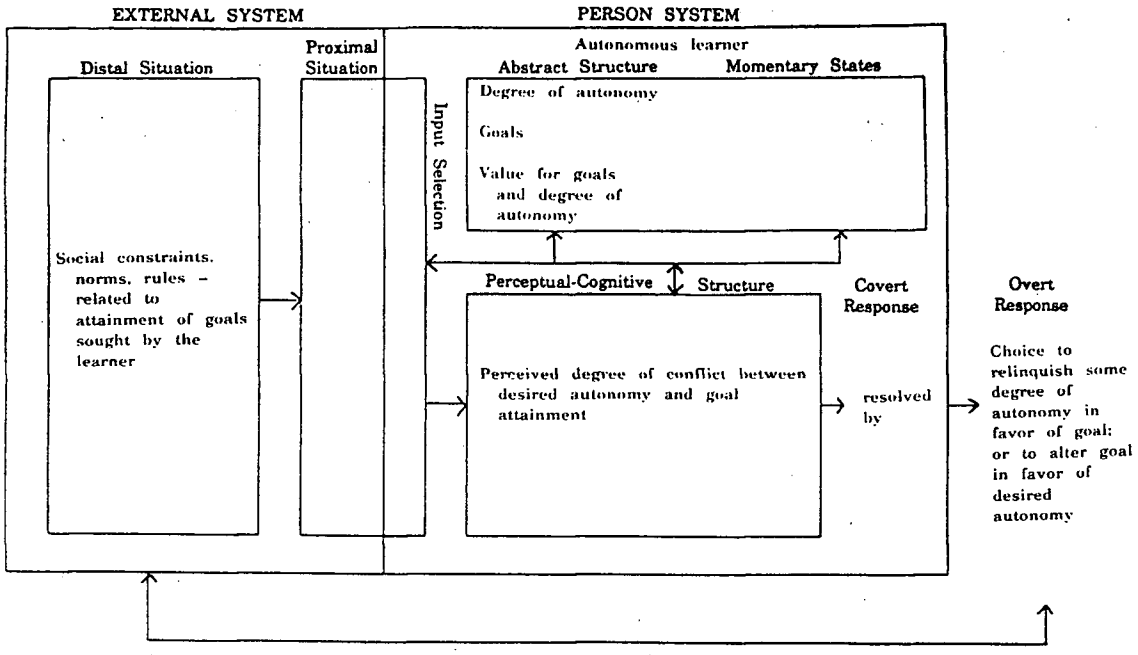

Figure 4b. Autonomy as choice relative to goal attainment within a specific situation -- with interactive model superimposed

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it to be control of the learning process determined at least in part by the learning situation. Maras includes a sustained close relationship with a faculty mentor as a characteristic of autonomy, which seems antithetical to both Moore's and Chene's constructs.

Considering autonomy in a developmental perspective, rather than as an absolute, the concept is useful for understanding the adult learner/situation interaction. If adult development involves a process of becoming increasingly autonomous, then it would be useful to think of autonomy on a continuum. The adult, at some stage along that continuum, has goals as well as values for both the degree of autonomy and those goals. In a specific

situation, what is the learner's own perceived degree of autonomy? What value does that degree of autonomy have for her/him? What goals does s/he have related to the learning or outcome consequences? How are values for autonomy and goals weighted by the learner? When goal attainment requires relative loss of autonomy, that is, acceptance of external norms, how does the learner choose between the two? How do those factors change or remain stable from one situation to another? Do situations constrain or enhance the relative degree of autonomy?

Conclusions. Autonomy is a highly abstract construct defined differently in each of the studies in this sample. It is used widely within adult education expository literature to differentiate adult from pre-adult learners. Observing that adults are more independent in choice and action than children, the assumption seems generally valid. The implications for adult education have yet to be explored. Autonomy, as it has been used in this sample, could be considered a stable or defining characteristic of adults, a self-concept or need of adults, or a situation characteristic imposed on adult learners.

Do those varied perspectives relate to different constructs bearing the same label, or to different parts of the same construct? Review of the respective definitions suggests the latter with the possible conclusion that autonomy may be described on a continuum partially determined by person characteristics, partially by situations, or by relative relationships between them. Such a perspective would yield hypotheses that a given person would vary in degree of autonomy

from one situation to another and that in a given situation, individuals would exhibit differing degrees of autonomy.

The range of person or situation factors which might be associated with varied levels of autonomy are not fully developed in this cluster of studies. Societal rules or norms, distance between learner and teacher, and competence of learner to exercise choice, are among suggested possibilities. Treated as a central construct in adult education literature, autonomy of adult learners merits further theoretical development and empirical study.

Adult Cognition

In a review of Piagetian based research studies of adult populations, Long, McCrary and Ackerman (1979) sought to determine support or challenge to the necessity, universality and persistence of the formal operations stage. In summary, most of the support for Piaget's position comes from studies with adolescents. A few studies with adults support Piaget's theory regarding the formal operations stage, the bulk do not. Many conclude regression in cognitive operations for adults, some do not. Some studies support the existence of a fifth stage, or higher level operation, which develops during adult years.

Ancestry

From a long list of references, two cited studies which suggested a fifth stage of cognition (Riegel, 1973, Arlin, 1975) were selected for review. If a fifth stage were found to exist, the implications would be important for adult education. How might adults at the fifth stage learn differently than at earlier stages? How might education influence continuing cognitive development for adults?

Riegel (1973) argued that Piaget's representation of formal operations as a noncontradictory thinking process, fails to capture the cognitive development of mature and creative adults. For an interpretation of adulthood, he proposed use of a dialectic model. Citing Hegel's dialectic theory, Riegel stated

that contradictions are not conditions of error or insufficiency, but a basic property of nature. Dialectic thinking comprehends the world in its multitude of contradictory relations. Riegel asserted that such dialectic thinking represents a stage of development beyond Piaget's formal operations stage. He further argued that an adult operates similtaneously at different levels of cognition, switching back and forth, or choosing different levels for different activities.

Arlin (1975) also questioned Piaget's conclusion that formal operations represents the final stage of cognitive development. She characterized the formal operations structure as convergent (problem solving) and hypothesized a fifth stage characterized as divergent (problem finding) in nature. In an exploratory study she sought to demonstrate the existence of the additional stage. Arlin interpreted the findings as supportive of problem solving (Piaget's formal operations stage) as a necessary but not sufficient condition for problem finding, and cautiously concluded the existence of a fifth stage of cognitive operation.

In one study cited by Arlin, Kangas and Bradway (1971) reported a 38 year longitudinal study of 48 subjects, preschool to middle age, using Stanford-Binet and Weschler Adult Intelligence Scales. Their findings indicated that intellectual potential does not cease during the adult years. A strongly significant ($p<.001$) upward trend in IQ gain was found over the 38 years.

Descendency

The SSCI, 1979-1984, was reviewed for Long et al., Riegel and Arlin. From a long list of citations of Arlin, seven titles which suggested research with adult populations were selected for review. One study was found, Shute, Howard, and Stewart (1984), which cited Long et al. Those studies are briefly summarized.

Fakouri (1976), argued that Arlin's findings could be supported by Piaget's interpretation of quantitative, not qualitative differences. The argument does not refute Arlin's problem finding concept, but interprets it as a version of the formal operations stage, rather than an additional stage.

Cropper, Meck, and Ash (1977) reported contradictory findings in a replication of Arlin's study, that is, no consistent relationship between problem solving and problem finding abilities, and concluded that there was no evidence of problem finding as a stage of development beyond problem solving.

Wood (1983), in a descriptive report of different problem solving or inquiry systems, differentiated ill-structured and well-structured problems and proposed that such distinction relates to adult cognitive ability. Well-structured problems require formal operations, whereas ill-structured problems require post-adolescent cognitive-development. He described the possibility that an individual presented with a problem situation may 'solve' a different problem than that intended by

the researcher explaining failure of adults to demonstrate formal operations thinking in some studies. They may in fact be operating in a more complex inquiry system.

A growing body of evidence and argument suggests that qualitative changes in thinking occur after adolescence (King, Kitchener, Davison, Parker, & Wood, 1983). Shifts in thinking style include movement from the deterministic thinking of early adolescence to understanding knowledge in context, and as encompassing apparently contradictory perspectives while allowing for integration or synthesis. Citing Arlin, King et al. describe a reflective judgment model which involves seven stages of assumptive positions about reality.

Stage 1 -- 'copy' view of reality; belief that there is an absolute correspondence between what is observed and what is real.

Stage 2 -- belief that there is an objective reality that can be known, but it is not known by everyone, however certain 'authorities' do know.

Stage 3 -- belief that truth is temporarily inaccessible because knowledge cannot always be known even to authorities.

Stage 4 -- belief that, while there is an objective reality, it cannot ever be known with certainty.

Stage 5 -- belief that objective knowledge does not exist, but is relative to a particular context or domain.

Stage 6 -- belief that objective knowledge is not possible to obtain, nevertheless some beliefs are judged better

founded than others.

Stage 7 -- understanding that inquiry is an ongoing process that can lead toward truth with knowledge claims remaining open to reevaluation.

Cross-sectional research designs have demonstrated an increase in reflective judgment with increase in age and educational attainment. King et al. conducted a longitudinal study to determine whether individuals would shift upward in reflective judgment scores in a two year period. Eighty subjects who were high school juniors, college juniors, and doctoral students at the beginning of the study, were matched between groups for scholastic aptitude, size of home town, and sex. At the end of the two year period, 59 individuals were retested using the Reflective Judgment Interview, and the Concept Mastery Test. King et al. reported that subjects' reflective judgment scores increased significantly over time. Group differences found at the beginning of the study remained, and the amount of change over time was comparable across groups. In summary, the study offers support for upward and sequential movement on reflective judgment.

Welfel (1982) reported a study using the reflective judgment model with a sample of college freshmen and seniors, evenly divided in terms of major (engineering and social sciences). She found no significant differences on Reflective Judgment Inventory scores between majors, but did report that seniors scored significantly higher ($p=.002$) than freshmen. There were no significant interaction effects between class

standing, major, and gender. These findings, generally supportive of the body of literature cited, leave open the question of whether development of judgment can be attributed to educational, maturational, or cohort effect. Suggestive that educational factors are involved, at least in part, Austin (cited in Welfel) reported differences in reflective judgment among college students with size of institution. Students in larger colleges with a high ratio of commuters showed less change than their counterparts in smaller institutions. Lawson (1981) investigated the effect of education on reflective judgment. Using two groups of graduate students, beginning and advanced (three years or more, and past comprehensive exams), and two groups of nonstudents, matched for age and scholastic aptitude tests, she reported significant main effects in reflective judgment scores for sex (males scored higher), for age (older students higher), and selection (graduate students scored higher than nonstudents). There was no evidence to support an education effect, that is, the differences between scores of advanced graduate students and beginning graduate students, and those of their cohort nonstudent groups, were not significant.

Chinen (1984) described the process of development in terms of modal logic, or the kind of truth a proposition or an experience possesses. Four logical modalities were described, each governing discrete periods of life, cognitively as well as emotionally. Chinen posited that optimal development in adult life includes explicit awareness of those modalities and that

such awareness is a feature of 'wisdom' in later life. Mature adults are seen as focusing on the mode of experience rather than on the content or the object of experience, as compared with regressed adults and children who focus on content or object.

Citing Long et al. (1979), Shute et al. (1984) reported finding significant relationships between cognitive development (formal and concrete operations) and locus of control for 58 undergraduate subjects. When analyzed separately by gender, the relationship was found to be highly significant for women, and nonexistent for men, suggesting a sex difference in the relationship between cognitive development and locus of control.

DAI review

Four dissertation abstracts were identified as related to adult cognition, interactive elements are presented in Table 31, Appendix C), and findings are summarized.

Eno (1979) found a significant relationship for achievement with crystallized intelligence but not with fluid intelligence. He concluded that fluid intelligence, defined as a physiological mental power unaffected by learning, influences achievement indirectly through its impact on crystallized intelligence.

Using the Perry model of cognitive development, Lyne (1980) sought, with minimal support, to demonstrate a positive relationship between cognitive level and learning format preference. Findings suggest a tendency for older students to prefer more structure and for students with higher cognitive

level to prefer less structure.

Two studies were based on the King reflective judgment model. Brabeck (1981) found no significant correlation between critical thinking and reflective judgment. Reflective judgment scores increased with education while critical thinking level was held constant. She concluded that the two are different constructs with critical thinking necessary but not sufficient for development of higher reflective judgment. Lawson (1981) sought to determine whether the relationship between educational level and reflective judgment were due to education, age, or selection. She found no evidence to support an education effect, though age and selection effects were compatible with the findings.

Other related sources

Long (1980) reviewed the historical development of work on adult cognition. Citing studies of the concept, fluid and crystallized intelligence, he observed that adult development seems to be a dynamic system that either advances or recedes according to interaction of neurophysiological and socio-physical-cultural structures. Whereas the cognitive development of children seems to be predominantly determined by biological factors, development of cognition in adults may be more experientially determined.

Schaie (1977-78) supported the concept of experiential determination of both adult and child cognition, and presented a sketch of such a developmental model. He posited that

environmental press creates changes in cognitive requirements. During childhood and adolescence, the press is toward acquisition of knowledge, in young adulthood increased independence and responsibility creates a requirement for achievement and competence. In the middle years, environmental press includes responsibility for others within family and social units; and for some individuals, it includes responsibility for societal systems. As those responsibilities decrease, environmental press requires simplification. Schaie describes this process as transition from "what should I know," through "how should I use what I know," to "why should I know."

Analysis

The studies reviewed for purpose of this presentation barely touch the large volume of work on this subject, and do not present all the major contributors to the arguments involved. They do serve to illustrate the complexity of the question, "Does, and if so how does, adult cognition develop over the life span?" The seminal contribution of Piaget to understanding cognitive development in children goes relatively unchallenged, while his thesis that the formal operations stage characterizes a final stage of development for adults remains open to question.

What meanings can be extracted for study of adult learner/situation interaction? Using the Person Situation Process Model as an analytic framework, the research and conceptualization of adult cognition was seen as an effort to

understand and explain an element in the adult's abstract structure (see Figure 5a).

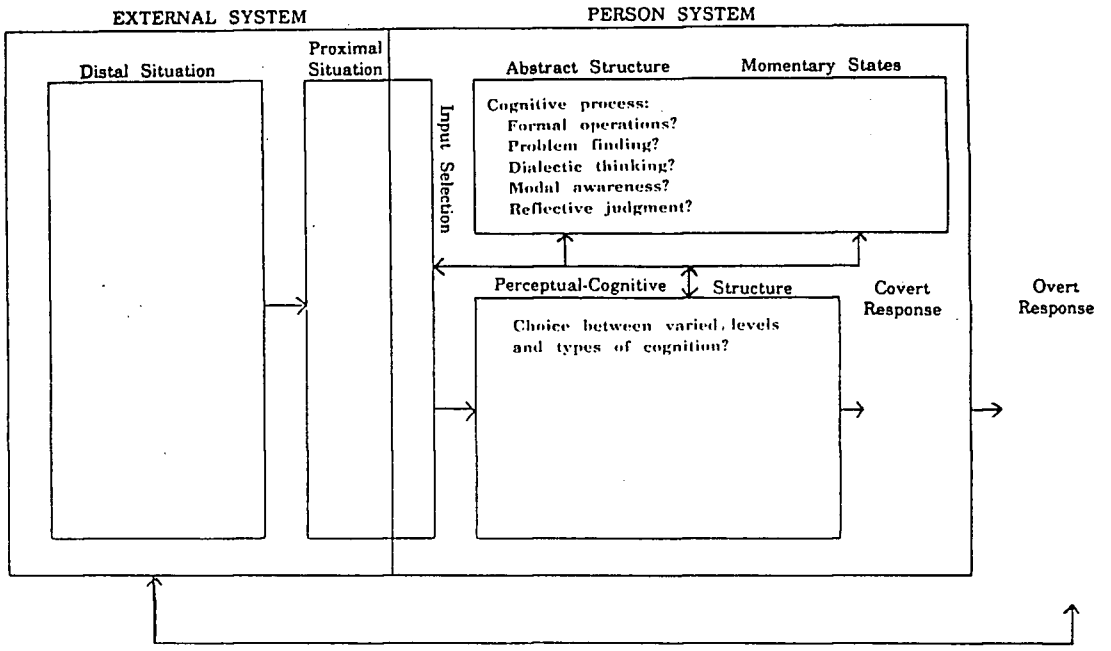

Figure 5a. Various theories of adult cognition -- with interactive model superimposed

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As developmental psychologists continue to grapple with the basic questions and theory building in adult cognition, there are a number of implications for adult education research as well. Given any one of the reviewed theories of cognitive process (and multiple others not reviewed), how might that process influence the perception of and response to learning situations? Accepting as assumptions that multiple levels of cognition are available to the individual adult, and that

different ones are chosen for different activities, what factors in the educational situation could be hypothesized as promoting what levels of cognition? Do learners operating at different cognitive levels select different cues from the learning situation to support their particular cognitive formulations? How do particular educational approaches (e.g. lecture, problem solving, simulation) correlate with cognitive levels used by adult learners in those situations? Figures 5b and 5c illustrate partial analysis suggested by those questions, arbitrarily selecting King reflective judgment model as the conceptual base.

Conclusions. Studies analyzed in this cluster were a small and not necessarily representative sample of those which emerged in the ancestry/descendency trace of the Long et al. review of research on adult cognition. Varied constructs of cognition and populations of adults were represented in the reviewed studies. Conclusions were:

1. Depending, at least in part, on the construct of cognitive development and the population of adults studied, it is possible to demonstrate cognitive stability, decline, or advancement for adults. It is reasonable to assume that all three do in fact occur for different individuals in different contexts. No studies were found which sought to identify contextual variables related to those effects.

2. Using a given construct, researchers in adult education could productively focus on implications of

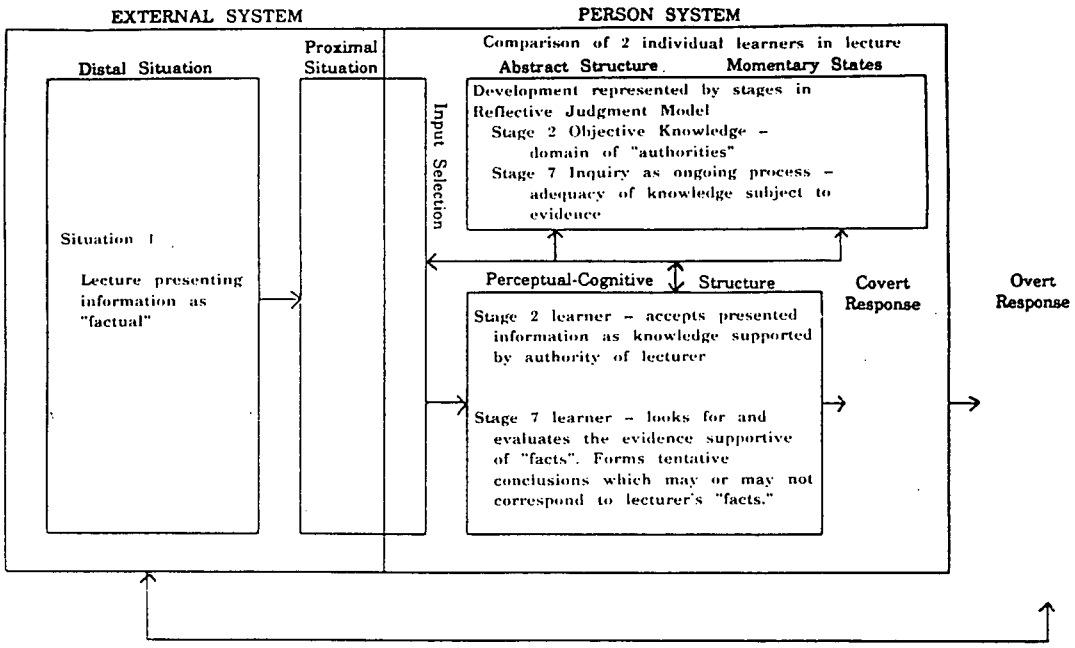

Figure 5b. Illustration using King's reflective judgment model to compare two hypothetical learners in a lecture situation

various cognitive levels for adult learners' interactions with learning situations. Whether a given learner advances, declines or remains stable in cognitive ability, the relationship of cognitive level with adult learning has yet to be fully explored.

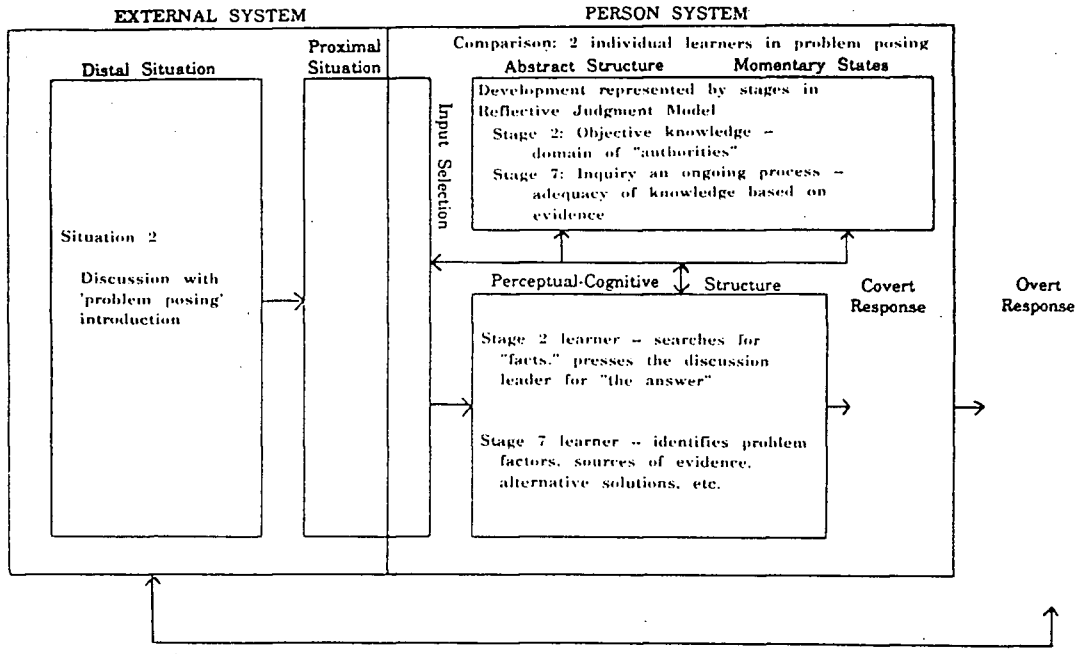

Figure 5c. Illustration using King's reflective judgment model to compare two hypothetical learners in a problem posing situation

Learning Styles

Pigg, Busch, and Lacy (1980) studied the effectiveness of Kolb's Learning Style Inventory (LSI) in order to assess its usefulness in identifying learning styles and designing learning experiences. Learning style was described as the ways in which people select, organize, and process educational experiences. Pigg et al. identified consistent aspects of learning style as: (a) that learning takes place in a relatively stable cognitive pattern and (b) that it is related to the learner's interaction with his environment and experience.

Lewin and associates (cited in Pigg et al.) developed an experiential learning model consisting of four integrated stages: (a) concrete experiences, (b) observation and reflection, (c) formation of abstract concepts and generalizations, and (d) testing implications of concepts in new situations. Kolb (cited in Pigg et al.) identified those stages as polar opposites in two separate dimensions, that is, concrete-abstract, and active-reflective, and argued that people tend to resolve these tensions in a rather consistent and stable pattern. The LSI was developed to measure that pattern and was used to identify four statistically significant types of learning styles, designated as 'Converger,' 'Diverger,' 'Assimilator,' and 'Accommodator.'

Using the LSI, Pigg et al. studied 349 county extension agents. It was hypothesized that the 'Accommodator' style would be most prevalent among county agents. While 44% of the

respondents fell in the Accommodator quadrant, composite scores were calculated which indicated "that the tendency of this group is not strongly in this direction" (p. 237). Correlations between learning styles and preferences for selected techniques were reported as very weak, of limited value in designing educational programs.

Analysis of learning style by sub-specialty in undergraduate preparation, and length of job tenure, revealed a pattern suggesting that learning styles may be modified by work environment over time so that they become increasingly similar. Alternative explanations were offered. There may be self selection out of the role, learning styles may be cohort rather than discipline related, or learning styles may accomodate to perceived organizational norms.

Pigg et al. concluded that it would be inappropriate to use Kolb's LSI "in a mechanistic fashion in the design of educational programs" (p. 242), citing as rationale the weak correlation of LSI and preferences for selected techniques, as well as the limited research testing relationships between actual learning and learning styles or preferences. Despite these cautions, the researchers concluded that LSI is a useful instrument with a high degree of face validity. Figure 6a illustrates concepts and assumptions as reported by Pigg et al. with the interactive framework superimposed.

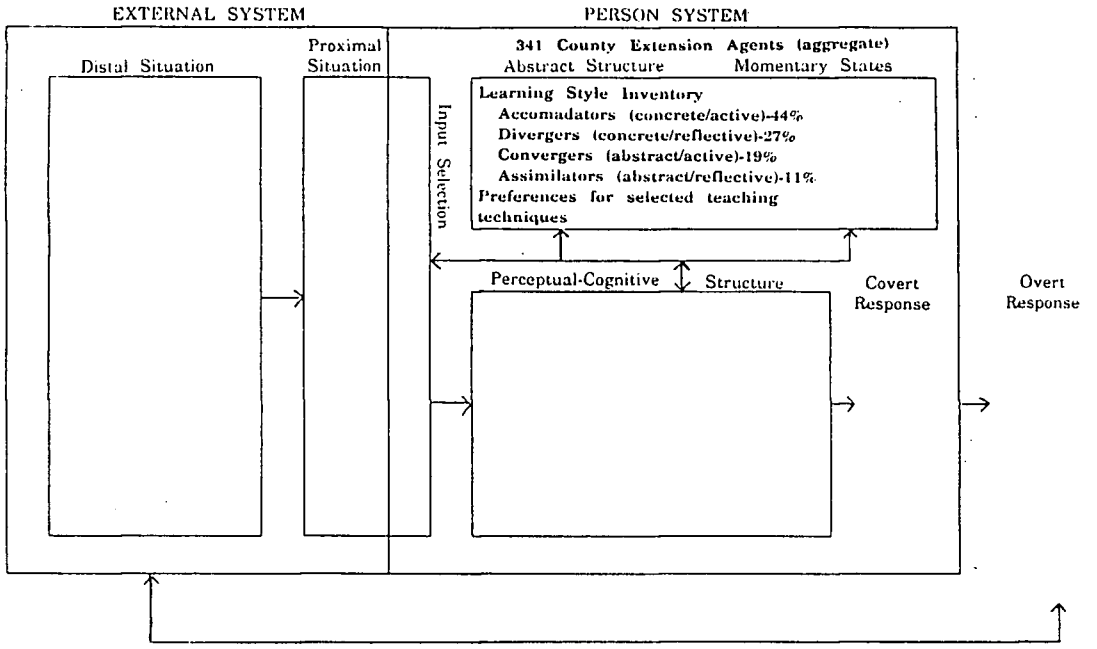

Figure 6a. Concepts employed by Pigg et al. in study of County Extension Agents' learning styles with interactive model superimposed

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Ancestry

In one cited source, Kolb and Fry (1975) summarized several years of research efforts on the experiential learning model which was described as an ideal cyclic process of learning. That ideal is difficult to achieve, reflecting two sets of dialectic dimensions -- abstract/concrete and active/reflective. Kolb and Fry suggest learning is a process of conflict confrontation and resolution among four basic ways of relating to the world: Concrete Experience versus Abstract Conceptualization and Active Experimentation versus Reflective Observation. Individuals develop characteristic styles of

resolving these conflicts.

Kolb and Fry cited research which showed correspondence between the Learning Style Inventory (LSI) and undergraduate major. They concluded that whether individuals self-select fields based on preferred learning style or are shaped by those fields is an open question, probably both are operating. Preferred learning styles were described in a developmental and socialization perspective, with increasing integration toward ability to use all four modes or styles of learning and relating to the world.

Finally, the implications of the experiential learning model for design of educational experience were explored. A tentative typology of environments was described and included (a) affective complexity, (b) perceptual (c) symbolic, and (d) behavioral complexity. Each of those types of environment were posited as preferences of individuals with differing learning styles. If the learning goal were acquisition of knowledge and skills that required a particular learning style, the environment should be designed to match that style. If, on the other hand, development of the learners' learning styles were the goal, the preferred learning style would be de-emphasized and new ways of learning introduced. Figure 6b presents those hypotheses with development of each adaptive mode matched with increases in different areas of complexity:

1. Concrete experience with affective complexity
2. Reflective observation with perceptual complexity
3. Abstract conceptualization with symbolic complexity

4. Active experimentation with behavioural complexity.

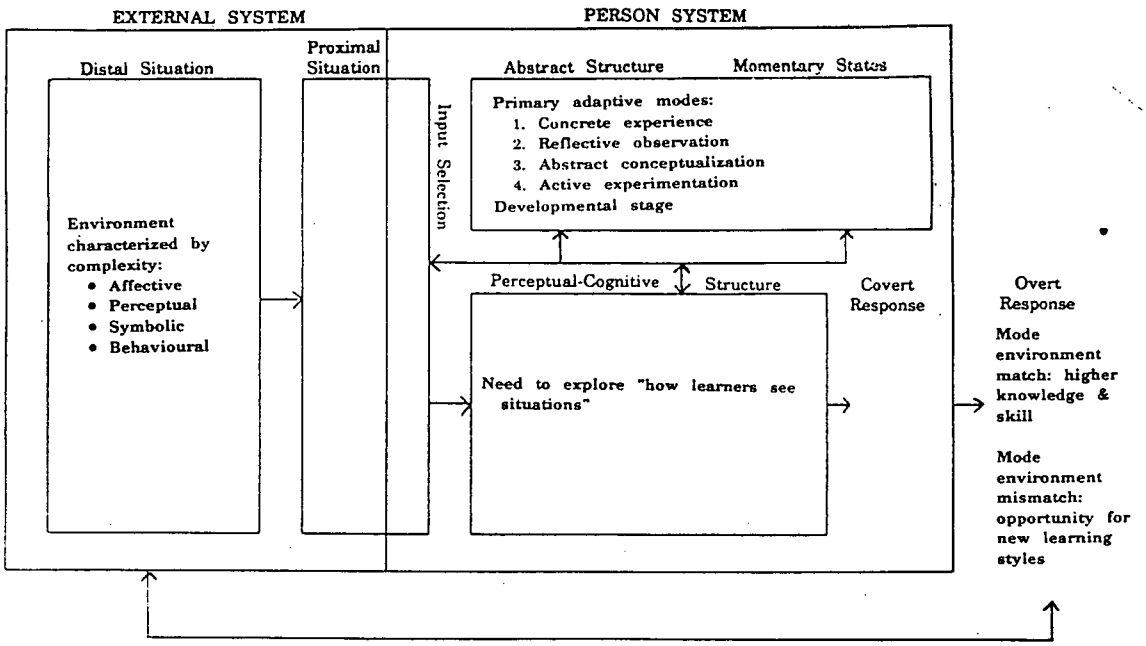

Figure 6b. Learning style modes and environmental complexity (Kolb & Fry) -- with interactive model superimposed

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Descendency

The SSCI, 1981-1984, revealed two sources which cited the Pigg et al. study. Merritt and Marshall (1984) sought to determine reliability and construct validity of Kolb's original ipsative instrument and an alternative normative form adapted from the original inventory. They argued that the ipsative nature of LSI, designed to maximize differences within an individual, poses legitimate questions as to the meaningfulness

of statistical analysis for comparison across individuals. They developed an adaptation which used the original word list and modified the response type to produce a normative instrument. Testing both forms for internal consistency reliability, the ipsative form ranged from .292 to .587, and the normative form, .520 to .739. Factor analysis revealed loadings consistent with the learning style model proposed by Kolb for both forms of the instrument, supporting construct validity.

Fourier (1984) measured the effect of feedback about cognitive style and suggested strategies for learning, using posttest-only control group design and the Albany Instrument based on Hill's model of cognitive style (not explicitly described in the report). A placebo treatment, feedback about Allport-Vernon-Lindzey Study of Values scale, was used with the control group. No significant differences were found in posttest scores for the two groups.

DAI review

Six dissertation abstracts were identified as related to learning styles. Two were analyses of various learning style instruments. Four were correlations of learning style with other variables (see Table 32, Appendix C). Findings are summarized.

A variety of instruments were reported as measures of a construct each called learning style. Ferrell (1982) sought to determine the construct validity of four instruments: (a) Grasha-Riechmann Student Learning Style Scales, (b) Kolb

Learning Style Inventory, (c) Dunn Learning Style Inventory, and (d) Johnson Decision Making Inventory. Factor analysis failed to provide evidence of construct validity for any but the Kolb inventory. Each instrument measured a portion of the construct. Ferrell concluded that the four instruments measure different things, and that they all could be identified as contributing to a portion of the construct -- learning style.

Tenore (1984) studied relationships among three tests of cognitive/learning styles: (a) Group Embeddedness Figures Test (GEFT), (b) Kolb LSI, and (c) Tenore Learning Style Assessment Inventory. She found them unrelated. The theoretical basis for Tenore's instrument was not specified.

No correlation was found between LSI and preference for learning format among a sample of health professionals. Bennett (1979) indicated lack of satisfaction with use of the LSI for the study; subgroups of the study were analyzed in the aggregate. Comparison of format preferences revealed learner preference for lecture and directed observation, while program planners preferred participative formats.

Two studies reported comparison of registered nurse and generic nursing students. Huch (1982) found significant difference in locus of control but not in learning styles for the two groups. However, Merritt (1984) reported significant differences in learning style. Analysis for age and length of career employment revealed no significant difference in learning style.

McCall (1984) reported an interactive effect between

learning environment (conforming or independent) and learning style. The direction of the interaction was not specified. No interaction was found between either LSI or environment and levels of learning (rote or understanding).

Analysis

Pigg et al. sought to assess the usefulness of Kolb's LSI in designing appropriate learning experiences. Theoretical connections between the two concepts, 'learning style' and 'appropriate learning experience,' were not developed. Data included the LSI, "additional background information" and "preferences for a variety of educational techniques," suggesting an implicit assumption that preference for techniques is equated with designing appropriate learning experiences. Yet, on finding limited correlation between learning styles and preferences, the researchers acknowledged limited prior work testing relationships between actual learning and either learning styles or preferences for learning techniques.

The study uses concepts which could be categorized as elements of the person's abstract structure. No external situation variables, nor perceptions of learning situations were included, and the study is of limited use to understanding the learner/learning situation interaction. Further, based on the Merritt and Marshall arguments, use of aggregate analysis with the LSI is open to question.

Kolb and Fry (1975) provided concepts which could be useful in forming interactive theory for adult learners by: (a)

describing a typology of environment complexity, (b) hypothesizing how that typology relates to learning styles, and (c) identifying a need for systematic study of learner perceptions. In addition, the concept of learning goal which differentiates knowledge and skill acquisition from development of repertoire of learning styles, suggests outcome measures which might be employed in testing relationships of the concepts as presented.

Interactive elements related to learning style. The pivotal concept in this cluster of studies, learning style, is considered to have a number of plausible situation elements to which it relates.

1. Nature of the learning environment -- McCall (1984) suggested two categories of environment, conforming and independent. Demonstration of an interactive effect with learning styles suggests that further refinement and study of those concepts could be fruitful. Kolb and Fry's representation of environmental complexity matched with predominant learning style provides a model for exploration of environment/learning style match.

2. Teacher -- Learning styles of teachers were not reported in this sample of studies. How might the teacher's own style interact with the learner's and with what effect? Many teacher behaviors and characteristics have been suggested as influences on learning. What relationship exists between student learning style and the

most promising of them?

3. Teaching methods -- Interaction of learning styles with various teaching methods was not included in this sample and represents a potentially useful area of exploration. Studies of preference for method have not demonstrated a correlation with learning style. However, the connection between preference and actual response to a particular method is not known. Given that learning style and preference seem not to be correlated, would either prove to be predictive of achievement with given teaching methods?

On the person side of the interaction, a number of elements are plausible interactants with learning style.

1. Abstract structure -- Unsuccessful efforts to correlate constructs each labelled learning styles, and the suggestively close concept of cognitive style, illustrate the difficulty in understanding the "abstract structure." Recognizing that limitation, what can be understood about how various elements within the abstract structure interact? Mixed results in correlation of learning style with preference for format, with locus of control, with age and length of employment, suggest a range of possible interactions among elements in the person's abstract structure.

2. Momentary states -- No studies in this sample suggested relationship of learning style to temporary conditions and no such relationships are readily apparent.

It might prove interesting to determine whether LSI scores vary in the presence of varied positive and negative emotional and physiological states. However, whether the results of such a study should be interpreted as evidence related to the instrument's reliability or to the nature of the interaction would be a dilemma.

3. Perceptual-cognitive structure -- Kolb and Fry (1975) identified a need for systematic exploration of how learners see situations. The nature of those perceptions and how they might relate to learning style are areas not represented in this sample of studies. Kolb and Fry offer a framework which could be useful in exploratory studies of this nature.

Conclusions. The preponderance of studies in this cluster measured learning style as an aggregate person characteristic using Kolb's formulation, and did not seek to demonstrate relationships with perceptions of the learner or with situational elements. Conclusions were:

1. Variations in learning style were demonstrated to exist among adults.

2. Relationships between learning styles and perceptions of adult learners were not demonstrated and may be of use in understanding more about how learning styles work for adult learners.

3. Situation factors were conceptualized as having match/mismatch relationship with learning styles. Limited

study of that relationship was found, and there is potential for its empirical testing.

Cognitive Style: Field Dependence-Independence

Donnarumma, Cox and Beder (1980) studied the relationship of field dependence-independence to success in a high school completion program. Subjects were 40 students, 17-30 years old and economically disadvantaged, enrolled in a General Educational Development (GED) preparation program. 'Success' was measured by performance on the GED Test, on the Test of Adult Basic Education (TABE) and on learner attrition. Field dependence-independence was determined by use of the Group Embeddedness Figures Test (GEFT). Field dependent-independent groups were established by the median score for the sample, which was skewed toward field dependence, not representative of the general population.

There was support for the predictions (a) that relative field independence would be associated with passing all components of the GED, (b) that relative field independence would correlate significantly with reading and math scores on the TABE. and (c) that field dependence was related to higher rates of attrition. The authors concluded that field dependent students experience frustration with educational programs which address relatively more field independent skills.

Donnarumma, et al. suggested further study to investigate relationships between field dependence-independence and various teaching-learning methods in GED preparation programs. Figure 7a shows the reported relationship between field dependence-independence and success in high school completion programs

within the interactive framework.

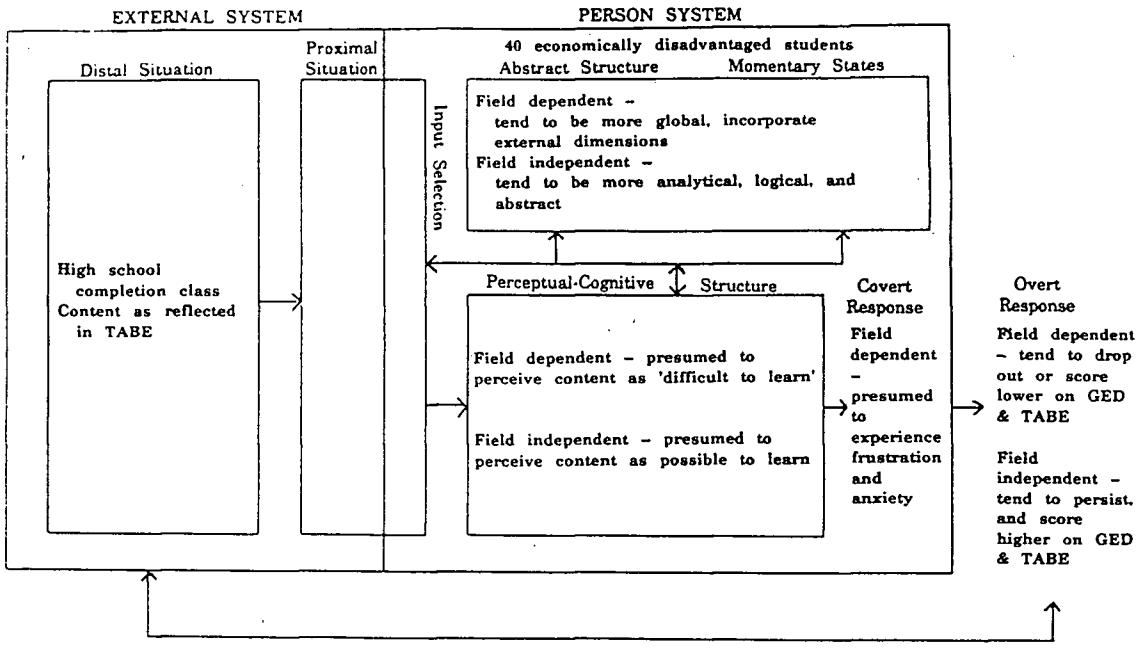

Figure 7a. Field dependence-independence and success in a high school completion program (Donnarumma et al.) -- with interactive model superimposed

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Ancestry

In a report cited by Donnarumma et al., Witkin (1972) reviewed studies of teacher-student interaction as a function of cognitive style. Most were of elementary and high school populations, and suggested (1) that teachers are more likely to be field independent, and (2) that teachers and students at either extreme of field dependence-independence evaluated 'likes' in more positive terms.

Descendency

SSCI, 1981-1984, revealed no published studies which cited Donnarumma et al.

DAI review

There were 13 dissertation abstracts identified as related to field dependence-independence. Interactive elements from those studies are presented (see Table 33, Appendix C), and findings are summarized.

1. Achievement -- Field independence was related to achievement in each of the cited studies with one exception. In that study, Henderson (1981) found no relationship between either cognitive style or match with teacher cognitive style, and black college students' achievement in science. He found that both black students and teachers tended to score as field dependent.

2. Match with teacher cognitive style -- Goodfellow (1981) found that field independent teachers graded like students significantly higher than their field dependent counterparts. Grades given by field dependent teachers did not differ significantly, consistent with Henderson's findings that, with predominantly field dependent black teachers, cognitive style of black students was unrelated to achievement in science courses.

3. Nature of content -- Neither Goodfellow nor Williams (1981) found significant relationships between

achievement in courses with different content or scientific orientations and cognitive style.

4. Nature of test items -- Czarnecki (1980) hypothesized that reading comprehensibility and syntactic complexity of test items would differentially affect test performance of field independent and dependent GED candidates. She found a significant relationship between field independence and overall GED scores ($p=.01$), and with reading comprehensibility scores on one subtest ($p=.03$). Other subtest results were in the predicted direction but not significant.

5. Other person characteristics -- Internal locus of control and reflectivity combined with field-independence for stronger correlations with achievement than any single predictor (Lewis, 1979). Tolerance for ambiguity and stress levels were related to cognitive style, with field independence related to tolerance of ambiguity in the high stress group (Williams, 1981). Hoskins (1980) explored whether prior knowledge of objectives would improve performance for field dependent students. Findings were in the predicted direction, with IQ accounting for more variance than the treatment variable. Self-concept was found to be related, remedial students significantly more field dependent and low in self-concept than regular college students (Morable, 1983). Interaction of prior experience and field independence were related to likelihood that a student would challenge courses in a

modular, mastery curriculum, to achievement on course exams, and to performance achievement (Walker, 1981).

6. Use of graphic organizers -- Hawk (1983) reported that use of graphic organizers tended to lessen the score differences between field dependent and independent students but results were not significant.

Analysis

Cognitive style has been studied extensively as a pyschological construct. This analysis is limited to use of that construct in relation to adult learning situations, that is, how the cognitive style of either the adult learner or teacher contributes to understanding the learner/situation interaction. With one exception the reviewed studies used the same instrument, Group Embeddedness Figures Test, and therefore seemed to deal with the same construct for cognitive style. However, relative field dependence-independence determined by the group median, along with the possibility of skewed distribution within studies, suggest caution in comparison of findings across studies.

In the reviewed studies, field dependent students consistently performed less well in academic tasks. Donnarumma et al. (1980) and Czarnecki (1980) suggested a teaching and testing match favorable to the field independent style, and conversely, a systematic negative bias toward the field dependent style. Their data and analysis do support higher performance of field independent students but do not provide an

empirical basis to support or refute their conclusion of environmental bias. Interesting research questions could be posed. If there is a systematic bias toward field independent students, are there comparable 'matches' that would enhance learning and success for field-dependent students? Donnarumma et al. suggested need for study of relationships between cognitive styles and teaching methods in a search for that answer.

A preponderance of the reviewed studies treated relative field dependence-independence as a stable characteristic of the individual. There were none in this sample of studies which addressed the possibility of change in cognitive style across situations or across time. If cognitive style varies, what circumstances (e.g. teaching method, psychological climate, developmental stage) contribute to those variations? The questions and speculations become more complex when concepts such as field dependence-independence and analytic-relational styles are viewed as continua or as mixed, rather than polar, dimensions.

Interactive elements related to cognitive style. These studies suggest several possible areas of relationship between learner cognitive style and the learning situation.

1. Nature of content -- No significant relationships were found in two studies which looked at broad categories of course content. Czarnecki's (1980) finding did suggest a relationship between comprehensibility of test items and

cognitive style. Are there levels of content complexity at which differences in achievement between cognitive styles are diminished, or the interactive effect is reversed in favor of the field dependent learner? How does content which varies in abstractness or organization interact with cognitive style?

2. Teacher -- The teacher's own cognitive style has been suggested as a factor in student achievement. Field independent teachers were found to give higher grades to like students (Goodfellow, 1981), while there were no differences in grades given by field dependent teachers (Goodfellow, 1981, Henderson, 1981). Do field independent students actually learn more from field independent than from field dependent teachers, or is the grading difference an artifact of teacher bias? If a bias, for which teacher is bias a factor, field dependent or independent? Roeser's (1979) effort to correlate teacher expressiveness with cognitive style was inconclusive. What other teacher characteristics relate to achievement for field dependent, and for field independent learners?

3. Teaching methods -- Hawk (1983) found that use of graphic organizers tends to lessen score differences but not significantly. Efforts to correlate cognitive style with prior knowledge of objectives were inconclusive (Hoskins, 1980). In a modular, mastery curriculum, field dependent students required more attempts to achieve mastery (Walker, 1981). Any relationship which may exist

between teaching method and field dependence remains elusive from the findings in this sample of studies. Results show consistent achievement for field independent learners without regard to method. If there are methods which enhance learning for field dependent persons, what are they?

Several studies which relate cognitive style to other person elements suggest a variety of such interactions. The interactive framework was used to organize and suggest further plausible relationships.

1. Abstract structure -- Cognitive style, the pivotal construct for this cluster of studies, was categorized as part of the abstract structure. Other elements were prior experience (Walker, 1981), self-concept (Morable, 1983), tolerance for ambiguity, stress (Williams, 1981), attitudes toward content and method (Van Duyne, 1980), locus of control and reflectivity-impulsivity (Lewis, 1979). These elements were found either to correlate with field dependence or to combine with it for effect on achievement.

Findings that high school completion students and ethnic minorities were skewed toward field dependence and college students, if skewed, toward independence, suggest a relationship between cognitive style and educational, socio-economic, or cultural factors. What is the nature of that relationship? Is cognitive style stable across varied learning situations? If not, what situation or person factors can be related to its variations?

2. Momentary states -- No momentary states were identified as variables in this sample of studies. Donnarumma et al. (1980) assumed that frustration with the educational experience was related to attrition for field dependent students. How might that assumption be studied to determine its relationship to learning as well as attrition? Does cognitive style or its effect on achievement vary in the presence of pleasant or unpleasant emotional and physiological variations?

3. Input selection and perceptual-cognitive structure -- While cognitive style as a construct fits the definition for abstract structure in this interactive model, it seems reasonable that the process through which it works relates to how the "field" (situation) is observed, what cues are selected, and what sense (perception) is made about it. How do observations and perceptions vary for field dependent and field independent students? In the two studies which compared student cognitive style and ratings of teacher effectiveness, findings were not significant.

4. Response -- With one exception (Henderson, 1981), studies in this sample found field independent subjects to be consistently higher in achievement than those who were field dependent. What factors would interact to produce higher achievement for field dependent students? For example, low self-concept was found to be associated with field dependency; would increase in self-concept predict higher achievement? Under what circumstances?

Framework for further study. Using the reviewed studies and the interactive framework, elements which may be related to cognitive style and learning were identified (see Figure 7b).

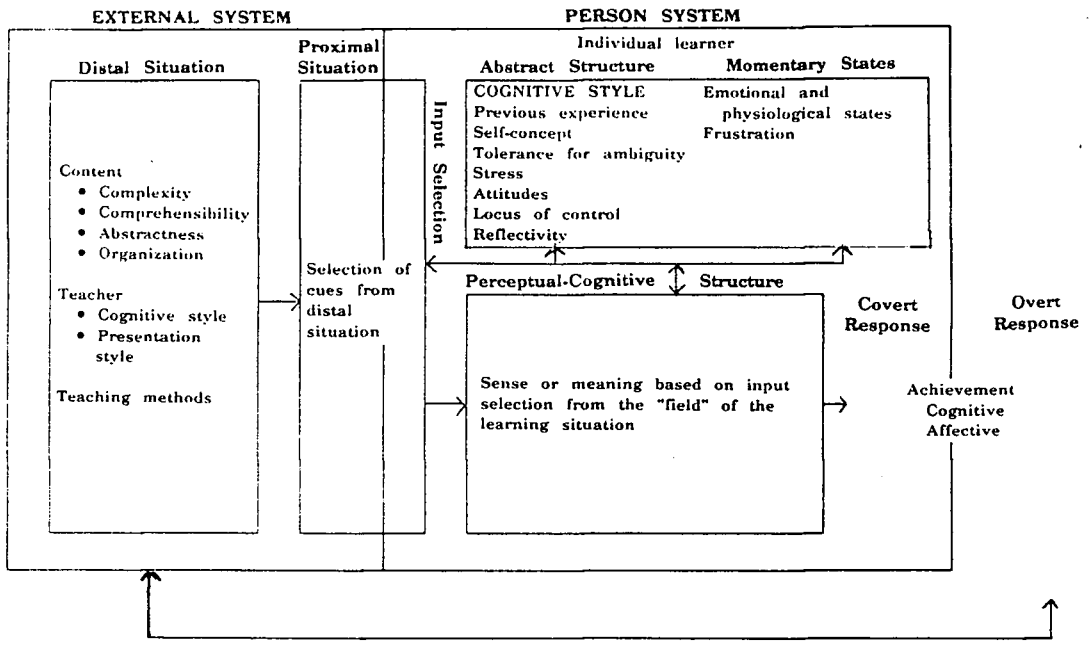

Figure 7b. Summary of concepts related to research studies on cognitive style

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Donnarumma et al. (1980) suggested that there may be situational factors which would enhance learning for field dependent students. Nature of content, teacher characteristics, teaching methods and time are seen as major elements of a learning situation which may interact with student cognitive style to influence learner outcome. Analysis of reviewed studies suggests hypotheses that field dependent students will

perform better in situations with lower complexity and abstractness, higher comprehensibility and organization, and sufficient time to work for mastery. The question of higher performance with field dependent teachers requires further study. Using higher grades as evidence of achievement, do those studies provide evidence of achievement with field dependent teachers or evidence of teacher bias?

Questions of similarities and differences between observations of field independent and dependent learners was not studied and may assist in understanding how cognitive style exerts its effect. Further, questions related to the influence of pleasant and unpleasant momentary states interacting with cognitive style are missing from earlier studies.

Age and Academic ability

Kasworm (1980) explored prior research regarding academic capabilities of older students and cited evidence that older students learn as well or better than traditional age undergraduates. She reported a study of intellectual and socio-emotional orientation of younger (18-22 years) and older (26 and above) undergraduate students, using stratified random sample with class standing for the younger group and age groupings for the older group. The Omnibus Personality Inventory-Form F (OPI-F), constructed to assess selected attitudes, values and interests in relation to academic and ego-functioning activities of students, was the primary research instrument. Kasworm reported rejection of the null hypothesis, that there would be no significant differences between younger and older students, for several of the 14 OPI-F scales (see Table 2).

Terms are suggestive of the construct definition in each case with these possible exceptions:

Complexity -- tolerance of ambiguity

Masculinity/femininity -- differences in attitudes toward men and women

Response bias -- test taking attitudes.

There were no differences for Thinking Introversion (liking for reflective thought), Autonomy (non-authoritarianism), Religious Orientation (religious liberalism), Social Extroversion (preference for relating to others socially), Altruism (degree

Table 2

Comparison of Younger and Older Students, Omnibus Personality Inventory (Kasworm, 1980)

Younger Students (18-22 years)	Older Students (26 years and above)
Estheticism (p<.05)	Theoretical orientation (p<.05)
Complexity (p<.05)	Personal Integration (p<.01)
Impulse Expression (p<.01)	Lack of anxiety level (p<.01)
	Masculinity/Femininity (p<.01)
	Response bias (p<.01)

of affiliation), Practical orientation (interest in applied activities and material positions), nor on the Intellectual Disposition Category.

In comparison of the older students by age groups, there were three scales which displayed incremental differences. Impulse expression was highest in the young group (18-22) with increasingly diminished scores by age increments. Personal integration and Lack of anxiety showed increasing gains from the younger through each successive age category.

Kasworm concluded that increasing age denoted a higher probability of more mature, self confident, less impulsive individuals. The study did not support conventional wisdom that older persons have higher levels of autonomy, fundamental or orthodox religious beliefs, or practical outlook on life. Figure 8a presents Kasworm's findings in the interactive framework.

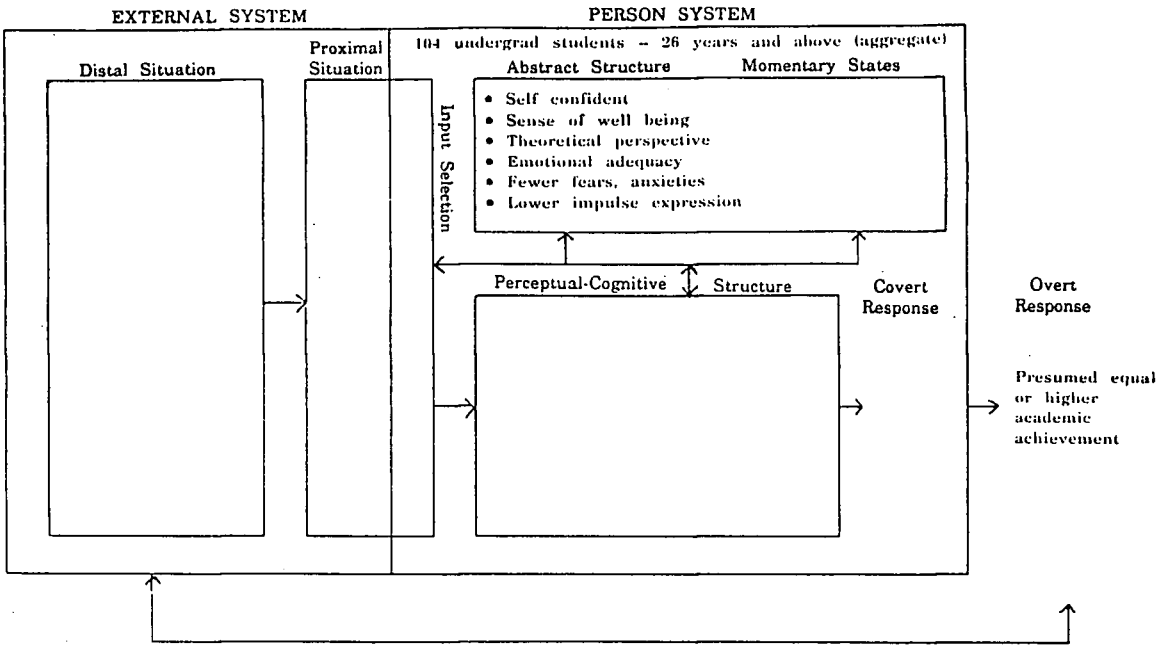

Figure 8a. Socioemotional orientations of older undergraduate students (Kasworm, 1980) -- with interactive framework superimposed

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Ancestry

In one cited study, Hull (1969-1970) reported significantly higher academic achievement for older women (24-44 years) who entered as freshmen than for younger entrants. Older women, on average, achieved .6 grade point average higher than predicted from pre-entry grade index, while younger women achieved .1 GPA above prediction. Hull speculated that older women are more highly motivated toward academic success.

Descendency

The SSCI, 1981-1984, revealed two studies which cited Kasworm (1980).

Rebok and Offerman (1983), citing Kasworm, developed the concept of self-efficacy as a characteristic of older college students. (Not defined, the context of the study suggests "older student" refers to 60 or older). They acknowledged a wide range of prior research which suggests lack of cognitive ability in older adults, and a relatively small body of evidence which suggested that older college students perform as well if not better than younger students. Rebok and Offerman suggested a different approach to the question. While cognitive skill enhancement is a major goal of education, an equally important goal is improvement of self-knowledge or self-efficacy, defined as judgment about how well one can organize and execute courses of action.

Efficacy theory predicts that individuals in novel situations self-evaluate, compare themselves with others and with themselves at other points in time. Rebok and Offerman proposed a schematic model, briefly summarized as follows. Sources of information used for self evaluation include: past and present performance, vicarious experiences (role models), verbal persuasion, and physiological arousal. An incentive system in the situation may be either positive or negative. Self-efficacy expectations contribute to behavior in cognitive/intellectual, social/intellectual, Figure 8b presents

a modified form of the model in the interactive framework.

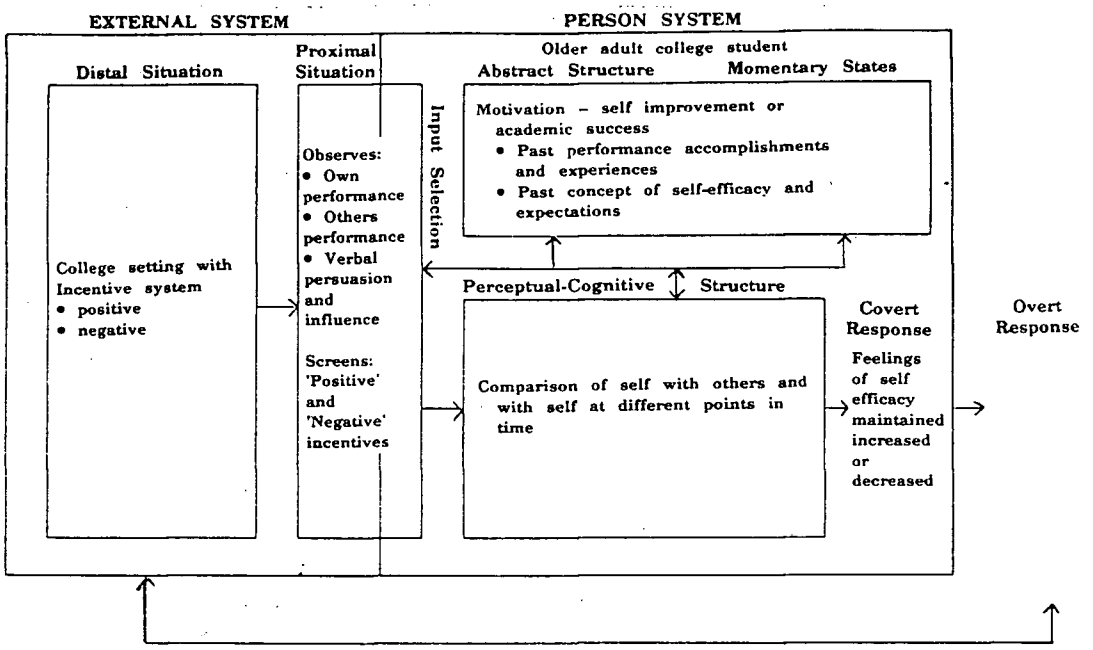

Figure 8b. Self-efficacy in the older undergraduate student (Rebok & Offerman) -- modified in the interactive framework

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A growing body of research and a shift in theoretical perspective from the general decline model of cognitive ability was reviewed by Labouvie-Vief (1976). Citing Rebok and Offerman, Labouvie-Vief attributed much of earlier research findings to cohort or generation effects and use of institutionalized, unhealthy samples. She proposed a shift in research toward environmental effects and sources of variability both within and between individuals.

DAI Review

Four dissertation abstracts were identified as related to the older student as an undergraduate. In a survey of adults over 60, Covey (1979) compared college students and non-students. Students had higher educational attainment, younger self-conceptions, higher income and occupational status, and reported higher physical and mental activity than non-students. No differences were evident in reports of social activity or in perceptions of good health. Reasons for enrollment were more often self-betterment, than social adaptation or problems of aging.

Gerster (1980) studied interaction between person characteristics of age, gender, and academic confidence, and perception of environmental variables of autonomy, affiliation and instructional support. Subjects were 223 university students in three age groups between 18 and 43. Her assumption was that when individuals are asked to describe the educational environment, they may at the same time describe individual characteristics. She found significant relationship between academic confidence and positive perceptions of all three environmental factors. There was no reported analysis of relationship between age groups and academic capabilities.

In a study of 115 university students (25 years and older) Strahan (1982) reported increasing age to be associated with lower achievement and anxiety. Gurley (1984) found minimal support for the hypothesis that, compared with traditional age

students, adult learners would (a) exhibit higher motivation, (b) be more field-independent, (c) exhibit specific personality traits, (d) exhibit advanced learning style, and (e) prefer andragogical teaching style. She concluded that adult learners are not significantly different from traditional age counterparts, and that how one learns is not a factor of age but individual difference.

Analysis

Kasworm's findings of differences in characteristics of traditional and older undergraduate students suggested personal attributes conventionally associated with maturity. Academic success was not studied. Hull assumed maturity and found higher levels of academic achievement. Each of the dissertations approached the question from a different vantage point. No unifying theme was identified, generalizations which might be drawn were not apparent.

Orientation about what constitutes "older students" varies from as young as 24, to 60 and over. Kasworm stratified the adult sample by age groups and reported analysis of incremental differences. While age range (or the lower limit of the range) was specified in each study, the relative distribution tended not to be reported. In studies which treat age as a major independent variable, such an analysis might assist in interpretation of mixed findings.

Varied theoretical orientations were used. Personality characteristics (Kasworm; Gurley), academic achievement (Hull;

Strahan), self-efficacy achievement (Rebok & Offerman), cognitive ability (Labouvie-Vief), comparison of student/ non-student characteristics (Covey), and interaction of academic confidence and perception of environmental factors (Gerster).

In personality characteristics, Kasworm concluded that adult students are different from traditional age students; Gurley concluded that they are not. In academic achievement, Hull reported higher achievement for adult students; Strahan found lower achievement.

Concepts used to differentiate older students reasonably could pertain to younger persons as well. For example, self-efficacy, judgment about how well one can perform, could apply from childhood throughout the life span, though its sources and effects might differ.

Interactive elements in studies of achievement in older undergraduate students. The interactive framework was used to organize elements from these disparate studies to seek some unifying theme (see Figure 8c). On the situation side of the interaction, one element was identified:

1. Academic climate -- Rebok and Offerman suggested that settings differ in positive and negative "incentive systems." Gerster identified autonomy, affiliation, and instructional support as environmental factors. A body of literature related to climate factors exists and could be used to develop a research base on the relationship of older students within varied academic climates.

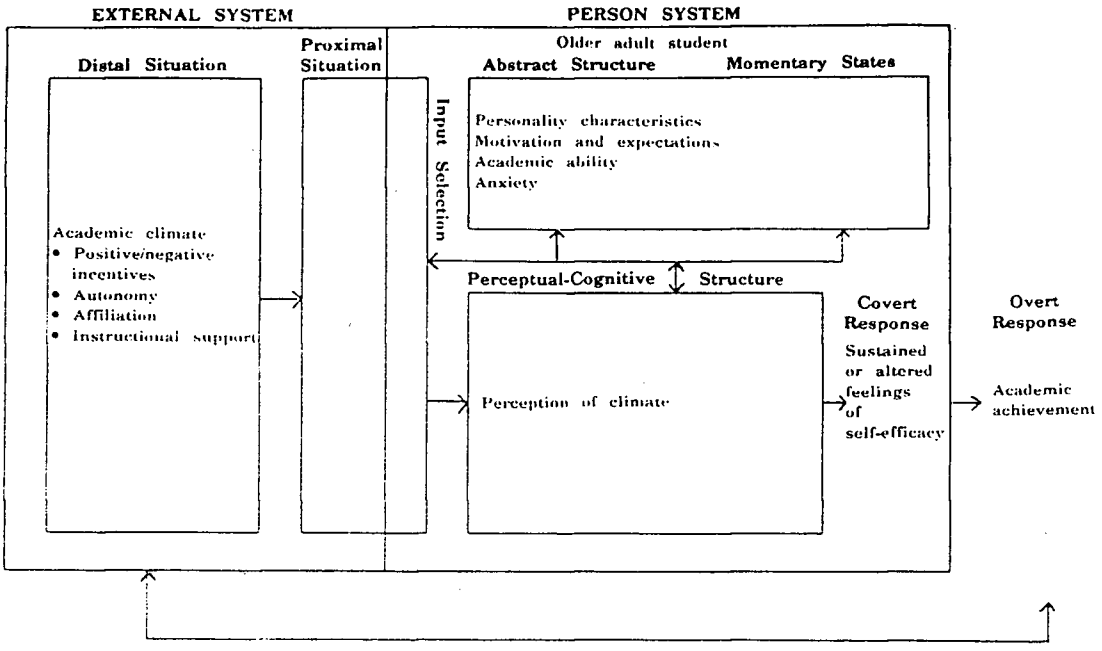

Figure 8c. Interactive elements identified from studies of adults in academic settings

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What are the similarities and idiosyncracies of adult students in academic settings? A number of person elements were suggested from this sample of studies.

1. Abstract structure:

Personality characteristics -- Kasworm described adult students in the aggregate as more mature, self confident, and less impulsive.

Motivations and expectations -- Rebok and Offerman suggested that adults have motivation for self-improvement or academic success, and expectations of self-efficacy related to past experiences.

Academic ability -- Contradictory findings were

reported. It seems reasonable that since variations in academic ability are known to exist among traditional age students such variation would continue for adults. The nature of the academic setting and its appeal to adults with varied motivations and abilities would confound efforts to demonstrate a consistent superior ability for one age group over another. Assuming with Labouvie-Vief, that in general adults do not lose the capability to learn, relative individual academic ability is seen as a more important issue than aggregate comparisons.

Academic confidence, feelings of self-efficacy -- Gerster demonstrated that self-confidence influenced positive perception of the environment. A similar concept, feelings of self-efficacy, was seen as being affected by the environment (Rebok & Offerman), suggesting a reciprocal relationship between climate and self-confidence or -efficacy.

2. Momentary states -- This sample of studies is silent on possible effects of temporary emotional or physiological conditions for adult students. What satisfactions, frustrations, transient anxieties are part of the adult student's experience and how do such factors affect the interaction?

3. Perceptual-cognitive structure -- Gerster found a relationship between abstract structure (confidence) and positive perceptions of environmental variables, supporting a basic assumption of the interactionist model, that elements of abstract structure and momentary states do influence perception

(Nystedt, 1981). No other studies were found which attempted to explore that relationship.

Conclusions. Adults are no more homogeneous with regard to academic ability than are younger persons. Mixed findings in this cluster of studies are interpreted as evidence that age and academic ability are independent constructs bearing no consistent relationship with one another.

Relationships between age and other person characteristics (e.g. cognitive development or field dependence-independence) are seen as potentially important issues for study to further understand whether and, if so how, age related constructs have a systematic effect on academic ability.

Developmental Tasks

Merriam and Mullins (1981) reported an exploratory study of the perceived importance of Havighurst's developmental tasks to a sample of 540 adults with equal distribution by age group, gender, and income level. In general, most of the tasks were considered important. They were more important for the middle income group but not significantly so, significantly more important for women ($p<.025$), and there was no significant difference for age. Figure 9a presents those findings in the interactive framework.

Havighurst's developmental tasks (cited in Merriam & Mullins) were based on the concept that adulthood tasks arise from a combination of social expectations and personal values and are 'time sensitive,' that is, there is a critical period when a particular task must be learned, and delaying it complicates its achievement and prevents the learning of subsequent tasks.

Tasks for young adults include such activities as selecting a mate, starting a family, and getting started in an occupation, among others. For middle age, tasks include achieving civic and social responsibility, assisting teen-age children to become responsible, happy adults, and adjusting to aging parents; and older adults are seen as adjusting to decreasing physical strength, to retirement and reduced income, and to the death of a spouse, among other tasks. Merriam and Mullins acknowledged a

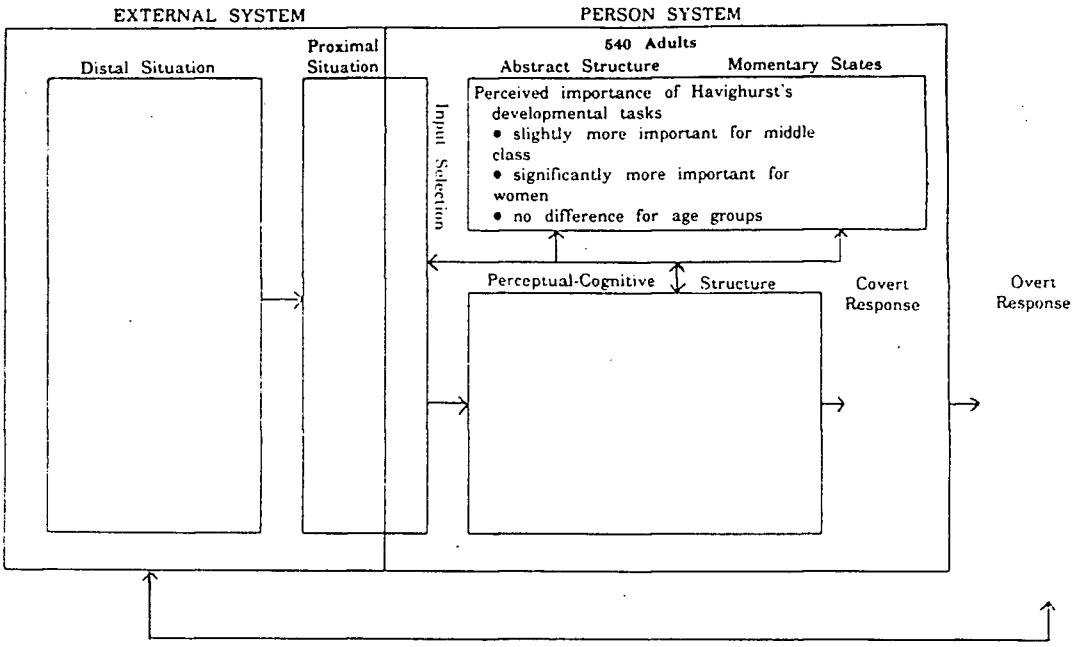

Figure 9a. Perceived importance of Havighurst's developmental tasks -- with interactive model superimposed

wide acceptance of Havighurst's formulation as a basis for planning educational experiences, and questioned whether the tasks may be outdated, or biased in favor of middle class adults.

Ancestry

Havighurst (1953) defined developmental task as:

> a task which arises at or about a certain period in the life of an individual, successful achievement of which leads to his happiness and to success with later tasks, while failure leads to unhappiness in the individual, disapproval by the society, and difficulty with later

tasks. (p. 2)

Sources of tasks are given as (a) physical maturation, (b) cultural pressure of society, and (c) personal values and aspirations. In most cases, tasks arise from combinations of those factors working together.

Descendency

SSCI, 1982-1984, revealed no published studies of this review of developmental tasks.

DAI Review

No dissertation abstracts were identified related to Havighurst's model of development tasks. Two were related to other developmental models. Shelton (1982) found support for Gould's model of adult development for a sample of blue collar workers. Gould (cited in Shelton) conceptualized a developmental sequence involving somewhat age related psychological changes in factors such as sense of time; relationships with parents, friends, children; feelings about personality, job, sex; and major concerns with life. Cherry (1982) studied developmental tasks from the works of Gould, Levinson, and Weathersby, and reported significant differences between all age gender cohorts for three tasks: (a) starting a career, exploring family/community roles, (b) sharing knowledge and skills, helping the next generation, and (c) becoming a serious member of an occupational group. She concluded that

there is a five to ten year decrease in the age at which many tasks and concerns previously attributed to a specified age range are now relevant to the lives of adults 25-55. Age is more influential than gender for type and sequence of tasks, and tasks associated with traditional female roles have a decreased frequency and priority.

Analysis

A central question emerges. Is the concept of developmental tasks as postulated by Havighurst a valid representation of adults? Casual observation supports the notion that adults do select mates, assist teen-agers, manage homes, take on civic responsibilities, adjust to death of spouses, and so on; and that each of those tasks tend, in the aggregate, to occur in a consistent age range. Whether they are time sensitive as put forth by Havighurst, is open to question. It is not clear whether the model posits that every task must be achieved to avoid difficulty with subsequent tasks, or whether only some need to be accomplished. If all, then adults who elect not to marry, or not to have children would, ergo, have more difficulty with all subsequent tasks -- an erroneous assumption. In fact, experience suggests that such tasks as "achieving civic and social responsibility" and "developing adult leisure-time activities" may be enhanced for the adult who is free from family responsibility.

Further inspection of the formulation reveals other questions regarding time sensitivity. To cite one example, the

adjustment to the death of a spouse occurs when and if a spouse dies, and cannot be argued as an invariant task of older adults.

If, as Havighurst asserts, the tasks in which adults engage arise from cultural and social expectations, and personal values and aspirations, then they could be expected to vary for socioeconomic status, and to change over time as the antecedents change. As suggested by Merriam and Mullins, some of Havighurst's tasks may be outdated, and biased for the middle class. For example, there seems to be increasing social acceptance of life style alternatives such as 'living together,' with marriage later, if at all -- suggestive of a task for young adults (or for this phenomenon, any age group) of "Deciding whether and when to marry." Merriam and Mullins concluded that adults in their sample considered the tasks to be "important to them in their lives today." An alternative explanation is that the response could be viewed as a 'personal theory' of the importance of the task to persons in general, rather than importance to themselves. One could believe that assisting teenagers is an important task, without believing that every happy, well adjusted adult must do it, or that they themselves must do it.

A shift in the age at which tasks are manifest as well as a shift away from traditional view of women's roles (Cherry, 1982), seem consistent with Havighurst's view of sources of developmental tasks but not necessarily with the tasks themselves, nor with the concept of time sensitivity.

Whether the tasks constitute, as posited by Havighurst,

time sensitive, age related stages of adult development, it seems reasonable to assume that whenever they do occur for individual adults, there may be associated implications for learner/situation interaction. No studies of potential relationships between current tasks of learners and learning situations were found. Reflective observation suggests that learning activities which focus on a particular task would be more relevant for an adult who is currently involved or anticipating involvement with that task. Such perceived relevance would influence the adults engagement with a learning situation, and the nature of the learning outcomes. Figure 9b sketches an example of these thoughts in the interactive framework.

As an example, consider the situation of an expectant family. One expectant father might be seen as having high anticipation of involvement, expectation to be involved as a coach for labor and as a care giver for the infant, and no past experience or prior knowledge for those roles. Another might have moderate anticipation of involvement, the nature of which is waiting during labor and some minimal infant care responsibility, and may have past experience and knowledge from six other children. As the examples illustrate, these speculations suggest that a more complex interactive model is required than the existence of a broadly defined current developmental task in order to anticipate what a learner's response might be. In the first example, one might hypothesize high motivation for learning, high attentiveness to detail, and

achievement. Whereas in the second, motivation for learning would probably be low to moderate, attentiveness and achievement might be expected to be more general and global.

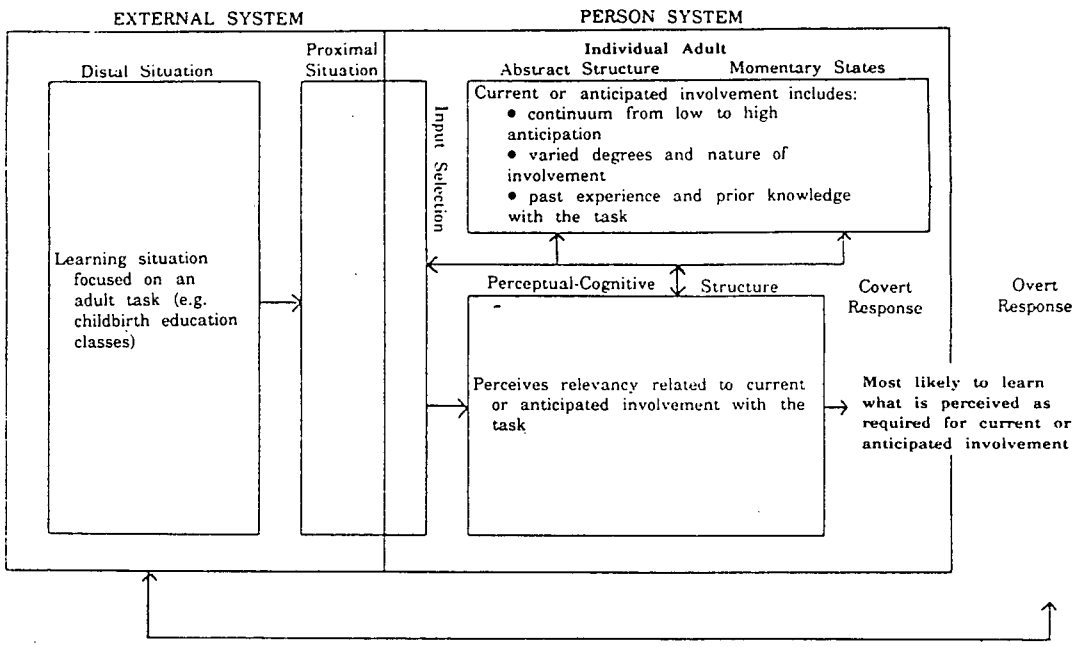

Figure 9b. Hypothesized relationship between developmental tasks of adults and learning situations

Perceived Relevance and Curiosity

Rossing and Long (1981) studied the relationship of perceived value of information and curiosity evoked by surprise with desire to know more about psychological research topics. They questioned whether Berlyne's theory, based predominantly on research with preadult groups, would apply to adults. Berlyne proposed that curiosity, the desire to gain knowledge, can be evoked by surprising information.

Seventy-nine volunteers, 21-52 years of age, who were students in either credit or noncredit courses, participated in the study. Measurement materials were 10 brief accounts of psychological research and rating scales for surprise, personal value, and desire to know more, elicited for each account.

Perceived value correlated significantly with desire for knowledge ($p<.01$). A correlation of .44, positive but not significant, was found between surprise and desire for knowledge. No relationship was observed between surprise and perceived value ($r=.11$). Figure 10a illustrates these findings in the interactive framework.

Ancestry

Rossing and Long suggested information processing differences as a factor in adult response to surprise. Along those lines, DiVesta (1974) identified differences in adult cognitive process. The basic premise is that the adult's

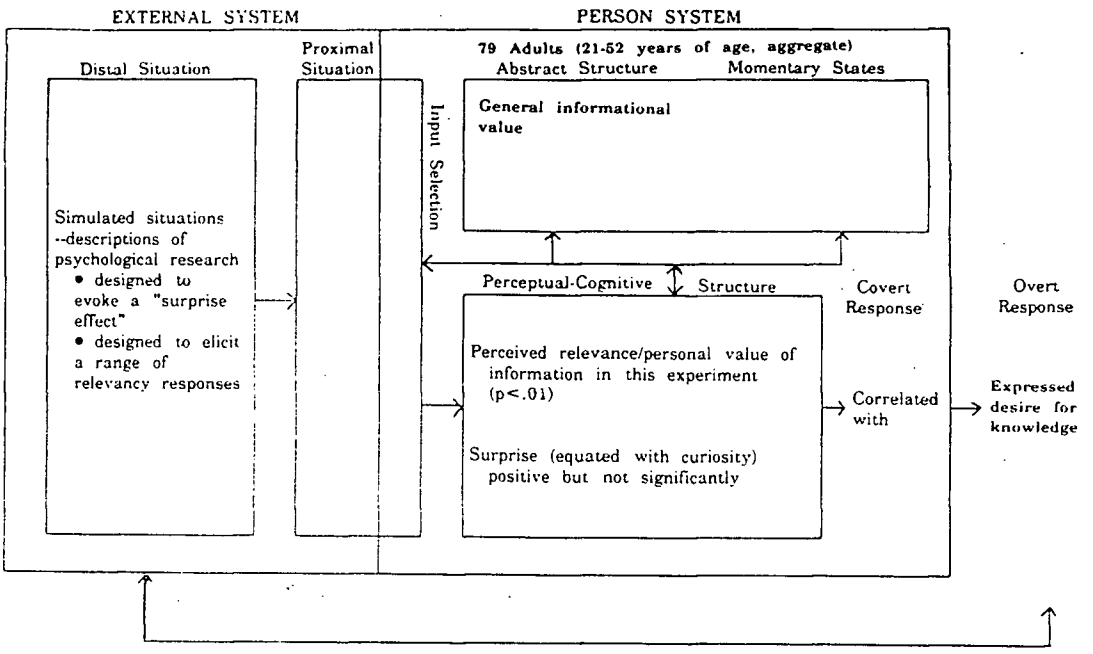

Figure 10a. Surprise (curiosity), perceived relevance and desire for knowledge (Rossing & Long) -- with interactive model superimposed

cumulative experience in some way influences information processing. Vast differences exist in the way knowledge has been organized by each individual.

DiVesta asserted that the adult learner's task is unlike that of a child, having a larger set of concepts to put together in different ways to acquire or even to create new knowledge. Relative to the child, the adult's learning is more concerned with relating material to what he already knows. This has the disadvantage that highly structured knowledge patterns may resist change. Discrepant information may be rejected, thus limiting its usefulness in stimulating curiosity as a motivation for learning.

Descendency

One study which had cited Rossing and Long was revealed in the SSCI, 1982-1984. Koran, Morrison, Lehman, Koran, and Gandara (1984), citing Rossing, studied curiosity in 234 museum visitors of all ages. Visitors were observed under two sets of conditions. Baseline data were obtained with objects on display in closed cases. Experimental data were obtained with the same objects on tables available for visitors to touch, move, and inspect. The number of people who entered the area increased significantly ($p<.001$) during the experimental condition. Children were significantly more likely to enter the area than adults ($p<.05$).

Research was cited which supports the tendency for adults and children to be attracted to novel and complex situations. Possible interpretations for the difference between adults and children in this study were given. Children appear less inhibited in the type of situation presented, and manipulation of objects is considered a legitimate activity in many schools. Adults have less recent history of such involvement, and many objects may have lost their "novelty."

DAI Review

There were no dissertation abstracts found related to curiosity. One study of perceived relevance was identified. In a study of high school students, Farman (1979) compared two motivation factors: relevance of subject matter to future

careers, and use of hard work on demanding tasks. Both relevance and demanding tasks were positively correlated with student attitudes. Farman concluded that both strategies had complementary influences. Path analysis suggested that neither relevance nor demand had direct effect on student effort. Influence was mediated through students' attitudes about importance and enjoyableness of the lesson.

Analysis

These studies suggest that curiosity, related to surprise, novelty, complexity and so on, has a positive effect on attention and desire for knowledge in adults. However, it seems likely that what is required to evoke curiosity in adults, and the effect of such curiosity on desire for knowledge is mediated by, or combined with other factors in producing that effect.

Perceived relevance, more strongly correlated with desire for knowledge, seems to be an important motivator for adults (Rossing & Long) as well as for younger students (Farman). It seems reasonable to expect that relevance, by its definition, will be associated with motivation for learning. Different and potentially useful lines of inquiry would be to determine how adults arrive at perceptions of relevance, as well as the extent to which relevance could be represented as a continuum for the individual.

DiVesta explained lower curiosity among adults as related to more highly structured knowledge patterns which resist change and reject discrepant information. That view represents an

interesting paradox with Riegel's concept of dialectical thinking as characteristic of mature adults. It seems plausible that prior knowledge structures in adults are capable of either accepting or rejecting discrepant information. Important for the study of adult education, are the circumstances under which each effect is more likely to occur.

Summary: Studies on Characteristics of Learners

The eight clusters in this sample suggest a number of constructs which may be related to how adults experience learning situations. Table 3 summarizes the major constructs for each cluster. Most were ascribable to the abstract structure, as defined for this study. A correlation between ego development and levels of literacy was assumed but not demonstrated. Other constructs were dealt with in the abstract or efforts were made to correlate them with various measures of achievement (covert or overt response). No compelling conclusions emerged. Constructs ascribed to abstract structure included ego development, autonomy, cognitive level, learning style, cognitive style (field dependence-independence), age and academic ability, development tasks, and knowledge patterns.

Two studies dealt directly with constructs which were ascribable to perceptions. Relevance and curiosity were defined as perceived value of information and surprise. Both were found to be associated with desire for knowledge, relevance significantly so. In another study, perceived learning climate was not found to be related to attrition records of teachers.

This sample of studies was silent on elements in the momentary states, such as emotional, physiological, or motivational variables.

Clusters included in this section were, by design, those which focused on the learner. Some related studies did suggest

Table 3

Summary of Major Constructs from Studies on Learner Characteristics

Situation	Person			
	Abstract structure	Momentary states	Perception	Response
ABE classroom (constant)	Psychosocial problems equated with ego development			
Social norms, constraints (constant)	Learner autonomy			
Distance, Mode (variable)				
	Adult cognition			
Environmental match/mismatch (variable)	Learning styles			
Teacher cognitive styles (variable)	Cognitive styles			Achievement
College setting (constant)	Age/academic ability			
	Developmental tasks		Perceived importance of tasks	
Surprising information	Situational knowledge patterns	Curiosity	Perceived relevance	

situation variables. Teaching methods with ABE students, distance, and interaction of environmental factors with learning style were studied or theorized about. Otherwise, situation

effect either was not mentioned or was treated as a constant.

In each of the studies, learners were treated in the aggregate, no studies were found which dealt with idiosyncratic effect.

Within each of the clusters, questions or suggestions for further study were developed. In a general sense, this cluster of studies might be seen as presenting a partial and blurred profile of the adult learner. Momentary states are completely obscured, the perceptions, or 'meaning making' function is almost discernable, and some stable characteristics come a bit more sharply into focus.

Studies on Characteristics of Learning Situations

Five AEQ studies offered perspectives on learning situations for adults, and were analyzed for elements in the situation which might interact with learner characteristics. Topics included (a) telecourses, (b) lecture, and (c) interpersonal and educational orientation of teachers.

Telecourse

In a review of the literature on distance education, Wiesner (1983) devoted particular attention to television-broadcast telecourses and the role of two way communication in their effectiveness. Studies reviewed included comparison of student performance with telecourse and traditional methods; situational variables correlated with student success, (e.g. color vs. black and white); and descriptive studies of distance learners. Wiesner's interpretation of the current state of research in this area is presented in Figure 11a.

According to Wiesner, there has yet to be theory of distance learning which includes the experience of the learner, and the communications process used in a telecourse learning situation. Review of literature on correspondence study, revealed more evidence about concern with learner experience, and emphasis on two way communication. Recognizing the growth in technology and its use for education, Wiesner proposed a

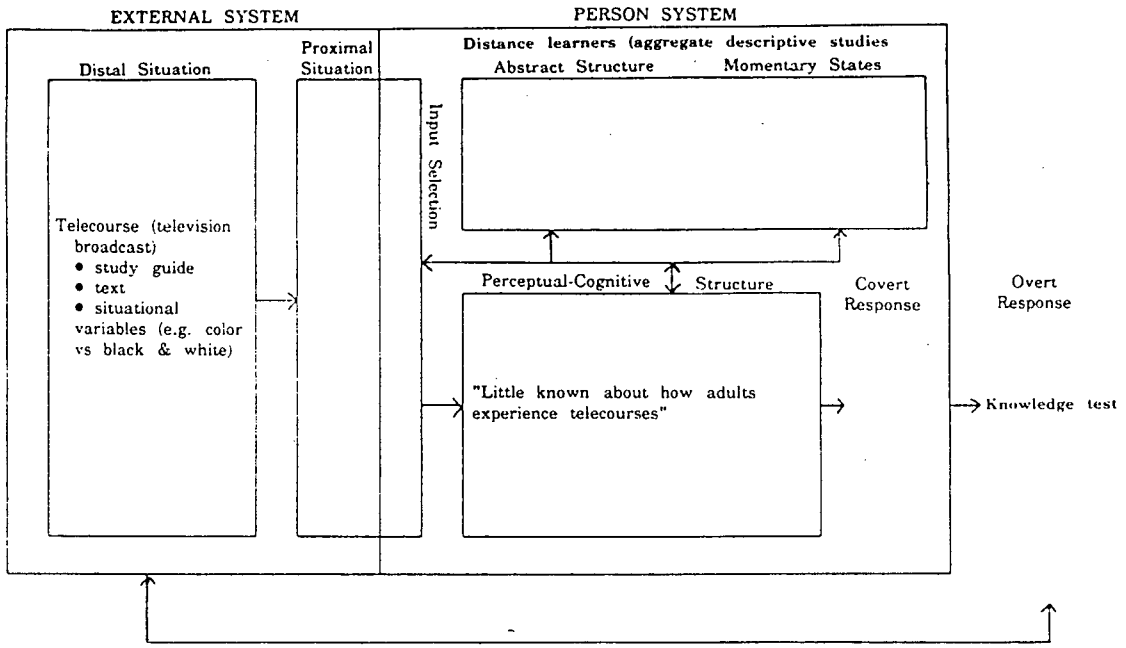

Figure 11a. Research on telecourse reviewed by Wiesner -- with interactive model superimposed

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research thrust to address these questions:

> What are the factors which account for student success and failure in distance learning? What is the proper role of two-way communications given the subject matter, the needs and characteristics of learners, and the availability of institutional resources? . . . Which kinds of students need personal contact the most, the least?" (p. 220).

Ancestry/descendency

Four titles were selected from Wiesner's citations, and were either not available through usual channels, and judged not sufficiently promising for extraordinary measures, or were

eliminated on the second cut, not meeting the criteria. SSCI, 1983-1984, revealed no published studies citing Wiesner's review.

DAI Review

Two dissertation abstracts were identified, one related to telecourse, and one to computer assisted instruction. Rushton (1981) studied traditional and remote methods of instruction with telecourse as the remote method. No difference in learning outcome was found.

Mullings (1982) investigated the effect of control over strategy and structure with computer assisted instruction (CAI). Subjects were randomly assigned to one of eight groups representing varying degrees of control over structure and strategy. No significant differences in achievement were found, however, there were differences in time required to complete the course, with learner control over strategy significantly more efficient.

Other related materials

Moore (1972) differentiated the concepts of distance teaching and contiguous teaching, and proposed a typology for modes of distance education delivery and interaction with learners (see Table 4).

The characteristics, individualization and dialogue, were regarded as continua rather than dichotomies. Moore speculated that degree of distance represented only one dimension of

Table 4

Typology for Modes of Distance Education Proposed by Moore

Individualized	Dialogic:	Independent learning on campus Correspondence
	Non-dialogic:	Programmed instruction Computer-assisted instruction
Non-individualized	Dialogic:	Telephone
	Non-dialogic:	Tape Radio Television

independent learning, with a second, and equally important dimension being the degree of control over learning, or learner autonomy.

Analysis

Studies in this cluster as well as those reviewed by Wiesner, are illustrative of efforts to establish a method/achievement relationship without sufficient regard to its complexity. Multiple situational variables are seldom addressed, and diversity among learners is ignored. Disappointing, mixed results reviewed in Chapter One, as well as those in this small cluster, lead to the conclusion that a shift in research question and approach should be considered.

Consideration of the preponderance of telecourse research, as reviewed by Wiesner, in the interactive framework, supports his appeal for a research thrust on the learner's interaction with this type of learning experience. What person factors (abstract structure -- goals, learning styles, prior knowledge,

past experiences, cognitive styles) relate to various learner perceptions of telecourse experiences? What temporary factors (momentary states -- interruptions, physiological states, emotions) influence attentiveness and response? Perhaps more than in a classroom setting, the learner is potentially subjected to a variety of extraneous stimuli (e.g. telephone, family, other responsibilities). How are those "momentary states" managed, and with what influence on the learning effort? What satisfactions or frustrations, as well as knowledge gains, are associated with the experience?

Lecture

In a review of the research on lecture as a teaching method, Oddi (1983) reported location of 17 sources over a 14 year period; 6 of those sources were concerned with the adult population, the remainder with college undergraduate students. Broadly, the studies were concerned with effectiveness of lecture as compared with other teaching methods and used quasi-experimental design. Varied definitions, and low statistical power in most studies, limited the conclusions that could be drawn. Findings with regard to knowledge acquisition and attitude were mixed. Nine studies reported no significant difference on cognitive achievement. Three identified self-directed approaches as superior for knowledge acquisition. One study focused on identification of learner factors which would interact with lecture or self-directed study for effectiveness, and one on learner elements as outcome measures.

A tendency to regard self-directed study with a more positive attitude was identified in two studies, and negative attitude toward the self-directed approach in one study.

A general summary of the findings with regard to research on lecture is illustrated in Figure 12a. In these reviewed studies, with two exceptions, the learner was essentially treated as a "black box."

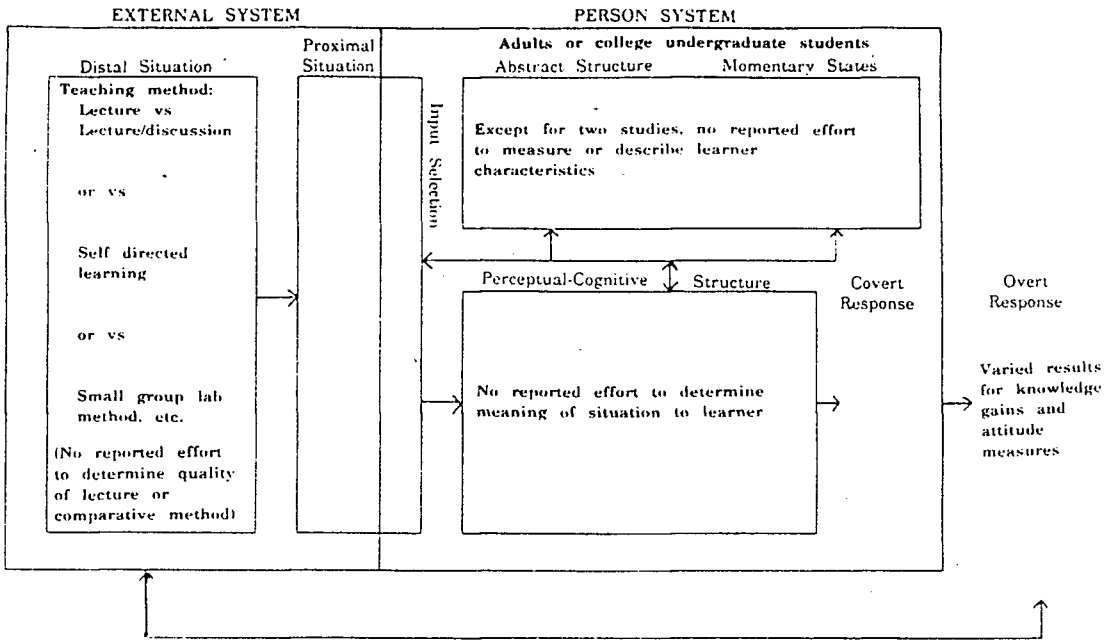

Figure 12a. Research on use of lecture reviewed by Oddi -- with interactive framework superimposed

Ancestry

The two cited studies which dealt with person characteristics were selected for review. Bubenzer (1976) studied informational knowledge, locus of control, interpersonal trust, and dogmatism as independent variables in relation to different amounts of lecture and experiential treatments. No significant differences were found. The two treatment conditions were similar in nature, that is, Treatment A -- 30 minutes didactic, 10 minute break, and 70 minutes experiential session; Treatment B -- 70 minutes didactic, 10 minute break, and 30 minutes experiential session. Both treatments, mixtures

of lecture and experiential methods, were effective in knowledge acquisition (see Figure 12b).

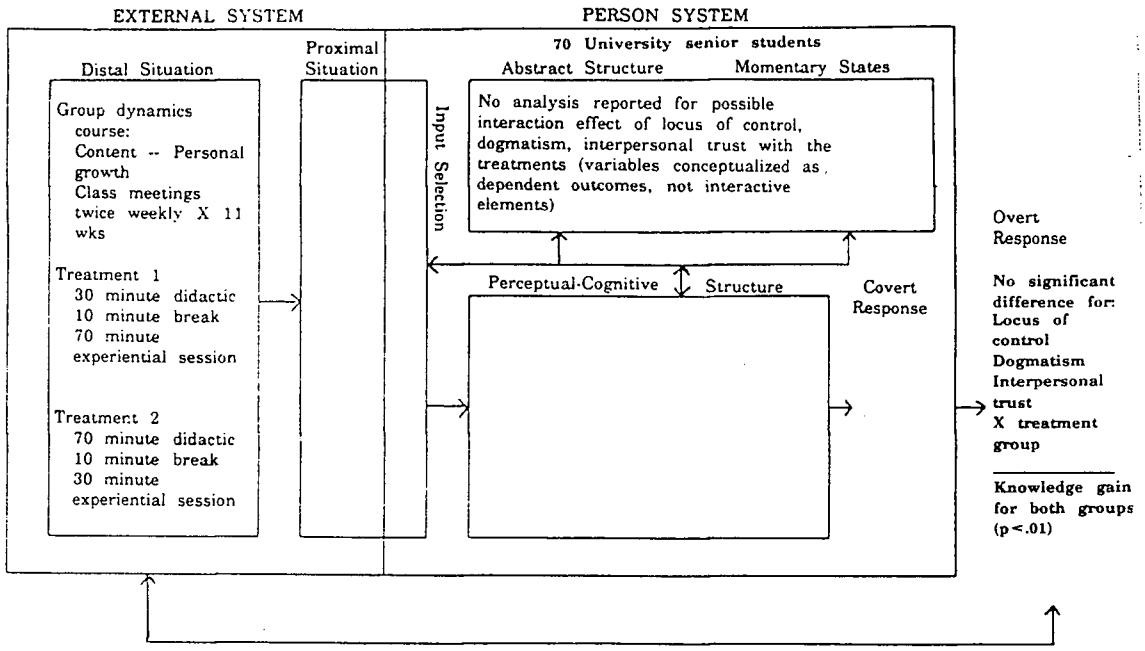

Figure 12b. Effect of instructional method on personality and knowledge acquisition (Bubenzer) -- with interactive framework superimposed

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In the second study cited by Oddi which dealt with learner variables, Stanton (1974) asserted that the usual "no significant difference" finding for teaching methods is an artifact based on use of mean scores which conceal individual variability and produce an "averaging effect." He hypothesized that personality factors and methods interact. His study was conducted in three phases. The first phase, exploratory in

nature, included different groups exposed to lecture and independent reading respectively. A battery of personality inventories was used to explore patterns which might identify students likely to do well in lecture or likely to do well in independent study.

In the second phase, all students were taught the first section by lecture alone, and the second section by means of independent reading. The final phase was a predictive study done to cross-validate earlier findings. Once again, the students participated in both forms of instructional method, with the sections reversed, independent reading used in the first half of the term, and lecture in the second half.

Findings of the first phase showed the high-performing (top third on final exam scores) independent-reading student, compared with the high-performing lecture student, to be more emotionally stable, more assertive, stubborn and competitive; more self-assured, confident; and more introverted (see Figure 12c).

In the second phase, as in the first, mean scores did not differ significantly. If used as the only criterion, it would have appeared that method did not make a difference. However, it was possible to identify a "lecture method superior" group (n=26), and a "reading method superior" group (n=27) where standard scores were at least 1.0 higher for the method identified. Stanton concluded that the "no differences" argument must be rejected because for 50% of the students, teaching method did make a difference.

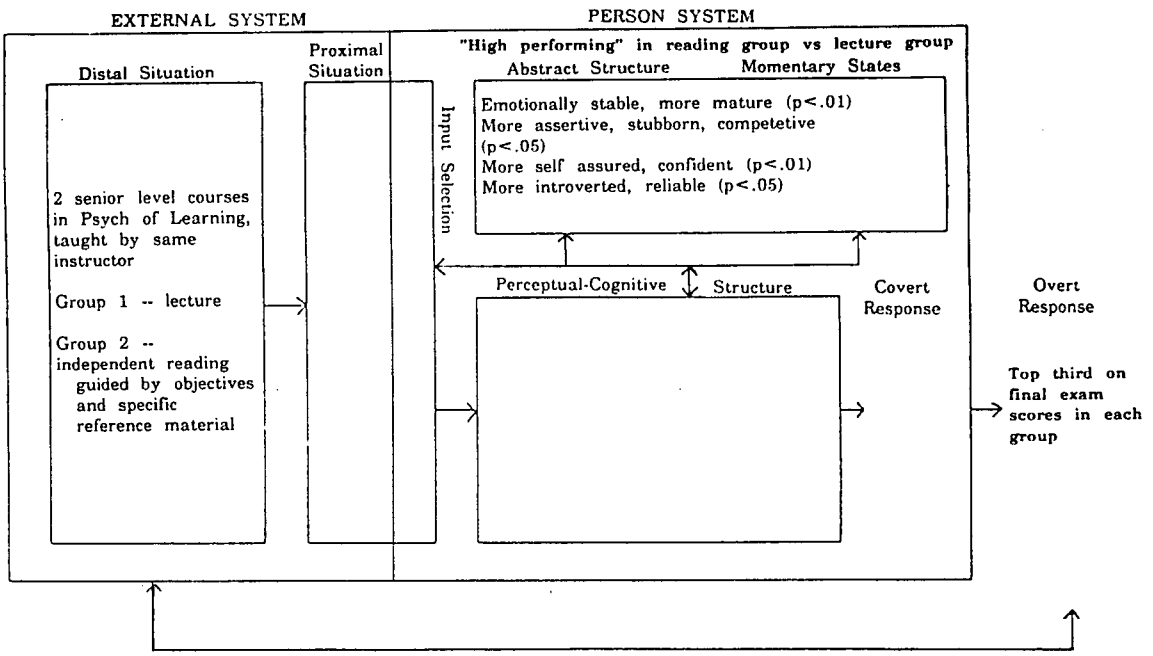

Figure 12c. Interaction between personality and teaching methods -- with interactive framework superimposed

The second and third phases of the study, in which the same students received both teaching methods, did not confirm the findings of the first phase with regard to significant personality variable/method interaction. There was support in both these phases, for the personality characteristics -- self-perceived tenseness, frustration, and anxiety -- to be associated with high performers in independent study. Preference for method, elicited before and after the course, did not appreciably change, nor was it a significant factor in final exam scores (see Figure 12d).

Stanton's findings support his hypothesis of an

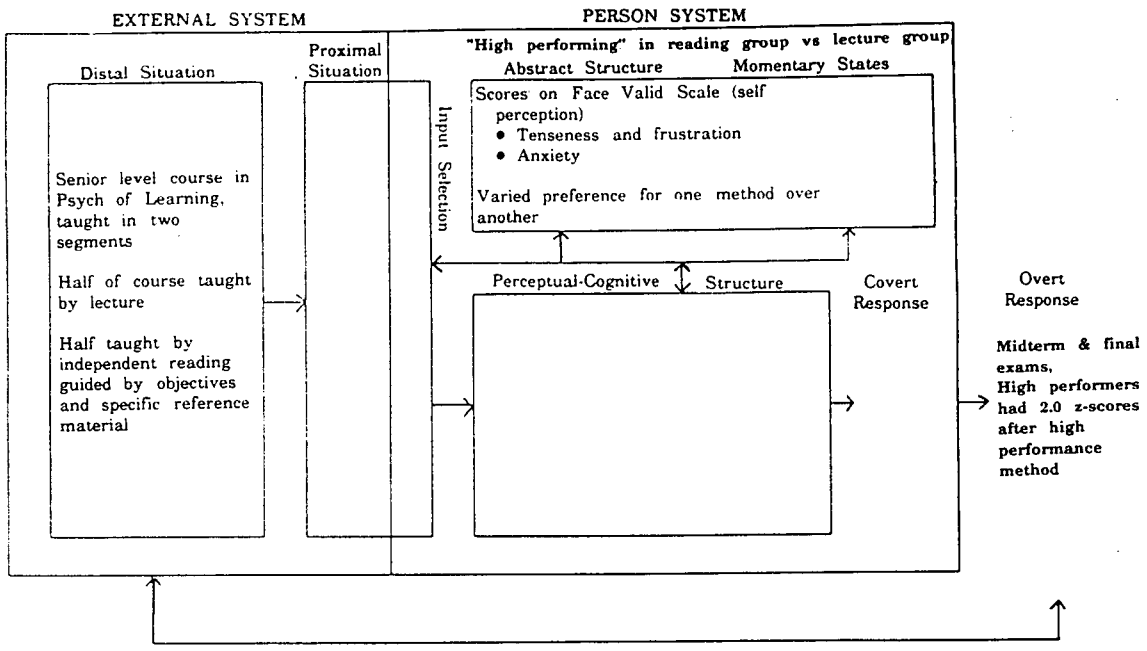

Figure 12d. Personality characteristics, preference, and teaching method (Stanton's phases 2 & 3) interactive framework superimposed

idiosyncratic response to different methods. His efforts to identify predictor personality characteristics associated with each of the two methods were suggestive but inconclusive.

Descencency

SSCI, 1983-1984, revealed no published studies citing Oddi's review.

DAI Review

Four dissertation abstracts were selected as relevant to this topic. Treatment conditions and response measures are presented in Table 34, Appendix C, and findings are summarized. Williamson (1979) studied various conditions of student interview and testing within a lecture format, and reported no cognitive outcome differences. Reduced anxiety and affective changes were associated with the student interview variation.

Strayer (1979) reported significantly higher achievement for lecture, discussion, and simulation without discussion; with attitudes positively related to lecture and simulation with discussion. Bentley (1980) found no significant difference between lecture types. Note taking did not improve results when an outline was provided, but did when there was no outline. Gentry (1983) reported a significant cognitive gain for both methods, but no significant difference or cognitive gain between treatments. There was significance between methods for application/use measures, with application scores doubled for the discussion group.

Analysis

Oddi reported a relatively limited number of studies on use of lecture in the field of adult education. Darkenwald and Merriam (cited in Oddi) reported lecture still to be the most preferred and most used method in adult education. In spite of this, within the field there seems to be skepticism, perhaps

even hostility, toward its use. It seems reasonable that if lecture is to be used or rejected for adult populations, that decision merits study. Both adult education rhetoric about participation and continued use of non-participatory methods have limited basis in research.

Among those studies which were reported, methodological limitations, and varied definitions of terms, limit conclusions that could be drawn. Do those limitations mask a teaching-method effect which does exist, or could it be that no such main effect would be demonstrated in any case? The Bubenzer study leaves open the question of whether teaching methods which are substantially different in kind, as opposed to degree, would affect any of the dependent variables identified for that study.

Studies which show student preference for and response to lecture, as well as those which demonstrate preference and response to participation methods suggest a complex interaction which could include other situation elements, such as nature of the content, and skill and personal characteristics of the teacher. Person elements which have been identified throughout earlier analyses could interact with teaching method to produce varied individual responses. Further, how might those same measures, as independent variables, influence the knowledge outcome? How might they interact with the learner's perceptions of each segment of the methods used? Noting that both combinations of method were effective in producing cognitive knowledge, some learners may have achieved that result in the didactic portion, while others achieved it during the

experiential portion.

Stanton's findings (i.e. aggregate analysis revealed no significant difference for method, yet for 50% of the individual students, method did have a significant effect on posttest scores) suggest an important role for individual variations. Stanton's efforts to find personality factors which might explain learner/method interaction were disappointing, but a whole array of other possibilities exist (e.g. goals, cognitive or learning style, prior knowledge level, as well as other personality characteristics).

Interpersonal and Educational Orientations of Adult Educators

Three studies related to this substantive area were identified in the initial review of Adult Education Quarterly, and are considered jointly.

Holmes (1980) grouped 167 adult educators by andragogical and pedagogical orientation and sought to determine if interpersonal orientation differs for each group. The Educational Orientation Questionnaire (EOQ), and the Fundamental Interpersonal Relationship Orientation Behavior Scale (FIRO-B) were used with a sample of university faculty and extension personnel. Step-wise regression analysis revealed two interpersonal factors (wanted control and wanted inclusion) with significant contribution to variance for pedagogical orientation, and two (expressed affection and wanted inclusion) for andragogical orientation.

Based on the respective directions of these relationships, Holmes described the andragogical educator as comfortable in initiating relationships with others, and wanting others to include him/her as a member of the group. The pedagogical teacher was described as wanting to control, and not wanting to be controlled by others. Figure 13a illustrates these findings in the interactive framework, with the teacher considered a part of the learner's situation.

Beder and Darkenwald (1982) studied whether teachers report

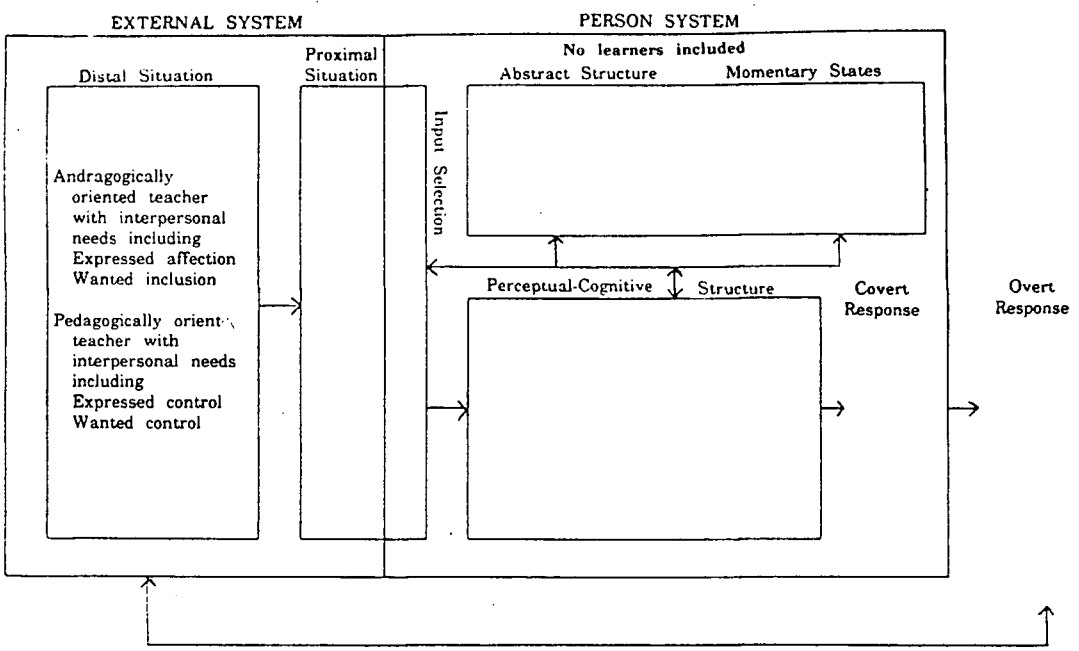

Figure 13a. Educational and interpersonal behaviors of teachers (Holmes) -- interactive framework superimposed

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teaching adults differently from pre-adults, and if so, what are the differences and their determinants. They assumed that adults do differ on psycho-social dimensions relevant to teaching learning transactions; however such differences would not in themselves lead teachers to alter behavior. For this teachers would have to perceive differences, believe they should be taken into account when teaching, and have autonomy in making decisions about the teaching-learning process.

Assuming that teaching differences for adult and pre-adult students were likely to be subtle, the sampling was designed to represent teachers of both adults and pre-adults. Independent variables were (a) perceived differences in characteristics of

adults and pre-adults, (b) belief that different groups should or should not be taught differently, (c) and extent of teacher freedom to teach as s/he saw fit. The dependent variable was magnitude of difference in teacher behavior. Findings supported the hypotheses that difference in reported behavior was greater when the perceived differences between adults and pre-adults was greater, and when the belief that different groups should be taught differently was stronger. Also supported was the hypothesis of inverse relationship between age of pre-adult comparison group and overall difference in teacher behavior. The hypothesis that greater autonomy would be associated with teaching differences was not supported.

In a factor analytic study using the same data, Darkenwald (1982) sought to determine if the teaching differences exhibited a meaningful underlying structure. Two factors, identified by principal components method with orthogonal rotation, were labelled Control and Responsiveness. The factors were reported to resemble concepts of traditionalism/progressivism, or pedagogy/andragogy.

Ancestry/Descendency

No cited studies were selected for trace, nor did the SSCI, 1980-1984, reveal published research from these studies.

DAI Review

Nine dissertation abstracts were identified as related to educational orientations of teachers.

Comparisons of student perception with teacher orientation was the focus of two studies. Grubbs (1981) found a slight tendency toward andragogical orientation for theological faculty in the aggregate, while their students perceived them to be more pedagogical. Kerwin (1979) demonstrated a significant difference in student perceived teaching behaviors of andragogical and pedagogical teachers.

One study reported the development of an instrument to measure teacher use of adult education principles (Conti, 1979).

Teacher educational orientation was found to be significantly correlated with philosophical orientation. Idealists and Realists were pedagogical and subject centered, while Pragmatists and Existentialists were andragogical or learner centered (O'Gorman, 1981).

Nursing faculty were reported to be significantly more pedagogical than other adult educators (Hopkins, 1981).

Bahrayni (1982) used the concepts of dogmatism and openmindedness as factors in teaching style and reported a negative relationship between dogmatism on the one hand, and flexibility, empathy, and warmth on the other.

Lampert (1982) offered the perspective of opposing points of view as a necessary condition of the teaching process. In her study, teachers were reported to resolve dilemmas of

practice, not in terms of a consistent orientation, but by accommodating seemingly contradictory values.

Classroom observation of selected dimensions of teacher behavior were associated with teacher educational orientation, and with student course evaluation (Logue, 1983). Significant findings of difference in teachers' perception of and use of different teaching approaches with adult and pre-adult students were reported (Gorham, 1984), supportive of Beder and Darkenwald's findings.

Logue (1983) studied self-report of teacher and student orientations along an andragogical/pedagogical continuum using the Educational Orientation Questionnaire; actual classroom teacher behaviors using the Educational Orientation Observation Instrument; and student evaluation of those teachers. Findings were: no significant difference between course evaluations from students of similar and different educational orientations; significant relationship between instructor's educational orientation and five dimensions of classroom behavior; and significant relationship between four dimensions of classroom behavior and rating on course evaluation.

Analysis

Holmes study of a potential relationship between teaching and interpersonal orientations raises a broader question. What other factors, either for the teacher as person, or within the situation, influence his/her orientation and behavior. Given the possibility of identification of those factors, how do they

influence the learner's response to the teacher's behavior?

Experience suggests a range of personal styles among teachers who lecture (usually associated with pedagogical orientation), and those who use participatory methods (usually associated with andragogy). How do interpersonal factors vary within those who hold each educational orientation, and might those factors relate in some way to the manner in which a particular orientation is implemented?

Interactive elements related to teacher orientations. While the teacher is considered a part of the learner's situation in this analysis, the elements of the "person system" could be used to analyze the teacher's role in that situation, for example:

1. Teacher abstract structure -- Significant correlations of educational with interpersonal orientation (Holmes), and with philosophical orientation (O'Gorman) identifies two elements in this complex construct which may influence educational orientation. Potential interactants could include a variety of other elements. Two additional examples are given.

Past experience -- Are there patterns in the development of andragogical orientations? How do teachers perceive their orientation to have developed? Does past experience with learners corroborate the belief that adults have special characteristics? Is there a match between the teachers orientation, and either a mentor or a graduate

program attended?

Cognitive style -- Teacher field independence has been related to student evaluation of effectiveness. Is their a relationship between cognitive style and educational orientation, or are the two constructs independent?

2. Teacher momentary states -- The concept, educational orientation, suggests a relatively stable characteristic. However, no research base exists to confirm or refute that assumption. Is educational orientation subject to variation with mood, emotional or physiological variations? If not, is its translation into teaching behaviors subject to those variations?

3. Teacher perceptual-cognitive structure -- Perception of differences in adult and pre-adult students was reported (Beder & Darkenwald; Gorham. The nature of content was suggested as a factor in the teacher choice of teaching style and perception of appropriateness cited as one explanatory possibility (Deshpande et al). What are teacher perceptions of the multiple elements within his/her own situation and how might those perceptions relate to educational orientation or its translation into teaching behaviors?

On the person side of the learner's situation several elements are suggested as potential interactants with teacher educational orientation.

1. Learner abstract structure -- The learner's own orientation of their adulthood and its learner-role

implications is a potential interactant. How do learner expectations of their own appropriate role influence the teacher's perspective?

Learner cognitive style has been suggested as a variable in achievement (Donnarumma et al., 1980). Are teachers of field independent students more likely to perceive them as having "adult" characteristics, and to alter their teaching style accordingly?

2. Learner response -- Learner behavior, cognitive and affective responses could be considered feedback to the teacher in terms of effectiveness. Are there shifts in educational orientation over time and, if so, what is the relationship between learner response feedback and those changes?

Summary: Studies on Characteristics of Learning Situations

The sample of studies clustered around learning situation characteristics seemed to fall in two categories: the continuing search for method-achievement (process-product) correlation, and the 'person system' of the teacher, primarily educational orientation. Table 5 summarizes the major constructs from each cluster.

Table 5

Summary of Major Constructs from Studies on Situation Characteristics

Situation	Person			
	Abstract structure	Momentary states	Perception	Response
Telecourse	Demographic characteristics			Achievement
Lecture	Personality characteristics (one study)			Achievement
Educational orientation/ Interpersonal orientation				

The studies of method tended to treat the learner as a "black box." In one exception there was support for learner/method interaction and efforts were made to demonstrate

predictive factors.

In general, the studies also treated the situation itself as a 'black box,' with other situation elements not mentioned or treated as constants. For example, there was no reference to teacher variables or content variables, which might interact with method to produce its effect.

It is interesting to note that studies similar to the "teaching effectiveness," "classroom observation" studies in general education, were not evident in this sample. Attribute Treatment Interaction studies also were limited. Of a number of plausible interpretations, one is that adult education researchers may not use the general education literature as a part of its base.

Studies of teacher orientation start with an implicit or explicit assumption that andragogy is an appropriate orientation for teachers of adults and seek to determine to what extent teachers have that orientation and use it in their practice. No studies were found in which other situation variables such as content and goal, or learner variables related to relative attainment of andragogical characteristics, were studied.

There is a sense of connection among the studies in this cluster: the constructs are similarly defined, and a number of studies use the same instruments, and yet there are no compelling findings of theoretical significance. The primary research question has been whether teachers hold andragogical assumptions and report using them in practice. Perhaps a shift in the research questions would be useful. How those

assumptions are translated into behaviors, under what circumstances the teaching behaviors vary, and how learners perceive and respond to the teacher would be fruitful questions to demonstrate when andragogical assumptions might be appropriate.

Studies on Interaction Between Learners and Situations

Three AEQ studies offered perspectives on interaction between one or more situation elements with one or more learner variables. Topics included (a) learner participation in course planning, (b) learner perceptions of teacher behavior, and (c) interaction of prior knowledge and advance organizers. Those studies, with their clusters of related studies, are described and analyzed within the interactive framework. Two theoretical articles, perspective transformation, and power-load margin as a teaching model, were analyzed. Judged to be substantially different from the research based analyses and not useful to the purposes of this study, those sources were excluded from this report and file copies of the analyses were retained.

Learner Participation in Course Planning

Rosenblum and Darkenwald (1983) studied the effect of participation in course planning on achievement and satisfaction. A posttest only, control group design was used in two field experiments. For the experimental groups planning was accomplished during the first class session, using Nominal Group Technique. The control groups were given the same class without participation in planning it. The authors assumed "positive outcomes because high priority needs are likely to be identified, relevant goals set, and a 'better' course designed,

and because participation in decision making should engender feelings of ownership of the course and responsibility for its success" (p. 151). Results were not in support of greater achievement and satisfaction with participation. In fact, the control groups' scores for achievement and satisfaction were higher than the experimental groups in both experiments. It was concluded that results were consistent with the "better course" rationale, but were inconsistent with the "feeling of ownership" argument. Figure 14a illustrates concepts as developed by Rosenblum and Darkenwald with the interactive framework superimposed.

Ancestry

One study cited by Rosenblum and Darkenwald which addressed the issue from an educational perspective was reviewed in the original, and four additional cited studies were reviewed in abstract form or from secondary sources.

Cole and Glass (1977) studied the influence of participation in program planning on achievement, retention and attitude. Experimental group subjects were involved prior to the beginning of the class, and a cooperative planning session was held at the conclusion of each week's instruction to plan for the next week. Findings were that participation had a significant effect on group achievement scores, mixed results on attitudes, and no effect on retention.

McLoughlin (1971) found that participation in course planning did appear to have a positive effect on attitudes about

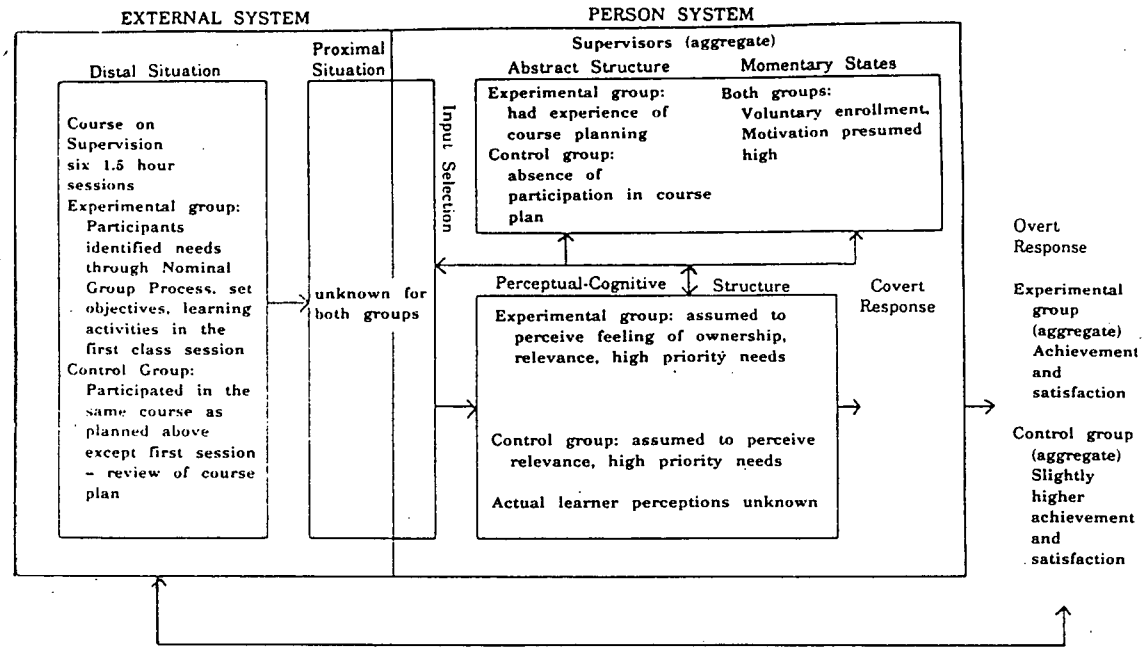

Figure 14a. Participation in course planning, achievement and satisfaction (Rosenblum & Darkenwald) -- with interactive model superimposed

the educational experience, while there was no evidence to support the hypothesis that such participation affects adult achievement. "Participation in planning" was not defined. McLoughlin suggested further research regarding the notion that some people may value participation in program planning while others do not.

Results reported by Welden (1966, cited in Cole & Glass, 1977), Semberger (1972) and Vedros (1979) also were mixed. Vedros reported higher achievement, but no difference in satisfaction with participation in planning; Semberger found no effects; and Welden reported greater satisfaction as a result of participation. Operational definitions of participation,

achievement and satisfaction either were not specified or varied from study to study.

Descendency

The SSCI, 1983-1984, revealed no published research citing the Rosenblum and Darkenwald study.

DAI Review

Three dissertation abstracts were identified related to participation in course planning. One of those (Vedros, 1979) was previously discussed as part of the study's ancestry, and one was Rosenblum's (1982) dissertation on which the published research report was based.

Coates (1981) reported a study of satisfaction, feelings about relevance, and realization of premeeting expectations within structured and unstructured sessions. The structured method was designed and guided by instructors, and the unstructured method involved participants in decisions on content and operations of the sessions, orientation programs for elected city officials. None of the hypotheses regarding positive effect of involvement were supported. In fact "structured" group participants were more satisfied than "unstructured" group participants.

Analysis

Viewed together, these studies raise questions about what constitutes participation in planning and the basis for its effect, if any. Is it uniformly or differentially effective for those who are involved in planning? How do the perceptions of those who are and are not involved in planning, affect the outcome? Rosenblum and Darkenwald concluded that their results cast doubt on the "ownership" rationale. It seems reasonable to assume that a feeling of ownership would require the participant to perceive a substantial involvement in the planning process. As the variable "participation in planning" was conceptualized, it is possible to question whether the participants perceived their activity to be, in fact, a significant contribution to planning. It may be that a "feeling of ownership" is an important factor and simply did not occur in this study, or that a "feeling of ownership" occurred for some individuals and not others, and was lost in the "averaging" effect of aggregate analysis.

It is not possible to determine the perception of either the experimental or control groups from the study report, yet that perception may have greater relationship with the outcome than participation or nonparticipation in planning as perceived by the investigator and carried out in the study. Within an interactionist theoretical perspective, each individual could be expected to respond to the situation as s/he perceives it. Since perceptions may vary, individual responses would also be

expected to vary.

Interactive elements related to participation effect. On the situation side of the interaction, a number of factors may contribute to mixed results of participation effect, for example:

1. The studies used varied operational definitions of the independent variable, "participation in planning," and treated it as a binary function. It may be more meaningfully conceived as a continuum of involvement, mediated by factors within the individual, rather than a binary function.

2. Situation factors other than participation were managed by control group design. It seems reasonable that some elements were not possible to control, for example, interactive and social differences with a different mix of learners.

3. Types of learning situations selected as settings for the studies varied. Some situations could provide a narrow range of choice, limited options for planning, others offer multiple possibilities for decision making. Perhaps the effect of participation in planning is modified by the amount of choice participants have, or perceive they have, to influence the plan.

On the person side of the interaction, a number of factors might interact with "participation" to produce an idiosyncratic effect. Use of the interactive framework for analysis brought

several plausible learner variables to light, for example:

1. Abstract structure -- Studies included one element of abstract structure, experience of participation as defined by the researcher(s). In further study, it may be fruitful to explore the interaction with other elements in the abstract structure. How do learners differ in the value they attach to "participation," in their cognitive representation of what constitutes "participation"? Are there developmental stages at which participation effects are enhanced or diminished? How do varied goals, motivations, prior knowledge interact with "participation in planning"?

2. Momentary states -- Transient conditions of learners were not accounted for except as assumptions (e.g. high motivation). How do learners differ in their emotional and physiological states at the time of either "participation in planning" or the educational experience?

3. Input selection -- Are there variations in the observations made during either "participation" or the educational experience?

4. Perceptual-cognitive structure -- How do learners describe their own perceptions of the activity believed by the teacher/researcher to be "participation in planning"? How do they perceive the educational experience itself?

5. Response -- Finally, how do any of the suggested variations interact with the variable, "participation in planning" to produce an effect on achievement and

satisfaction?

Analysis of this cluster of studies within the interactive framework suggested a complexity which will be difficult to unravel if conclusive results are to be obtained. If each of the suggested variables is plausible as a potential influence on "participation" effect, it is reasonable to assume that multiple combinations of these and others may be involved and may produce idiosyncratic effects.

The authors of each study offered alternative explanations for the findings and agree that the effect of participation in planning on achievement and satisfaction requires further study. Perhaps a shift in the question from "What effect does participation have on achievement or satisfaction?" to "By what process does participation in course planning affect outcomes?" or "Under what circumstances is participation in course planning related to positive outcomes?" would provide fresh approaches regarding the inquiry into the nature of that relationship.

Framework for further study. Using explanations from the cited studies and the interactive framework, points in the interaction at which participation in planning might be expected to influence outcome were identified. A suggestive list of possibilities will serve to illustrate how an interactionist theoretical framework might be used to develop alternative questions and hypotheses for further study involving these phenomena.

1. Perhaps participation in planning by learners or

learner representatives, actually produces a different educational situation, more relevant -- a "better course" hypothesis (see Figure 14b).

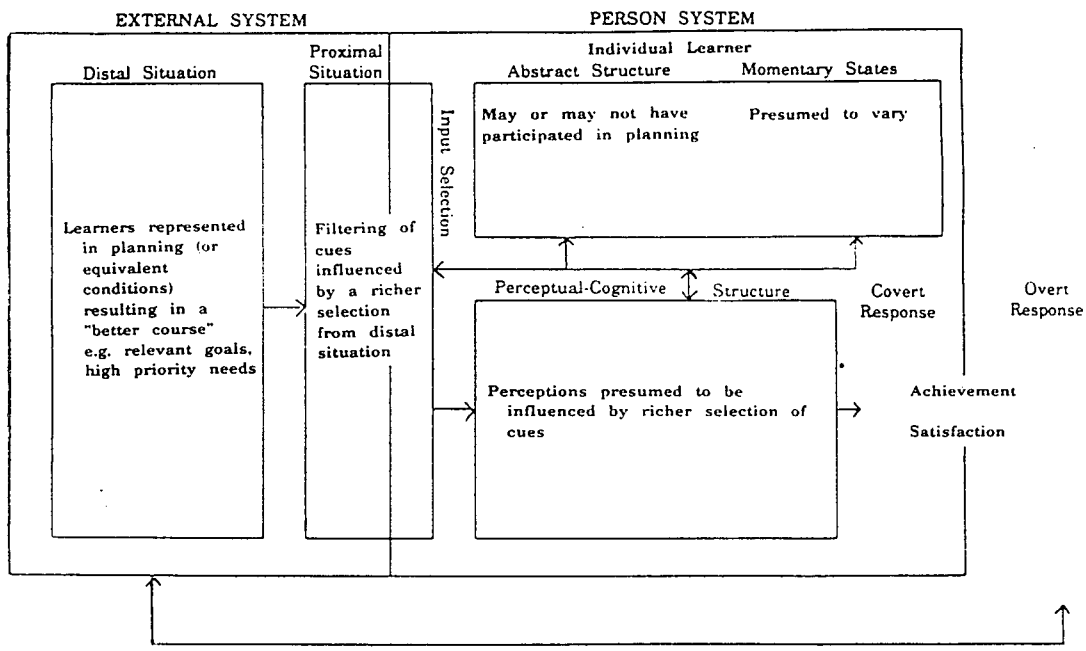

Figure 14b. "Better course" hypothesis for effect of participation in planning

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Premise: "Better courses" result in higher achievement and satisfaction for adult learners.
Premise: Participation by adult learners in course planning results in "better courses."
Conclusion: Participation by adult learners in course planning results in higher achievement and satisfaction.

If such an hypothesis were the only manner in which "participation in planning" produced its effect, then any

"better course," regardless of its origin, could be expected to produce equivalent results in the aggregate for all learners. If the "better course" hypothesis were necessary and sufficient to explain higher achievement and satisfaction, and if what constitutes a "better course" is stable for different learners, then it would hold for learners who did not participate in planning as well as those who did participate, since all would be exposed to the same "better course." Further, since it might be assumed that people vary in requisite knowledge and skill for building "better courses," satisfaction and achievement could be expected to vary with the degree to which a "better course" was achieved. To the extent that what constitutes a "better course" varies for different learners (e.g. degree of match between learner goals and course goals), different responses would also be expected.

2. On the other hand, participation may produce its effect directly on the learner. One such effect could be that participation in planning increases the feeling of responsibility for the course -- an "ownership" hypothesis (see Figure 14c).

Premise: A feeling of ownership in a course results in higher achievement and satisfaction.
Premise: Participation in course planning results in a feeling of ownership.
Conclusion: Participation in course planning results in higher achievement and satisfaction.

If this hypothesis were necessary and sufficient to produce higher achievement and satisfaction then, without regard to the resulting quality of the course, learner response (achievement

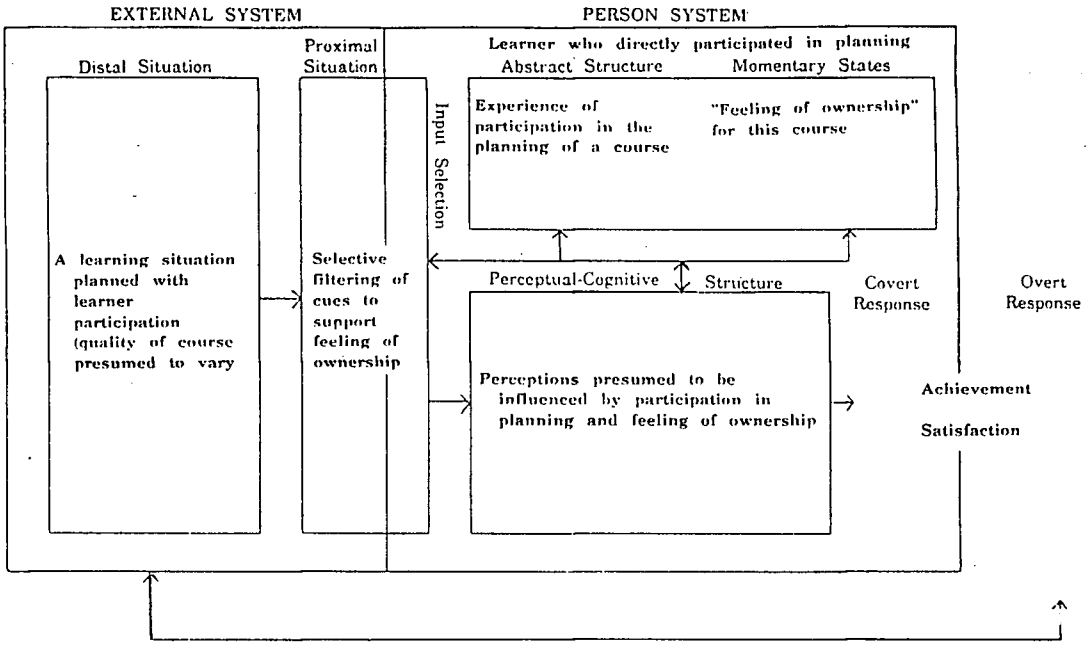

Figure 14c. "Ownership" hypothesis for effect of participation in planning

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and satisfaction) could be expected to vary with the degree to which they feel "ownership." If circumstances other than participation in planning result in a feeling of ownership, then those circumstances also would result in higher achievement and satisfaction.

A wide variety of further alternative hypotheses could be posed. Participation may simply be an enjoyable experience for some, with achievement and satisfaction more likely in the presence of that positive emotion -- an "enjoyment" hypothesis; or as it becomes a past experience of the learner, it may predispose her/him to higher achievement and satisfaction in some way -- a "self enrichment" hypothesis. Perhaps

participation in planning changes the perceptual screen of the learner, predisposing him/her to perceive the course as relevant -- a "perceived relevancy" hypothesis, or as effective -- a "perceived effectiveness" hypothesis. It is reasonable to assume that one or a combination of these hypotheses could explain the relationship of participation in planning to achievement and/or satisfaction for a learner within a given situation.

Learner Perception of Teacher Behavior

Kerwin (1981) studied student perception of teacher behavior using Hadley's Educational Orientation Questionnaire modified to reflect the student perspective. His hypothesis, related to one element measured by that instrument, was that students perceive "student involvement behavior" as described by Knowles, to be a dimension of the teaching behavior of postsecondary educators. The questionnaire, which requested response in terms of frequency of occurrence of certain behaviors, was administered to a total of 961 students in 74 instructors' classes in four, public, two-year colleges. The student responses were factor analyzed with seven factors accounting for 25% of the total variance. The factors were labeled respectively: Student involvement, Control, Distrust and detachment, Professionalism, Counseling, Individual inattention, and Organization. Reliability or validity analyses were not reported. Figure 15a illustrates the concepts identified by Kerwin with the interactive framework superimposed.

Ancestry

Two cited studies of student perceived teaching behavior among postsecondary educators were reviewed.

Deshpande, Webb, and Marks (1970) conducted a study of student perception of engineering instructor behavior. They noted that most descriptive studies of teacher behavior are in elementary or secondary education, or with college students in

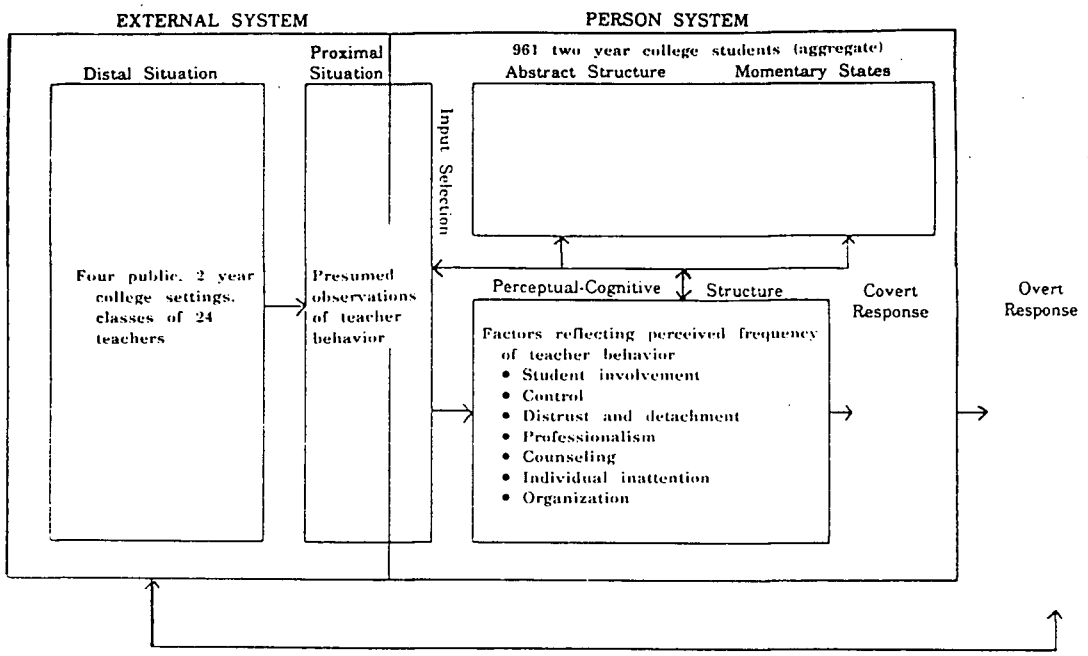

Figure 15a. Student perception of teacher behavior (Kerwin) -- interactive framework superimposed

psychology and social science, and asserted that "there is no reason to expect that behaviors that are judged 'successful' or 'effective' in one content area will be equally so in another" (p. 290). The 32 teachers were rated by students of his/her class, a total of 674 students. Variables included frequency of selected teacher behaviors, course emphasis (theory, theory and practice, practice), course value, and teaching ability. Within class mean was used as the unit for factor analysis. The 14 identified factors were correlated with course value and teaching ability ratings.

Student ratings of teaching ability were most highly correlated with Motivation, Structure, Content mastery, and

Instruction skill, with the first three of those factors highly associated with course value rating, as well. Text adherence had a very high negative correlation with course value and teaching ability items.

Neither Student-centered nor Teacher-centered teaching style was preferred in terms of course value or teaching ability ratings, nor was the factor Rapport significantly correlated with those ratings.

Factor analysis of the original 14 factors resulted in four second order factors -- Cognitive merit, Affective merit, Stimulation, and Stress. Cognitive merit and Stimulation were significantly correlated with value of the course, Stimulation with teaching ability. Affective merit failed to correlate significantly with either course value or teaching ability. Figure 15b illustrates the significant findings within an interactive framework.

Deshpande et al. (1970) offered alternative explanations about the tendency of engineering teachers to use lecture, and the preference of engineering students for structure. Teacher preference may be due to its suitability for the course material, instructors may believe it to be the most appropriate teaching style, or it may be supportive of the personal needs and styles of the teachers. Engineering students' preference for Structure, Cognitive merit, and Stimulation over Interaction in their evaluation of teaching ability,could be attributed to their belief that such teaching is appropriate to the content, or it may be that students who select engineering as a field of

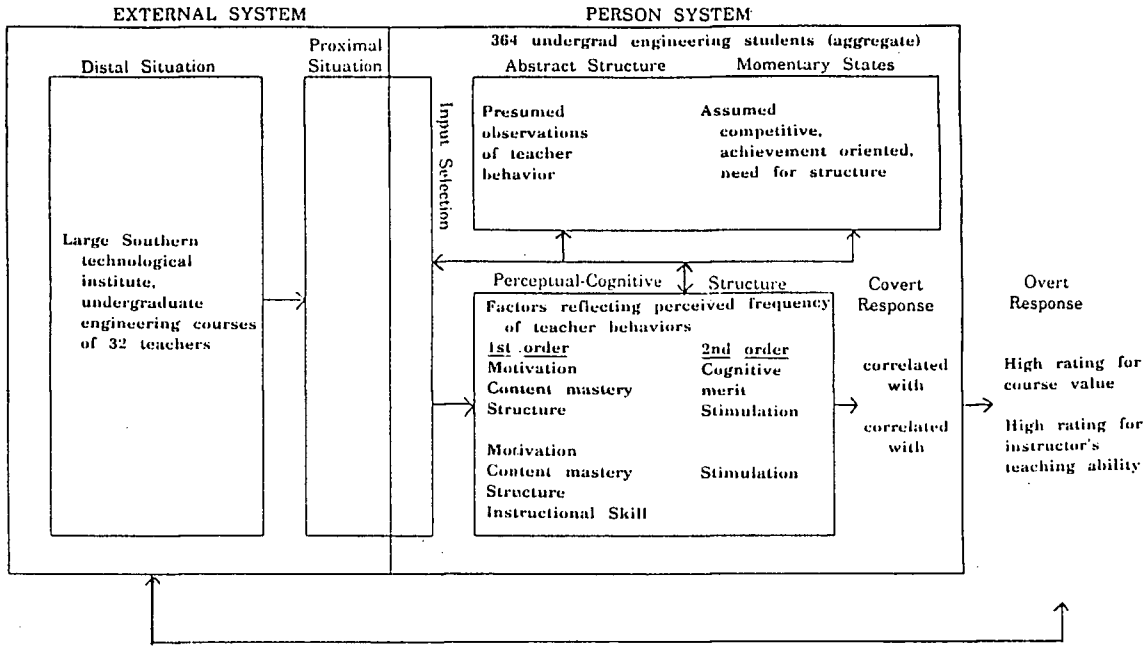

Figure 15b. Student perception of teachers and ratings for course value and teaching ability (Deshpande et al.) -- interactive framework superimposed

study prefer that style of teaching for any content.

In a similar study, Solomon (1966) identified significant behaviors for teachers of adults. Subjects were students of 229 teachers in college and university adult evening classes. With class means as the unit for factor analysis, 10 factors were identified: (a) Lecturing versus Encouragement of broad expressive student participation; (b) Energy, facility of communication versus Lethergy, vagueness; (c) Criticism, disapproval, hostility versus Tolerance; (d) Control, factual emphasis versus Permissiveness; (e) Warmth, approval versus Coldness; (f) Obscurity, difficulty of presentation versus Clarity; (g) Dryness versus Flamboyance; (h) Precision,

organization versus Informality; (i) Nervousness versus relaxation; and (j) Impersonality versus Personal expression.

Significant relationships were found between student evaluation of the instructor and the teacher's scores on two factors -- Encouragement of broad student participation and Energy and facility of communication.

Solomon (1966) correlated factors with content area and course type (see Table 6), and offered possible explanations for these findings: (a) that certain teaching behaviors are necessary for certain types of content, (b) that teachers in a given area share attitudes about what constitutes effective teaching, or (c) that persons with similar behavior characteristics may be drawn into similar fields.

Descendency

The SSCI review, 1982-1984, revealed no published research which cited Kerwin's study.

DAI Review

There were 17 dissertation abstracts identified as related to learner perception of teacher behaviors; 10 of those were focused on teacher behavior as perceived by college or adult students, and 7 focused on student and teacher factors in evaluation of teacher effectiveness.

Table 6

Teacher Behavior Factors, Correlation with Course Content Area and Type (Solomon, 1966)

Course content or type	Factors
Social Sciences	Permissiveness Coldness Clarity Nervousness
Humanities	Encourage Participation Warmth Nervousness
Natural Science and Mathematics	Lecturing Control, factual emphasis Obscurity, difficulty of presentation Impersonality
Practical Courses	Relaxation Personal expression
Basic Courses	Nervousness Critical and disapproving Lecturing Obscurity, difficulty of presentation
Applied Courses	Relaxation Tolerant Encourage participation Clarity

Student perception of teacher behaviors. Interactive elements of the 10 studies of teacher behavior as perceived by students are presented (see Table 35, Appendix C), and findings are summarized.

In one study, teacher "immediacy," (behaviors which enhance nonverbal interaction by reducing physical or psychological distance between teacher and students) was found to predict 46%

of variance in student affect toward the course instructor, 20% in affect toward the content, and 18% of the variance in student commitment. Cognitive learning was not significantly affected by immediacy (Andersen, 1979). The concept of immediacy was linked to the nature of self-disclosure statements made by the teacher. Sorensen (1980) reported that 32% of the variance in perception of immediacy was accounted for by teacher "competence" (based on profiles of self-disclosure statements of hypothetical "good" or "bad" teachers).

Perceived solidarity of teacher-student relationship correlated with immediacy (r=.49) and added little unique predictive power for student affect (Andersen, 1979). Teacher profiles based on self-disclosure statements accounted for 29% of variance in perceived solidarity (Sorensen, 1980).

Perceived teacher congruence, or genuineness as a person, was found to be significantly related to satisfaction, and strongly, though not significantly, related to knowledge, skill, or attitude gains (Weidenfeld, 1979). Adult high school students' estimates of teacher concern were significantly related to teacher self-acceptance as well as student acceptance of self and others (Roberson, 1980).

Seitchik (1980) examined how student perceptions of involvement were related to perceptions of teachers' supportive and challenging behaviors. Each teacher taught two classes, using supportive style for one, and challenging style for the other. Neither the treatment nor the teacher were significantly related to student perceptions of involvement, teacher support

or teacher challenge. However, those perceptions were significantly related to each other. Further, if students perceived a teacher to be supportive in general, challenging behaviors also were perceived as supportive.

Significant differences were reported between student perceived teaching behaviors of andragogically- and pedagogically-oriented teachers. Andragogically oriented teachers were perceived as providing more student involvement and counseling, and as displaying less control than pedagogically oriented teachers (Kerwin, 1979). In another study, effectiveness ratings were found to be related to student perceptions of teachers' use of andragogical strategies (Hampton, 1982).

McVeta (1981) studied whether some instructional variables generate more positive affect than do other variables. Of four general instructional variables (content, method, readings, and interaction), and five dimensions of credibility (sociability, composure, character, extroversion, and competence), perceived method and competence accounted for the most variance in overall student affect toward a course. Majors, underclassmen, and students taking the course because it was required, reported higher levels of affect than their counterparts.

In a study comparing teacher behavior in cooperative and competitive college classrooms, teachers of competitive classes were significantly higher in dynamism, control and structure, and more likely to be perceived as knowledgeable and in control. Teachers of cooperative classes were more likely to be seen as

friendly, likeable, empathic, fair, helpful, and involved. They tended to build more democratic, low risk, supportive environments and used more indirect verbal behavior (Krupp, 1981).

ABE students' perceptions of faculty characteristics which were labeled: Initiation of Structure, and Consideration, were each highly correlated with the students' intrinsic and extrinsic satisfaction. In combination, Initiation of Structure and Consideration were significantly correlated with satisfaction (Denton, 1982).

Overview of this sample leads to these observations:

1. Student perception of teacher affective behaviors (e.g. immediacy, congruence) seems related to a positive effect on affective outcomes and in some situations, on cognitive outcomes.

2. Student perceived teacher behaviors may differ from the teachers' perceptions of those behaviors (e.g. findings related to challenge, support) or may be congruent (e.g. findings related to andragogical orientation).

3. In some situations, perceived method, teacher competence, and content value are more predictive than teacher affective style for student outcome.

Student and teacher factors related to evaluations of teachers. Interactive elements of seven studies which reported student and teacher factors in evaluation of teachers are presented in Table 36, Appendix C), and findings are summarized.

In two studies, field independence of the student was found not to be significantly related to student ratings (Roeser, 1979, Taylor, 1980). Taylor also reported that a match with teachers'cognitive styles was unrelated to student evaluations of teachers. However, field independent teachers were rated significantly more favorably than their counterparts.

It was hypothesized that ratings of teacher effectiveness would be predictive of intellectual development (based on the Perry model). Nonsignificant findings were attributed to an unexpectedly homogeneous sample for intellectual development (Norman, 1979).

Relationship of content (high, low) and teacher expressiveness (high, low) was reported in two studies. Ramagli (1980) found support for the Dr. Fox effect, that high expressiveness is a major influence on student ratings of instruction. In another study, high expressive teachers were rated significantly higher on overall presentation, content and expressiveness, and high content instructors were significantly higher on overall and content ratings. Manipulation of expressiveness did not affect student achievement (Roeser, 1979).

Physical appearance of the instructor was associated with evaluation. Students' belief that an instructor was attractive

significantly increased evaluative ratings (Cotton, 1980). Whittington (1983) reported a high correlation between student ratings of both teacher effectiveness and personality.

Cohen (1980) conducted a meta-analysis of 41 studies on the relationship between student ratings and student achievement and concluded strong support for the validity of student ratings as measures of teaching effectiveness.

From this limited sample of studies, it is observed that when students are asked to evaluate teachers or courses, factors such as expressiveness, physical appearance, personality, and teacher behaviors associated with field independence may be included in the implicit criteria used for that evaluation. Student evaluations also may be influenced by factors related to content.

Analysis

This analysis focuses on how student perceptions of teacher behaviors have been found to relate to other factors such as ratings of teaching effectiveness or course value, teacher or student characteristics, and student achievement. Additional questions are posed from analysis of those findings in the interactive framework.

Kerwin's (1981) findings provided limited usefulness for an interactive analysis. He used no identifiable theoretical framework. The hypothesis involved one concept, frequency of "involvement behavior" of the teacher as perceived by students, and offered no hypothesized relationship with other concepts.

Having demonstrated that the Educational Description Questionnaire measures a factor reflecting frequency of "student involvement" behavior of teachers, Kerwin concluded that the study "challenges adult educators to test the hypothesis . . . that instructor involvement of students in program design and operation is the most effective way [emphasis added] of facilitating learning in adults" (p. 90), an interesting claim for the study. No measures of effectiveness were reported nor was the validity of the instrument demonstrated.

Two ancestry studies did provide data and analysis of theoretical interest in the present study. Both the Deshpande et al. (1970) and Solomon (1966) studies demonstrated a relationship between the nature of the content and student perceived teacher behaviors. Deshpande et al. further demonstrated that content may be an important factor in what the student considers to be appropriate, effective teaching behaviors.

Significant correlations of Structure, Content Mastery, and Cognitive Merit with course value ratings; and failure of Student-centered Teaching Style, Rapport and Affective Merit to correlate significantly with course value, seem inconsistent with prevailing beliefs in adult education. What could account for such differences? Deshpande et al. offer as a possible explanation that engineering students have well defined educational and vocational goals, are competitive and achievement oriented, and expect rigorous academic requirements.

Solomon, whose findings that science and mathematics teachers tend to use lecture and control, suggested that such content might intrinsically require those approaches, teachers may share attitudes that such is the case, or teachers with those tendencies may be attracted to science fields.

Interactive elements in learner perception of teachers. Related to the situation side of the interaction, a number of factors may influence learner perception of the teacher, for example:

1. Content -- Nature of the content was found to influence factors associated with ratings of instructional skill and course value (Deshpande et al, 1970, Solomon, 1966). Under what circumstances is the nature of content a factor in student ratings? What characteristics of subject matter relate to variations in ratings of affective merit versus cognitive merit? What other factors are involved when students rate content over process or method in course value? What is the relationship between various types of content and the Dr. Fox effect? Are there interactive effects between various content areas and teaching methods, or between content areas and student factors (e.g. goals, prior knowledge)?

2. Teacher behavior -- In several studies, the teacher's overt behavior was assumed to relate to learner perceptions. Yet in one study, teacher intent to use challenging and supporting behaviors was not congruent with

student perceptions (Seitchik, 1980). What range of perceptions of teaching method, skill level, or content mastery, can be identified? To what extent do student perceptions correlate with other measures of overt teacher behavior? What explanations might account for high or low correlations? In what circumstances do students value cognitive merit in their ratings of teacher effectiveness? In that circumstances is affective merit more important?

3. Teacher Expressiveness -- Degree of expressiveness was found to influence student perception (Taylor, 1980). Are other presentation styles associated with either perception or response? How do students describe criteria for ratings of presentations varying in content and expressiveness?

4. Educational Orientation -- Teacher educational orientation was found to be significantly associated with student perception of teacher behavior (Kerwin, 1979). To what extent and under what circumstances, are teacher beliefs, values and orientations, congruent with overt behavior? How are learner perceptions of teacher orientation associated with teacher effectivenss or course value ratings?

5. Interpersonal behaviors and personal characteristics -- Immediacy as assessed by trained observers was highly correlated (r=.80) with student perceptions (Andersen, 1979), and teacher self-acceptance was significantly associated with student estimates of

teacher concern (Roberson, 1980). Do interpersonal characteristics of teachers interact with other situational variables (e.g. teaching method, content) to influence student perception (effectiveness ratings) or student response (achievement, satisfaction)?

6. Personality -- Teacher attractiveness and personality were found to influence student perceptions (Cotton, 1980, Whittington, 1983). How do those perceptions relate to learner achievement?

7. Cognitive style -- Teacher field independence was significantly related to favorable evaluations by students, both field dependent and independent (Taylor, 1980). What overt teacher behaviors are associated with cognitive style? How do students describe teachers who are either field dependent or independent?

Assuming that situation factors are relatively constant across learners, it seems reasonable to look to learner variations for explanation when variations in learner perceptions are encountered.

1. Abstract structure -- Stable person elements which were suggested by reviewed studies as influences on learner perception include: cognitive style, intellectual development, academic status (major, class standing, required or elective relationship to a course), and acceptance of self and others. Other elements, not included in the reviewed studies but which seem plausible include learner goals and purposes for being in the

learning situation, expectations of self and teacher, explicit or implicit criteria for judging teaching effectiveness, and prior knowledge in the content area. Do varied learner perceptions of teachers correlate with suggested elements? What is the nature of the relationship between them?

2. Momentary states -- None were identified in the reviewed studies, and yet may influence perceptions of teacher effectiveness. How do emotional and physiological variations which occur during the learning situation relate to perceptions of teacher effectiveness? It is interesting to speculate whether findings such as those related to the effects of expressiveness, attractiveness, and personality might be related to pleasant momentary states.

3. Input selection -- Observations and perceptions are inseparable in the reviewed studies. No study reported efforts to relate ratings (perceptions) to variations in observations or cue selection. Do learners who report differing perceptions, also report different observations of the teacher? Do they sample the same or a different set of behaviors?

4. Perceptual-cognitive structure -- The central ingredient in this cluster of studies was learner perception, expressed either as measures or identification of actual or desired teacher behaviors, or as evaluation of teaching effectiveness or course value. Perceptions were linked with (a) teacher behavior (e.g. supportive vs.

challenging, expressive) (b) teacher characteristics (e.g. attractiveness, field independence) (c) elements of abstract structure (e.g. cognitive style, intellectual development), (d) response (achievement and satisfaction), and (e) other perceptions (e.g. relations between perceived personality and perceived teacher effectiveness).

5. Response -- All but two of the studies which included learning outcomes were linked with affective measures. In the two exceptions, cognitive learning was not significantly affected by perceived immediacy (Andersen, 1979), nor congruence (Weidenfeld, 1979). Otherwise, the studies were mute on any relationship between cognitive outcomes and perception of the learner. Affective outcome was linked with perception of (a) method and competence of the instructor (McVeta, 1981), (b) supportive or challenging behaviors (Seitchik, 1980), (c) teacher congruence (Weidenfeld, 1979), and (d) immediacy behaviors (Andersen, 1979, Sorensen, 1980).

Framework for further study. Using the reviewed studies and the interactive framework, a number of elements were identified as plausible ingredients of the teaching/learning interaction (see Figure 15c). The learner's abstract system includes implicit or explicit goals and purpose for being in the learning situation, implicit and explicit criteria by which to judge teaching effectiveness, knowledge in the content area which could be described as high or low relative to the difficulty of the content as presented, certain expectations or

stereotypes, a certain cognitive style, and intellectual ability. Momentary states include mood or affect (e.g boredom, excitement, anger) related or unrelated to the situation itself, and may include temporary physiological conditions (e.g. alertness, hunger, fatigue, pain) which could alter perception of and response to the learning situation.

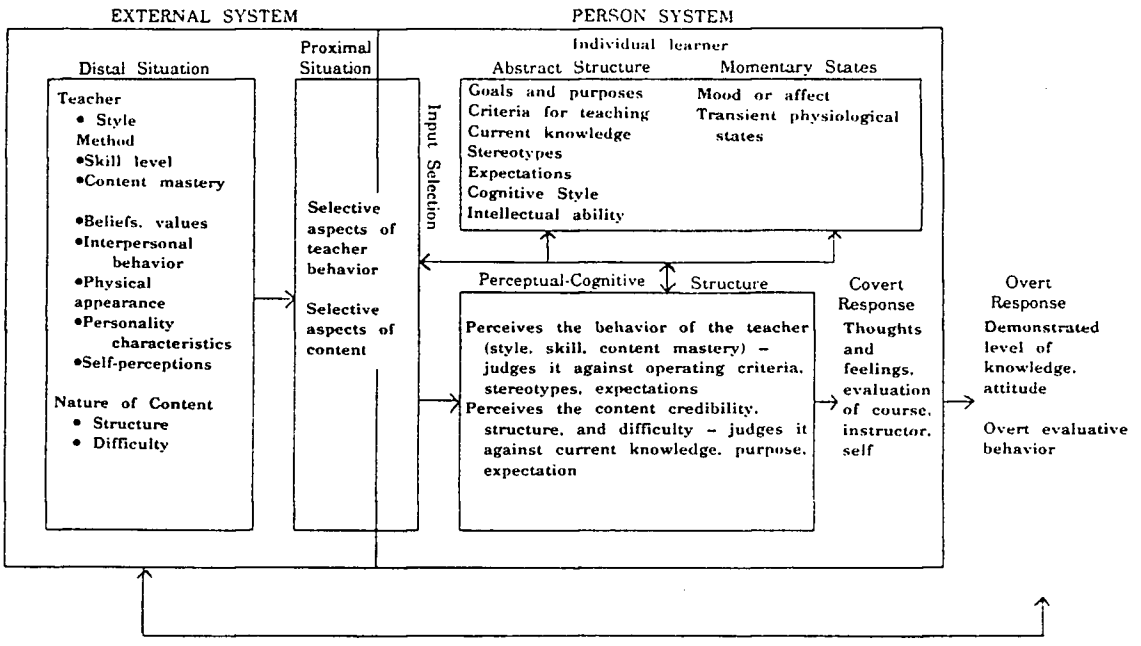

Figure 15c. Summary of elements related to student perception and evaluation of course and teacher

The teacher and the content are assumed to be key elements in the external situation. The teacher uses a particular style (e.g. expressive, supportive, challenging) and method (e.g. group discussion, lecture), uses it at some level of

skill, and exhibits a level of content mastery. In addition, characteristics of the teacher as a person are expected to be demonstrated in teaching behaviors and interaction with students. The content is assumed to vary in structure, and in degree of difficulty relative to the background knowledge of the learners.

It is suggested that those elements interact as follows: Each learner uses "theories of teaching effectiveness" which have been constructed in prior experiences. Those theories include explicit and/or implicit criteria which are consistent with the individual's expectations and stereotypes of teaching situations "like this one." As goals and purposes of the learner vary, criteria and expectations may change to be consistent with those purposes. For example, if a purpose is preparation for an important and difficult examination, the criteria for "level of content" might be more stringent than for purposes such as intertainment, overview, or mandatory attendance.

Most of the learners' perceptions of the teacher's overt behavior will be consensual. That is, there will be relatively high intersubjective agreement that the teacher lectured, asked questions, roamed about the room; but there will be an idiosyncratic element within the perception related to that learner's selection of cues, criteria for judging teacher behavior, purposes for attending, and expectations or stereotypes.

The degree of difficulty of content relative to the

learner's existing knowledge provides the ingredient for learning and validates the learner's prior knowledge. It is suggested that, for knowledge achievement and satisfaction, the gap between course content and current knowledge of the learner must be wide enough to enable achievement of purpose and narrow enough to be perceived as accomplishable. Since amount of existing knowledge is variable among learners, the level of course content relative to each learner also is variable.

The perception of the learner that the teacher is skilled in the method used and exhibits content mastery sufficient for the learner's purpose and prior knowledge level will be more important in knowledge and satisfaction than will the method per se.

Organization of Material and Prior Knowledge

Grotelueschen (1979) studied the effects of presenting differentially structured introductory materials to adults at different prior knowledge levels. One set of introductory materials was abstract throughout and the other progressed from concrete to abstract. Subjects with little prior knowledge benefited most from materials organized from concrete to abstract, those with high level, from materials that were abstract throughout.

Subjects were 72 young adults enrolled in a continuing education offering who had scored 18 or less on a 20 item Number Base Systems pretest. A factorial design was used with three levels of prior knowledge of number bases, and the two sets of introductory materials. Within three levels of prior knowledge of number bases, subjects were randomly assigned to two groups. Criterion measures were direct learning and applicational transfer learning combined in one posttest instrument.

The first two hypotheses dealt with main effects; the third, and principal hypothesis, with the interaction effect. The first hypothesis, that persons with more subject matter knowledge would perform better on direct learning and applicational transfer measures than those with less knowledge was supported ($p<.001$) for both measures. The second hypothesis, that there would be no significant difference between the sets of introductory materials was supported ($p<.05$) for both measures. The third hypothesis, that there would be

significant interaction among sets of introductory materials and knowledge was supported for applicational transfer ($p<.05$) but not for the direct learning criterion. Figure 16a illustrates the concepts as studied by Grotelueschen with the interactive framework superimposed.

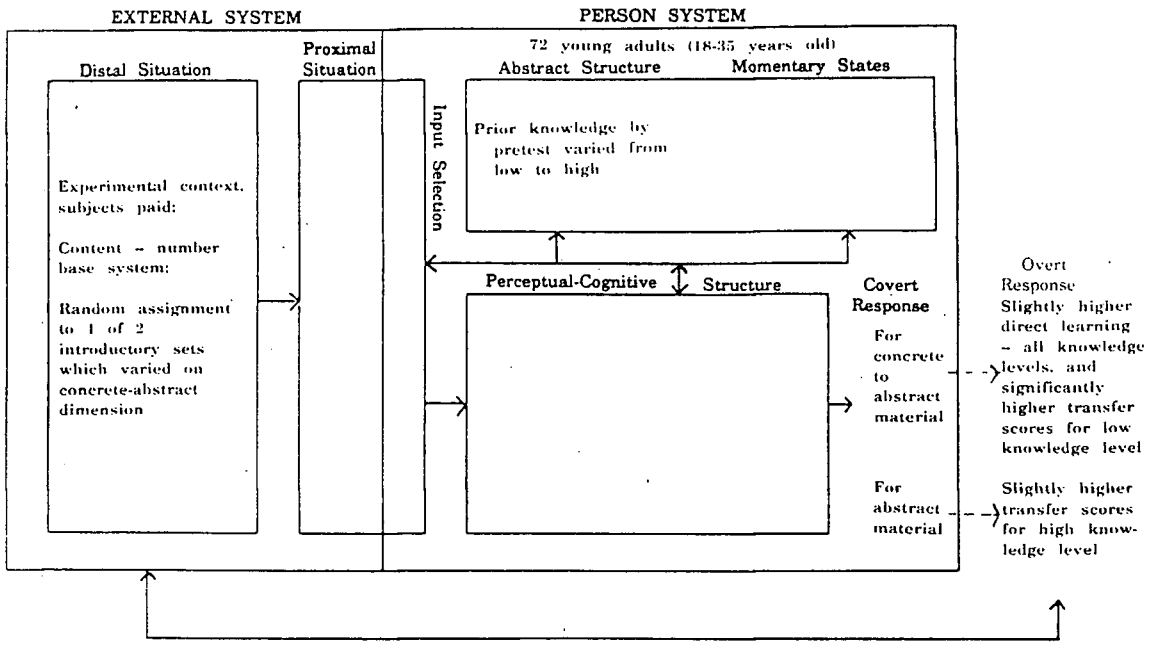

Figure 16a. Introductory material and prior knowledge level (Grotelueschen) -- interactive framework superimposed

Ancestry

The theoretical basis for this study was the work of Ausubel on cognitive structure. In one cited study, Fitzgerald and Ausubel (1963) compared affective and cognitive factors for

learning and retention in high school juniors. They argued that the importance of cognitive factors was denied in earlier interpretations that attitude bias inhibits learning and retention. They reasoned that attitudinal bias has a cognitive dimension which is important for learning and retention. "Other side" arguments in controversial material relate to attitudes which are "usually devoid of subsuming ideas to which new material can be functionally related" (p. 73). Therefore the controversial material cannot be readily anchored to cognitive structure, competes with existing meanings and is subject to rapid forgetting, while materials supporting a positive attitudinal bias can be readily anchored to cognitive structure and retained. Fitzgerald and Ausubel presented findings in support of those interpretations.

Descendency

One study citing Grotelueschen was found in the SSCI review, 1980-1984. Redford-Ellis, Boreham, and Morgan (1982), citing Grotelueschen, reported an experiment to determine the effect of theory-oriented versus practice-oriented lectures on recall and application tests for 71 second-year medical students. In the theory-oriented lecture, metabolic processes were explained first, then clinical phenomena related to that framework. In the practice-oriented lecture the process was reversed. Criterion measures were recall of detail and application of theory. Results were significantly higher scores ($p<.05$) on recall for the theoretical approach, and no

significant difference on application test scores.

DAI review

Eight dissertation abstracts were related to the effect of content organizers on learning, and their relationship with other factors. Interactive concepts from those studies are presented (see Table 37, Appendix C), and the findings are summarized.

1. Prior knowledge -- Three studies attempted without success to demonstrate interaction between prior knowledge subsumers and content organizers. Using a reading passage, with and without an organizer, Schwartz (1980) reported significant main effects for both organizers and prior knowledge, but no interactive effects between them. Chan (1980) found prior knowledge to be the primary predictor of achievement, enhanced by an organizer. There was no interactive effect with the organizer for low prior knowledge. Bousquet (1982) used student construction of three types of concept maps as organizers and found both prior knowledge and concept mapping skill to predict posttest results. No interactive effect was found.

2. Cognitive development -- Five studies reported mixed results of interactive effects between cognitive development or reasoning ability and content organizers. In these five studies, cognitive development was measured by different instruments and thus may represent different constructs. Achievement was independent of verbal

reasoning ability and there was no interactive effect for verbal reasoning with the organizer (Chan, 1980). Greenglass (1980) used "hints" or "no hints" as organizers for a museum learning task, and reported interaction ($p<.02$), with low conceptual level subjects scoring higher with "hints."

With a sample controlled for low verbal ability, Stelnicki (1980) reported a significant main effect for the information-map organizer. 'Concept' gains were significantly greater than 'fact' gains. In Bousquet's study (1982), cognitive development and reasoning abilities did not predict achievement or concept mapping skill.

Mahajan (1983) reported a significant interaction between cognitive level, defined as Piagetian concrete-operational and formal-operational stages, and advance organizers for immediate posttest and delayed transfer. There was no significant interaction for delayed recall.

3. State anxiety -- In a time series study, Lalli (1980) sought to determine whether advance organizers (study guides) would reduce state (test) anxiety. She found that provision of a study guide significantly affected performance on a teacher-made posttest, but did not significantly affect test anxiety.

4. Cognitive style -- Hawk (1983) explored the relationship between graphic organizers and cognitive style, and reported that field independent students scored significantly higher on the posttest. Use of graphic

organizers did tend to reduce the score differences between field dependent and independent students but not significantly.

Other related studies

Mayer (1979) reviewed twenty years of research on use of advance organizers and concluded that they can affect learning, and the conditions for that effect can be specified. Advance organizers will result in broader learning outcomes in situations where (a) the learner does not have or use an assimilative context for the new material, (b) material is potentially conceptual but unorganized or unfamiliar to the learner, (c) the organizer provides a higher level context, and (d) the outcome measures relate to broad learning or transfer ability. Mayer concluded that the reviewed studies support an "assimilation theory" as opposed to a "reception theory," that is, learning new material is influenced by existing knowledge versus the idea that the amount learned is a function only of how much is presented and received by the learner. According to assimilation theory, an "advance organizer" is useful when the learner's own knowledge and ability do not provide an adequate assimilative context relative to the complexity and organization of the material to be learned. Mayer's presentation of assimilative theory is represented in Figure 16b.

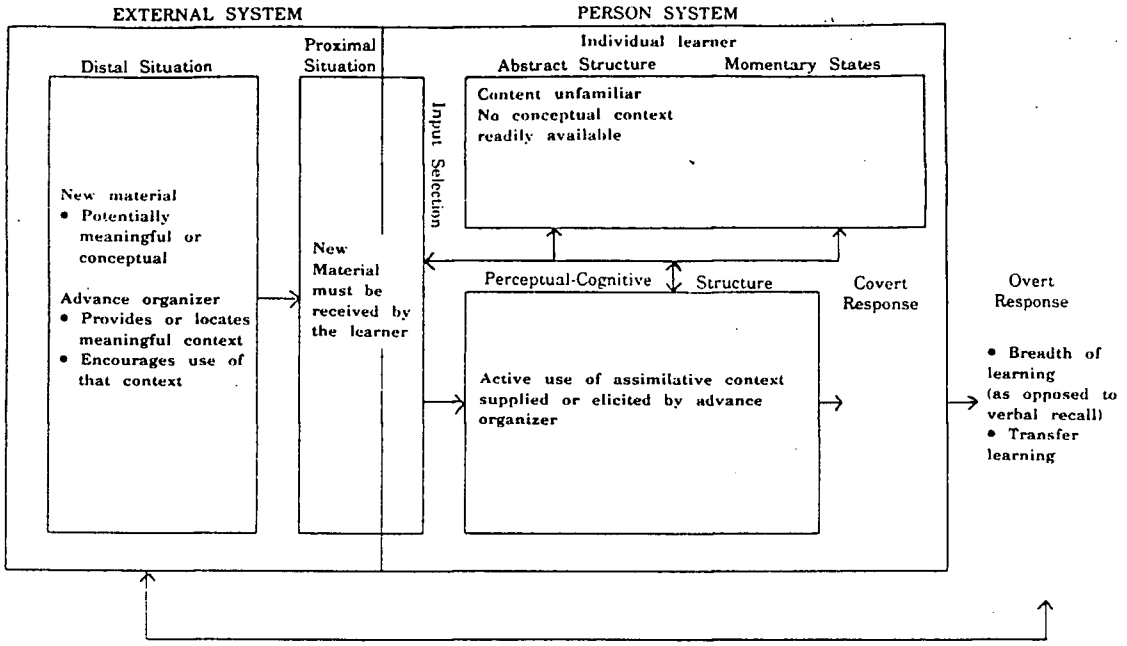

Figure 16b. Conditions and effect of advance organizers, assimilative theory (Mayer) -- interactive framework superimposed

Analysis

Much of the extensive research with advance organizers has been done with college students (e.g. Mayer's review of 44 studies of advance organizers included 26 with college students, 16 with younger students, and a single study of adult learners). Grotelueschen (1979), and Redford-Ellis et al. (1982), extend the inquiry to the teaching of adults.

Grotelueschen's study supports the concept that prior knowledge is a factor in variable response to learning situations. While the study is specific to the level of abstraction and effect of introductory materials, it is

suggestive of a larger relationship, that the organization of content will interact with the learner's prior knowledge. In the broader context, others studied varied types of organizers and their relationship to other elements of the learner's abstract structure. This analysis will follow the broader theme with use of organizers as the pivotal focus.

Findings in the reviewed dissertation abstracts were not supportive of interaction between prior knowledge and the use of organizers as they were conceived in each study. A number of factors could explain those results. Methodological questions may have limited findings (e.g. experimental design without a control group -- Bousquet). Both organizers and measures of achievement varied in definition and type, and tended to be developed specifically for each study. Assuming that the resulting organizers could vary in quality and clarity, and that the achievement measures vary in reliability and validity, it is not surprising to find mixed results. The sample of dissertations in this study, in general, do not support, neither do they refute, the effectiveness of organizers to enhance learning for low prior knowledge students.

Findings also were mixed regarding interactive effect between cognitive development and content organizers. In the five reviewed studies, cognitive development was measured by different instruments and thus may represent different constructs. Variation in the concept of what constitutes a concept organizer, for example, use of 'hints' as an organizer, further limits any conclusions which might be reached from this

cluster of studies.

Interactive elements related to use of organizers. If organizers are effective, what are the boundaries of that phenomenon. Implicit in each of the reviewed studies was a learning situation in which there was a specific, factual body of content to be learned. Mayer (1979) supported the thesis that organizers would be effective for material which is potentially meaningful but unfamiliar to the learner, suggesting that the nature of the content as well as the prior knowledge of the learner influence the learning interaction. When organizers are used, they are part of a larger situational context. Several factors may influence their effectiveness, for example:

1. The nature of the organizer itself -- A variety of conceptualizations of organizers were included in this cluster of studies. The construct seems to share one meaning, the organization of content for presentation to the learner, and varies in several respects. Types of organizers include narrative, graphic, concept mapping, models, and study guides. Some are advance, some post learning sessions; some describe the organization of the entire presentation. Are the various forms and uses of organizers parallel in effectiveness?

2. The nature of content to be learned -- Mayer identified the nature of content as a factor in use of organizers, that is, the content is potentially meaningful, or conceptual in nature. What variations in this

characteristic can be found? With what effects are those variations associated?

In addition to prior knowledge, a number of person elements were reported in this sample of studies:

1. Abstract structure -- High prior knowledge in the content area was consistently found to produce a main effect on achievement. Hypothesized interactive effects for low prior knowledge and advance organizers (supplied assimilative context) were sometimes found in this sample of studies and were reported to be consistently found in Mayer's review.

Given that prior knowledge in a specific content area shows a significant effect on learning new content in that area, what implications might there be for broad based prior knowledge, or past experience, of adult learners? It is widely believed in adult education that the adult learner brings a rich variety of past experiences with an effect on the learning situation. What role might past experience play in providing "assimilative contexts" for new learning?

Other elements of abstract structure revealed in this sample of studies were measures of verbal reasoning, or cognitive development, and cognitive style. Results were mixed but raise the question of how other person characteristics may interact with prior knowledge in providing a context for learning.

2. Momentary states -- Only one element of a

transient nature was revealed in this sample of studies. Test anxiety was found not to be affected by provision or nonprovision of study guides. No effort was made to determine any influence of test anxiety on achievement for either treatment. It seems reasonable to question how temporary emotional or physiological conditions may interact with prior knowledge to provide or block the assimilative context.

3. Perceptual-Cognitive structure -- No observations or perceptions about the learning situations were obtained in this sample of studies. How do learners describe their perceptions of situations when their assimilative context is relatively strong or weak? Do those reported perceptions provide cues regarding the mechanisms for effectiveness of prior knowledge, or other elements which might interact with it in producing a subsuming context?

4. Response -- High knowledge levels consistently produced a significant main effect on achievement. The interactive hypothesis, that advance organizers would significantly improve performance for low knowledge levels, was sometimes supported. Achievement measures varied in time (immediate, delayed), type (recall, transfer), and source (teacher made, standardized). Mayer's review led him to conclude that advance organizers are more effective in producing delayed, transfer gains.

Framework for further study. Using the reviewed studies and the interactive framework, elements which may be related to prior knowledge and organizers were identified (see Figure 16c).

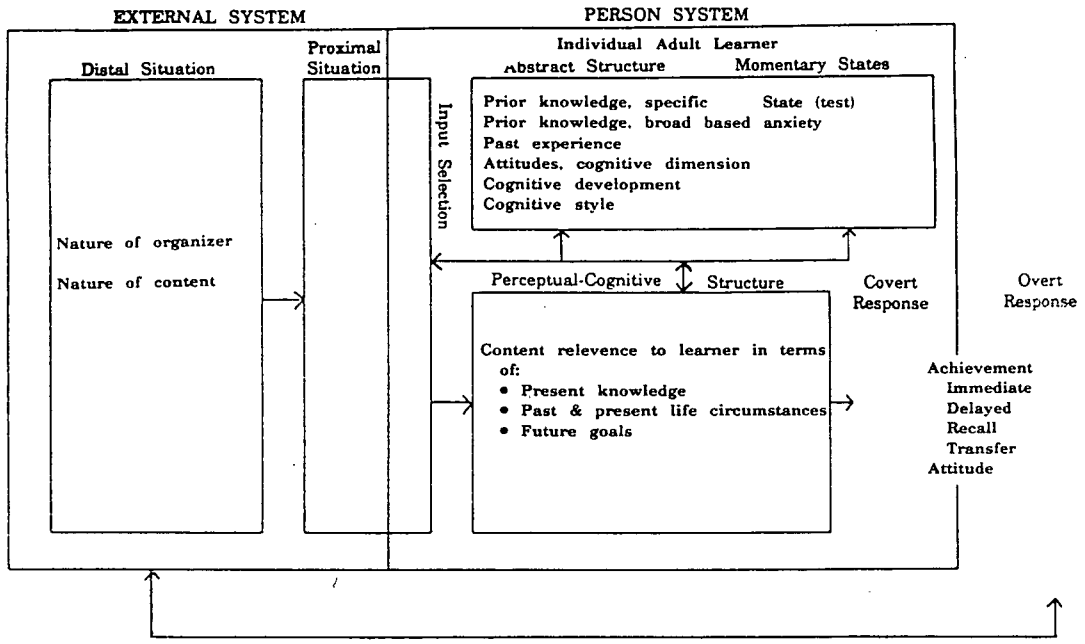

Figure 16c. Concepts related to prior knowledge and content organizers

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Areas not addressed in prior research and which may be fruitful for adult education are (a) the relationship of past experience and broad based prior knowledge to achievement, and (b) the effect of learner perception of relevance or

nonrelevance of content to achievement. If either of those factors do alter response, what types of content organizers would supply missing links to an assimilative context for the nonresponsive learner?

Summary -- Studies on Interaction Between Learners and Situations

The three clusters of studies related to interaction between the learner and situation each dealt with discrete parts of that interaction. Major constructs from each cluster are summarized in Table 7. Studies of situations which provide opportunity for learner participation in planning, did not address, except in a speculative way, the possible person or situation variables which might be related to mixed results in those studies. Analysis led to proposal of several plausible alternatives for exploration of this phenomenon.

Learner perception of teacher behavior was associated in various studies with the nature of content, and teacher: expressiveness, physical appearance, educational orientation, interpersonal behaviors, personality, and cognitive style. Single studies attempted to associate learner perceptions with various other person characteristics including cognitive style, intellectual development, academic states and acceptance of self and others. The third cluster in this section related to interaction between prior knowledge and organization of content. While the bulk of research on this phenomenon has been done with college students, beginning research with adults in other contexts was reviewed and demonstrate comparable findings.

Table 7

Summary of Major Constructs from Studies on Interaction Between Learners and Situations

Situation	Person			
	Abstract structure	Momentary states	Perceptions	Responses
Methods for participation	Experience of participation			Achievement Attitudes (mixed findings)
Teacher behavior Nature of content			Perceived teacher behaviors and ratings of teaching ability	
Organization of content Advance organizers	Prior knowledge			Achievement

SUMMARY AND CONCLUSIONS

Studies selected through review of Adult Education Quarterly, 1979-1984, were described and analyzed with a cluster of related studies from their ancestry/descendency, and Dissertation Abstracts International, 1979-1984. Clusters were categorized as: (a) interaction between learner and situation, (b) characteristics of the learner, and (c) characteristics of the situation. A selected interactive framework, the Person

Situation Process Model, was consistently used to organize data for analysis. Each cluster was analyzed and suggestions were developed for further study.

The preponderance of studies in this sample were related primarily to learner characteristics, specifically characteristics ascribed to abstract structure. The three clusters related to interaction effects, dealt with discrete parts of that interaction. There were no studies which treated both, or either, person and situation in a holistic way. This analysis has attempted to put those diverse pieces together to determine what has been studied about each element in as comprehensive a fashion as possible.

Seldom were there cumulative streams of research nor was there evidence of debate among researchers which is characteristic of the literature in some fields. Those clusters which used common constructs did so by virtue of common instruments (e.g. Learning Style Inventory, or Group Embeddedness Figures Test). No theoretical or cumulative links were drawn between the studies.

Throughout the analysis, the Person Situation Process Model was found to be useful as an organizing framework for data in each cluster of studies. It was found to be sufficiently general to apply in whole or in part to person and/or situation elements. In no case did it impose a particular interpretation on the data, that is, the nature of relationships among person and situation elements were not prescribed within the model. Its primary usefulness was in the systematic visualization of

disparate data in terms of the interactionist perspective. Gaps in available data, underlying assumptions with the reviewed studies, and plausible relationships among the respective constructs were visually and conceptually apparent.

There was a potential problem in the fact that the model was designed to represent one individual in a given situation, while most of the reviewed studies were reported in the aggregate. In the analysis, aggregate information was visualized either as "an average" individual, or as variable characteristics among persons.

Use of a holistic model to organize data from research of discrete phenomena resulted in numberous 'blanks' which could be filled only partially by implicit or explicit assumptions. In some cases, the blanks seemed to indicate glaring omissions with the original study. For example, research on method/achievement correlations was consistently found to ignore possible factors within the learner. Blanks within the Person Situation Process Model represented potential cues to a research agenda which might prove useful for continuing study.

Some elements of the Person Situation Process Model were consistently not represented in the reviewed studies and are deemed to merit more systematic inclusion in future research agendas. Recommendations are presented in Chapter Seven.

Reviewed studies were analyzed within clusters on related substantive areas. It was expected that the clusters, taken collectively, would represent in part what is known about adult learners in adult learning situations. The disparate studies

and clusters of studies were found to form a fragmented picture of that phenomenon. The use of a holistic framework helped to place them in comparable perspective for analysis. However, the nature of relationships among them requires more systematic study for fuller understanding. For example, how do the constructs 'learning style' and 'cognitive style,' so similar in the labels they carry, relate to each other? Are they independent, or are they each a part of what might be developed as a larger construct encompassing them both? Various constructs are used to describe cognitive development and are similar in some respects and not in others. Where they differ, they may be descriptive of different sub-populations of adults, or they may represent competing, mutually exclusive theories. For example, Riegel (1973) asserted that mature adults use a dialectic cognitive process, while Di Vesta (1974) described adults as information-processors whose accumulated store of knowledge results in resistance to discrepant information. Those points of view are in diametric contradiction to one another. Might they both be true for different adults, or for the same adult at different points in time? Within each cluster of studies, analysis has suggested approaches to further research for the respective phenomena.

In Chapter Seven, the results of the research review are compared and integrated with findings from observation and interview analysis (reported in Chapter Six). Recommendations and development of a research agenda are presented.

CHAPTER FIVE

PROCESS FOR COLLECTION AND ANALYSIS OF FIELD DATA

Learners were interviewed following specific learning situations which were observed and described by the researcher. The purpose for this field study was to obtain data from the natural setting to expand understanding of how learners might interact with their learning situations. This chapter presents (a) literature background for qualitative analysis, (b) analytic approach selected for use in this study, (c) process for collection, transformation, and analysis of observation data, (d) process for collection, transformation, and analysis of interview data, and (e) process for comparative analysis of observation and interview data.

LITERATURE BACKGROUND

Glaser and Strauss (1967) described two general approaches to analysis of qualitative data. First, if an analyst wishes provisionally to test an hypothesis, the data are coded and quantified. On the other hand, if the goal is to generate theoretical ideas, the data are inspected for categories and relationships. Glaser and Strauss suggested a combination of those two approaches, which they call the constant comparative method. By use of explicit coding and analytic procedures this method is more systematic than the second approach, and avoids the problem inherent in the first approach, that is, hindering the development of theory because the design is for provisional testing, not discovery, of hypotheses.

The constant comparative method is not designed to guarantee that two analysts working independently with the same data would achieve the same results, nor would it be useful for testing hypotheses (Glaser and Strauss, 1967).

The process for the constant comparative method starts with coding each incident in the data into as many categories of analysis as reasonable, as categories emerge from the data. While the incident is being coded, it is compared with previous incidents in the same category. That process brings to light the properties of the category. As conflicts or theoretical musings occur, those are recorded in memo form. New categories are added as they are required to account for new or conflicting

data. As incidents accumulate, their properties and relationships become increasingly apparent and form the basis for theoretical development.

Robinson (1974) pointed out some limitations of this approach. He argued that data do not exist independently of their perception and that Glaser and Strauss ignored the basic assumptions which underpin their generation of theory and fail to acknowledge the guiding perspective used in fitting data to emergent theory. Some preconceptions seem inevitable. The researcher's background knowledge and perceptions are used to analyze emerging data and to formulate theory. Rather than assume complete neutrality, a "blank slate," it seems more accurate and useful to attempt clear articulation of guiding perspectives. In the present study, interactionism and the Person Situation Process Model serve that purpose.

Holsti (1969) recommended a process of content analysis for investigating any problem in which the content of communication serves as the basis of reference, when the subject's own language is crucial to the investigation. He identified three characteristics of content analysis (Holsti, 1968) as objectivity, system, and generality. Objectivity is enhanced by use of explicitly formulated rules and procedures which minimize, but never quite eliminate, the possibility that the analyst's subjective predispositions are reflected. Systematic analysis implies that inclusion or exclusion of data is done according to consistently applied rules. Generality requires that findings have theoretical relevance.

Holsti (1969) asserted that the coding process is limited to manifest characteristics of the text. However, at the level of interpretation, "the investigator is free to use all of his powers of imagination and intuition to draw meaningful conclusions from the data" (p. 13). Meaningful conclusions are those which are plausible explanations of the data. Generalization beyond the investigator's interpretation requires continued research using appropriate methodologies.

Denzin (1978) described the format for collecting and presenting data as dramaturgical, that is, like the playwright the investigator endeavors to convey a working knowledge of individuals. Through such means as biographical sketches, description of how interactants were dressed, speech or behavior patterns, settings, and relationships, the investigator attempts "to produce for the reader the same perceptual and experiential states sensed by the original observer" (p. 89).

Discussing the relative merits of quantification in content analysis, Holsti (1968) acknowledged that undue emphasis on precision may result in loss of relevance or problem significance and concluded that qualitative and quantitative analyses are complementary, each providing insights on which the other can feed.

Placing more emphasis on quantification, Guetzkow (1950) described a process of unitizing and categorizing qualitative data. The size of the unit, and the category sets are predetermined based on the theoretical framework for the research. This approach, which enhances the likelihood of

consistency in data treatment, has the disadvantage of limiting discovery beyond the established categories. It assumes an a priori theory from which meaningful categories can be derived.

Bogdan and Taylor (1975) suggested that qualitative or descriptive data be examined in as many ways as possible to discover themes and to formulate hypotheses. They recommend reading, coding, sorting by categories, development of tentative hypotheses, then recoding and sorting data by newly formulated hypotheses to shed further light on the data.

Miles and Huberman (1984) provided more explicit approaches to the constant comparative method of Glaser and Strauss. They described the steps of qualitative analysis as data reduction, data display, and conclusion drawing. Choices for data reduction include doing summaries, teasing out themes, writing memos -- methods to sharpen, focus, sort, discard, organize data. Data display is an organized assembly of information for study and/or reporting the analysis. Most frequently in narrative text, data may also be displayed in graphic form such as matrices or models. Conclusion-drawing coexists with reduction and display. Tentative conclusions are held lightly at first then increasingly grounded and explicit in a continuous, iterative process. Overlapping and cyclical, rather than discrete and sequential, those steps provide a systematic approach to data analysis. Not more complex than quantitative analysis, it is just not as familiar or well defined. This places the qualitative researcher in a more fluid and pioneering position and requires full documentation of the process of

analysis to enable audit as well as to refine methods.

A chronic problem of qualitative research is that it is done chiefly with words, not with numbers. Words are 'fatter' than numbers, and usually have multiple meanings which makes them harder to move around and work with. However, they also "render more meaning than numbers alone, and should be hung onto throughout data analysis" (Miles & Huberman, 1984, p. 54).

Weick (1968) identified two alternative approaches to the observational record. The first, a rational approach, begins with conceptual definitions, categories, and instruments that have been tested. In the second, an empirical approach, indicators are used, conceptual definitions are delayed. Alternative beginnings for data coding (Miles & Huberman) were identified as (a) use of a 'start list' of categories, (b) no precoding decisions (a more 'grounded' approach), or (c) use of an accounting scheme for codes that are not content specific but point to general domains. Levels of coding change as analysis progresses, ranging from descriptive to explanatory. First level coding is a device for summarizing segments of data. At the next level, pattern coding is a way of grouping those summaries into a smaller number of themes, reducing the data into analytic units and helping to build a cognitive map. Pattern codes are hunches, some pan out, some don't. For all approaches to coding, codes will change and develop; the phenomena are larger than our early conceptions of them. Some codes decay, others don't work, still others capture too much and require division.

'Memoing' was recommended as a way to capture reflections during the process of analysis (Glaser, 1978; Miles & Huberman, 1984). Always conceptual in intent, memos are about such things as puzzling and surprising information, alternative hypotheses, new pattern codes, struggles to reach clarity on some concept, or a metaphor to organize discrete observations.

Data displays may be handcrafted by the analyst to present information and to report the process of analysis. Rotter (1981) suggested that narrative description of observations be treated in the commonsense terms of the social group, making clear the objective referent in a situation and yet treating it as psychologically meaningful or subjective to the group. Subject's reactions to the environment and the scientist's descriptions need not be identical.

Analysis is essentially the working of thought processes, and involves thinking that is self-conscious, systematic, and organized (Schatzman & Strauss, 1973).

DECISIONS FOR ANALYTIC APPROACH IN THIS STUDY

Using the Person Situation Process Model as a framework and the general approach outlined by Miles and Huberman (1984), the plan for data transformation and analysis was developed. Emphasis was placed on "thick" description for observation data, development of emerging categories for coding and analyzing interview data, and use of matrices and other data displays for visualization of potential relationships, and report of dimensions and relationships which appear more salient.

The various approaches to qualitative data analysis offer different advantages and disadvantages. Those which propose some form of quantification give the appearance of greater objectivity and offer a means for calculation of reliability and use of various statistical devices. However, the "multiple meanings" embodied in the words of qualitative data do not disappear when numbers are assigned to them.

Absence of a priori theory related to the nature of learner/situation interaction limits the usefulness of predetermined codes and quantification of data. Allowing categories to emerge enhances the likelihood that plausible interpretations will be available as analysis progresses. The Person Situation Process Model (Nystedt, 1981) is seen not as a priori theory but as a general accounting scheme which is not content specific. It provides general domains in which codes may change and develop during analysis. As an accounting

scheme, the model itself is subject to refinement or change.

These assumptions guided development of the approach for analysis of observation data: (a) that the researcher's observation would provide information about the context in which the learner's experience occurred, and as such would form a backdrop for understanding the interview data, and (b) that concurrence or variation between observation and interview data would suggest an idiosyncratic or intersubjective relationship of the learner to the situation and would offer useful information for understanding the nature of learner/situation interactions. Narrative description of observation data from each situation was used for comparative analysis with interview data.

These assumptions guided development of approaches for transformation and analysis of interview data:

1. Response to the interview is a partial reflection of the learner's experience of the learning situation. It is a reflection in the sense that it is about what that learner experienced, not a fabrication nor some other person's experience. It is partial in the sense that there is no set of questions which could elicit a complete image of what the learner experienced. Only information which the learner could bring to awareness, was able and willing to share, and for which the flow of the interview provided opportunity, were available as data.

2. The content of the interview, words and units of expression, offers cues to the person's experience when

taken together and in spatial and temporal context. The content sequence in an interview did not provide a chronological replication of the learning experience. In analysis it would be necessary to maintain realization of movement throughout the process, rather than assuming static relationships among the data. For example, "the room was beginning to get hot" or "I tuned out when the material got too technical" referred to moments in time, not the complete experience.

Steps for treatment of the interview data included (a) getting to know and preparing the data, (b) reducing and organizing the data, (c) describing the learner's experience, (d) developing patterns and analytic categories, (e) comparing responses for different learners within the same situation, and (f) for the same learner across situations. A priori categories were developed and used early in the process to code data, and to calculate code/recode reliability. Those efforts seemed counterproductive and were set aside in favor of use of emerging categories. The process and results will be described as an early step in reducing and organizing the data.

PROCESS FOR COLLECTION, TRANSFORMATION, AND ANALYSIS OF OBSERVATION DATA

Learning situations were observed, audiotaped, and described by the researcher. The purpose of observation was to obtain one description of the situation, which would be as objective and comprehensive as possible.

Collection of Observation Data

Seven situations which were available to the observer in a 'convenience sample,' were observed. The first six were part of a series sponsored by a medical center and designed as preparation for a registered nurse certification examination. The seventh was in a conference center, with a different type of subject matter, also offered for registered nurses. The original plans called for a larger sample with more diversity in learner background, content, and course types. The amount of time required for each segment of the study and the pragmatic need to complete the process were factors in the decision to stop with the seventh observation. Five of those situations and the respective learner interviews were included in this analysis based on the judgment that the categories were "saturated" from those data.

The observation was done to obtain a description of the

situation, as comprehensive and objective as possible, for analysis with subsequent learner interviews. Consistent with the theoretical framework for the study the researcher's point of view was expected to differ from the learner's in a number of ways.

1. Perceptions of the situation for each individual would be influenced by past experiences, goals and intentions, and focus of attention.

2. A priori intention to capture as much of the "total situation" as possible in the observations would, in itself, change the nature of the observer's perception from what it would have been if the observer were there in a different role, say as a learner or as a teacher.

3. Aspects of the situation for each learner would be more narrow and in some respects different in context or content. Attention would be more likely focused on the presentation of content. Position in the room, personal "thermostat", or clothing could affect comfort levels. Learners may experience different social interactions, some will attend alone, some will be with friends, some with work colleagues. Different positions within the room may result in learners hearing different comments, seeing different nonverbal cues, seeing AV materials to a greater or lesser extent. Different behavior of the teacher(s) toward individuals represents another variation in the situation for each individual.

These are believed to be real differences between persons

which no system of observation or measurement would completely capture. It is assumed that there is no single, "objective" situation for all individuals present. Within that context the observer's description was obtained as a backdrop for analysis of the learner's report of the situation. The learner's perceptions of the situation were taken as valid for that individual. The purpose for situation observation was to expand information to more fully comprehend the experience as reported by the learner and how that experience might relate to observable characteristics of the situation.

James and Sells (1981) explained different perceptions of environments as related to the assumptions that (a) individuals have differences in perceptual cognitive filtering and interpretation, and (b) individuals in presumably the same environment might not have been exposed to the same set of situational attributes and events. The perceived environment is made up of socially organized and shared dimensions of potential meaning as well as idiosyncratic dispositions to perceive and to process information (Jessor, 1981).

An observation guide (see Appendix D) was developed using the Person Situation Process Model and the researcher's past experience as adult educator and adult learner as frames of reference. In addition, "frame factors" as described by Lundgren (1972) were included for description.

"Frame factors," elements outside the immediate situation which might "frame" or constrain what happens within it, were: organizational framework, sponsoring organization; planned

purposes, goals, teaching methods, and evaluation; planned time frame; relationship of offering with participants, for example mandatory/voluntary enrollment, cost in money, time, energy.

Elements of the situation were considered to be:

1. Physical setting (arrangement of space, lighting, temperature, comfort factors, distractors).

2. Teacher (appearance, description of selected behaviors, verbal and nonverbal communication, spatial relationships, position in the room, social and professional status relative to learners)

3. Content (subject matter, relative level to field and participants, clarity and sequence)

4. Methods (types used, description and evaluative comments about use, event sequence)

5. Learners (number and general characteristics, response, attention level, selected specific behaviors of individuals, selected verbal and nonverbal interaction with teacher, learner to learner verbal and nonverbal interaction, spatial relationships among learners)

During each situation, the researcher observed as comprehensively as possible each of those elements. Chronological notations were made to identify specific events or observations related to any element of the situation. The guide was scanned periodically as a reminder of the scope of observations to be made. In addition to the content of the observations, "process" memos were used to capture thoughts related to interpretation or to research process. The following

are illustrative:

1. Conscious and continued effort was required to maintain attention to the whole situation, especially the process as opposed to content. There was a "pull" toward the content, to simply be in the learner role rather than an observer of the situation. I became aware of the influence my purpose had on how I experienced this situation, and wondered if purpose might consistently be an important factor.

2. The varied nature of individual's experience took on sharper meaning. Attending to the process, I was especially aware of differences: ability to hear comments by other learners directed toward the teachers in discussion periods, ability to see materials used for illustration, small group interactions as well as social interactions during breaks. Some parts of the room were experienced as cold, others were not. I developed an appreciation for the concept that, not only are perceived experiences different, the "real" experience of the individual is different from others in the same situation. I have yet to explore how these differences have salience to the learner.

3. Elements of "substance" in the situation (as defined in the Person Situation Process Model) were relatively easy to observe and describe. "Relations" were limited to spatial and temporal aspects. I had expected that causal relations would not be readily apparent; that

in fact, identification of such relations would require a more controlled experimental design. (When I speculate about causal relationships, tentative language will be important to avoid the pitfall of saying more than observation allows.) "Quality" posed the most difficult part of the situational elements in the model, since the evaluative process requires implicit or explicit criteria. It would be a monumental task to develop explicit criteria for even the major elements and what observer bias would that introduce? It seems obvious that the complete set of elements in the model are not reasonable to include in this study design.

Transformation and Analysis of Observation Data

Within forty-eight hours of the observation, a full description of the situation was developed from the chronological notations and audiotapes. Detail was retained as the material was reorganized to describe the setting, teacher, learners, teaching methods, and content, identified as the elements of substance in the learning situation. Background data obtained prior to the observation and included as a part of the situation description were: organizational framework, purpose and goals, planned teaching methods, planned evaluation, nature of the relationship or the offering with participants, time frame, and planned level of content.

The resulting description of each situation was used for

comparative analysis with interview data. For example, one learner did not mention extraneous noise and on query had reported being totally unaware of it. The observer's notes documented outside noise at frequent intervals during the session. This example illustrates how the observations provide additional data from which questions might be raised. What factors might have accounted for the noise not coming to the awareness of that learner? How might distractions function in the learner's experience?

A summary description of each situation was included in this report. The full description, original observation notes, and audiotapes were retained for reference or audit.

Observation notes were transcribed within forty-eight hours of the observed situation; interviews were conducted on the day of or following the situation. That time sequence provided possibility for a reciprocal effect between interviews and observation transcription. Typically, there was one interview immediately following the learning situation with the remainder later that evening or the following day. Transcription of observation notes was done between interviews when possible, or the day following completion of interviews. Any influence of the observation, or transcription of observation notes, on the interviews would have been evidenced in the nature of probing questions used within the interview and was considered an appropriate use for that information. Influence of interviews on the transcription was believed to be minimal, in that the observation notes were detailed and transcription was

essentially reorganization rather than expansion of the data.

PROCESS FOR COLLECTION, TRANSFORMATION, AND ANALYSIS OF INTERVIEW DATA

Following each observed situation, learners were interviewed. The selection of learners, the interview process, the pattern of data collected across situations and across learners, and the transformation and analysis of those data are described.

Collection of Interview Data

The plan for study of learner experience included unstructured guided interviews of from three to five learners on the same day or day following each learning situation. When it was logistically possible, the same learners were interviewed following more than one situation.

The principal criteria for selection of learners to be interviewed were their willingness to be interviewed, and their availability within the time frame specified for the study. The exploratory nature of the study and potential logistical problems with data collection, (e.g. subjects not available or willing to be interviewed, available but not in sites accessible to the interviewer) were factors in a decision not to use random selection. At the beginning of the series of six, and the

seventh situations, the researcher briefly described the purpose of the study and requested volunteers for interviews. Times were arranged individually, and each learner was encouraged to do more than one interview. Interviewees were paid $10 for time given to each interview.

Interviews were conducted in private settings including classrooms, conference rooms, and offices. Efforts were made to minimize distractions.

A preliminary interview guide was developed using the Person Situation Process Model, andragogical assumptions, and the researchers past experience as an adult educator and learner as frames of reference. Interviews were audiotaped and transcribed. The transcripts were used as the primary data for analysis. Data transformation and analysis are reported in Chapters Five and Six respectively.

Table 8 shows the pattern of data collected across situations and across learners within the same situation. It was originally planned that there be mimimums of three learners for each situation, and three situations for each learner for comparative analysis. Factors which limited achievement of the desired sample design were the voluntary nature of learner's participation, and limited availability within the specified time frame. The first six situations were individual sessions within a series for the same group of participants. That series was selected for its logistical advantage of access to the same learners more than once. It had the disadvantage that some elements for both the learner and the situation were similar,

Table 8

Distribution of Learner Interviews Across Situations

Learner pseudonyms	Observed situations							
	1	2	3	4	5	6	7	Totals
Alice	X		X					2
Betty		X						1
Celia		X			X			2
Donna		X			X	X		3
Ethel		X						1
Faye		X						1
Gail			X			X		2
Helen				X		X		2
Ione				X	X			2
Jean				X	X	X		3
Karen						X		1
Lyle							X	1
Marie							X	1
Nola							X	1
Opal							X	1
Total	1	5	2	3	4	5	4	24

for example, purpose for attending probably would be the same for each session, and the setting was the same. The specific content and teacher(s) changed from session to session.

Transformation and Analysis of Interview Data

Getting to Know and Preparing the Data

Audiotapes of interviews were transcribed to make the data more accessible for analysis. The transcription was done by the researcher as a means for getting to know the data in a different and more intensive way than simply listening to the tapes or reading the transcripts. The complete verbatim transcripts were then used for analysis. File copies of the transcripts were prepared and also were verbatim with the exception that words or phrases which would identify the individual interviewee, the instructor, or the institution were translated to generic language. For example, if the course content were "cardiovascular disorders," reference to that content by name would identify the particular teacher. Such reference would be translated to [content]. If the name of a teacher were mentioned, it was translated to [teacher], and so on. Brackets were used to indicate that the material was translated from the original. When the transcript was completed, it was rechecked for accuracy against the audiotape. Audiotapes, vertabim transcripts and generically coded transcripts were retained for reference or audit.

A Priori Categories and Intrarater Reliability

A substantive issue to resolve for purposes of this study was the extent to which reliability should or could be determined. Measures of reliability, essential in research which seeks to verify or test hypotheses, were considered useful, rather than essential, in the present study which seeks to generate hypotheses. In this regard, early efforts to use a priori categories were accompanied by calculation of agreement scores for code/recode of three interviews.

Development of Units and A Priori Categories

In this early effort to organize the interview data for analysis, the purposes for coding data were twofold.

1. The process would further the analyst's familiarity with the data. By use of explicit coding and analytic procedures, it was believed that regularities as well as irregularities in the data would become more visible.

2. The category, or intrarater, reliability could be calculated as a measure of consistency and objectivity in the treatment of data.

Following Guetzkow's schema (Guetzkow, 1950; Holsti, 1969), "theme" was selected as the logical unit for analysis of the interview data. Single words would not sufficiently reflect the

concepts required for understanding the learner/situation interaction, while sentences would contain more than one concept. Use of theme as the coding unit for data is more difficult because boundaries are not readily identifiable. The required judgment for determination of a thematic unit could be expected to reduce reliability, but was seen as necessary for extracting meaningful concepts from the data. Themes were developed within the broad categories of person system elements in the Person Situation Process Model (Appendix E).

Classification of Data from Transcripts

Each of the first five interview transcripts were coded in the following manner. Units of content, consisting of single words or phrases which expressed the theme in a category description, were identified and underlined. The residual was not considered a unit, reflecting use of a "sieve" method as opposed to "exhaustive" method of classification (Guetzkow, 1950). The residual was reviewed for substantive information to determine if the categories were sufficiently inclusive. Units were assigned numerical codes corresponding to the a priori categories. Between 72 and 120 hours after the initial unitizing and coding, the procedure was repeated to recode three interviews.

Calculation of Code/Recode Intrarater Reliability

Category reliability was calculated using a ratio of code/recode agreement to total number of units for three interviews. The results were 83.2, 78.9, and 86.8 percent agreement scores for the three interviews respectively. An advantage of this method was its relative simplicity, a disadvantage was that it did not account for agreement by chance. Scott's pi (Scott, 1955), a formula for calculation of reliability for nominal data which accounts for chance agreement, was considered and not used. Neither the requirement of categories that were mutually exclusive, nor a sufficient population for calculation of the chance factor were met in the present study. Using the agreement to total units ratio as an index of reliability, Miles and Huberman (1984) advised that 70 percent reliability was a reasonable expectation in the early stage of coding. Thus the code/recode results in this study were taken to be adequate for its purposes.

Example, Excerpts from Coded Transcript

Throughout the chapter the examples will use the same excerpts from Learner 05, pseudonym 'Ethel', for purposes of illustration.

The underlined segments identify the selection of thematic units. Left marginal notations represent the statement number. Right marginal notations represent codes which were numerically

representative of the outlined categories in Appendix E. Parenthetical statements identify observations about learner behavior during the interview, or brief interjections by the other party into the stream of a comment.

I: I'd like to start by walking through the session yesterday in a time sequence, have you reflect back on it and recall what you were thinking or feeling or what things you noticed. Before you even came to the class, as you were anticipating coming to the class, what are you aware of thinking, or feeling?

L: Well, let me see. (pause) That's... hard to answer because I don't know if ... or if I say
I really wasn't anticipating anything because uh, 1G
I'm not learning anything. Is that fair to say? 1F
Because everything is so far above me, that uh, 1F
1 I'm not learning anything. And so I'm just .. 1F
going to be going, to get a kind of general idea, 1B
and um, I mean that's... that's it. I almost didn't 1B
come and I've been thinking about not 1B
coming to the rest of them. But I've decided to do that.

I: So as you were thinking about coming yesterday some of your thoughts were about the fact that the material is overwhelming? Is that what you're saying?

L: Well, um, OK, I don't feel that it's overwhelming, 1F
know that there is too much for me to learn, 1F
the way it's being presented. 1F
Um, I haven't gone back to school since I got out 1E
2 of nurses training. So, (it just feels like an awful lot to try to catch up) Oh, oh, yes, yes. Uh,
I really didn't have any idea what this class was, 1F
until I think, I got the second letter and read it 1F
and then I realized what it was for and 1F
I knew basically what it would be like. 1F
Which is what it is. 3E

I: If you had to identify one thing about the session or during the session that stands out most in your mind what would it be?

L: Oh, well, OK, um I'll say that the amount, Ok, I 3B
guess I think that it basically was a pretty good 3E
session, I enjoyed that session. 5A
There was a lot of material to be covered, but 3B
she didn't even try to cover it, and 3A
8 she picked out certain things, and you know, gave 3A

her attention to those, and I enjoyed the 5A
handouts and just glancing over them, um, I, 4D
it made me realize that if I want to get anything 2D
more out of that class I would have to read 5B
her handouts, and you know, read. Um
but I enjoyed, her presentation 5A,4A
and she did have to say. I enjoyed 4B,5A
looking at the slides. And 4D
she didn't get technical, you know and I think 4B
was, gave very basic everyday stuff. 4B

I: Describe your purpose for,for deciding to attend the series.

L: Yeh, OK. Uh, I, um, I worked in a nursing home 1E
for ten years, and excuse me for getting this way
(crying), Ok, and I got tired of it and so I 1E
decided to go to work in a hospital and since, 1E
since I started working in the hospital I can see 1E
how much nursing has changed, not nursing skills, 1E
10 but the teaching, the teaching, and the amount of 1E
knowledge out there and I have not cracked a 1E,1E
book since I got out of training thirty years ago,
so um, I want to catch up basically, because I 1B
don't want to... I'm working fine ... not... 1E
I don't want to be there working and knowing that I 1B
I should know certain things, or not be caught up.

I: Reflecting back to the beginning of the series, what were your expectations for what it would be like?

L: Hum, well, uh, let me see, I, I guess that ... see,
I can't, I can't relate learning to anything except 1E
the way it was in nurses training, (yeh) You know
when you have a textbook and you have classes and and
like you have an assignment or you know, you talk about
a chapter, and and you go home and read the next chapter,
or whatever. Uh, (So that was pretty much what you
expected?) Yes, I really didn't stop, I really 1F
16 didn't give it too much thought I mean real thought,
I guess I just keep hoping that this is the way it's 1G
going to be and I don't stop to realize that 1C
they are trying to cover a lot of ground in a short
time and that they, like even one subject in a two
hour period, I didn't even stop to realize that, you 1C
know, it was impossible for me actually to get
what I wanted. I won't say that.... you know 1F
this has helped me, because everything I'm done has
helped me. It has given me like an overview 4B

of how I feel like I guess I should go about it it.
like what's most important for me to learn now or 4B
or understand now and then I can continue 4B
into the detail. (It sort of gives you a framework?)
Right, Umhum.

A number of problems were identified with this process. First, categories were not mutually exclusive. In fact, the data did not lend themselves to mutually exclusive categories. For example, a reported response which occurred at one time in the process would become a momentary state for the continuing interaction. Anger expressed toward the level of content selected by the instructor, or excitement about a useful bit of information, could be considered response at one moment and momentary states for as long as the emotion continued. That temporal nature of the interaction did not lend itself to static categorization, nor was the purpose of the analysis served by the effort to create categories so precise that consistency in coding could be assured. Search for understanding the experience as the learner reported it had become secondary to the coding process. Focus on the detail and a priori categories, required for such coding and quantification, moved increasingly further from the learner's own report in a holistic sense. It became apparent that categories used for analysis in this study would be more productive if they were derived from the data, rather than imposed upon it. Preexistence of coding categories results in closure rather than openness to the field and increases inter- or intra-coder reliability at the expense of failing to reflect complex reality (Robinson, 1974).

Brenner (1983) compared the analysis of individual data, practical knowledge or perceptions, to the interpretation of a text. A sentence cannot be understood by analyzing the words as constituent elements alone. Rather it is understood as part of the larger whole. Similarly, the learner's perspective cannot be understood in terms of discrete statements but in the larger context.

General Coding, Reducing and Organizing the Data

After setting aside the first attempt at meaningful coding, the approach involved identification of "bins" into which the data would be sorted. Miles and Huberman (1984) stated that bins, derived from theory and experience, are labeled and described to serve as focusing, bounding devices. They are subject to change as the analysis progresses, and are simply the current version of the researcher's map of the territory being investigated.

Using broad definitions from the Person Situation Process Model, the data were reduced in paraphrased or quoted excerpts and mapped in a graphic display (see Table 9). It was judged that this process did not alter the meanings or relationships inherent in the data, for example, if a particular observation was identified by the learner as related to a specific perception, that relationship was maintained in the mapping process.

Table 9

Illustration of Data Display: Reducing and Organizing the Data

Learner 05 "ETHEL" in Situation Two

STATEMENT NUMBER	ABSTRACT STRUCTURE	MOMENTARY STATES	CUES/PERCEPTIONS	RESPONSES	THEME CODE
1		not anticipating anything	because I'm not learning anything		
			because everything is so far above me	I'm not learning anything	
	I'm going to be going, to get a kind of general idea				
	almost didn't come, considered not coming anymore, but have decided to				
2	no school since nurses training ((30 years ago))		don't feel that it's overwhelming, just that it's too much for me to learn, the way it's being presented		
	didn't know what to expect in this class at first, 2nd letter, then I knew what it would be		and that's what it is		
8		[enjoyment]	amount of material stands out		
			it was pretty good session	Enjoyed it	
			a lot of material to be covered - she didn't try - picked out certain things for attention		
			handouts, presentation, slides	enjoyed	
			realized if I wanted more, would have to read		
			she didn't get technical; it was basic stuff		
10	Worked in nursing home for 10 years; got tired of it and went to hospital nursing -- has changed so much				
	"I have not cracked a book in thirty years"				

Table 9 (continued)

	"Want to catch up basically" don't want to work and not be caught up		
16	"I can't relate learning to anything except the way it was in nurses training"	"Really didn't give it too much thought, just keep hoping that is the way it's going to be"	
		didn't even realize that it's impossible for me to get what I wanted	this has helped. it gives me an overview of what's important for me to learn

Overlapping categories, previously described as a problem in the use of a priori categories, continued to be a factor in the more holistic and emergent approach to development of categories. For example, arbitrary decisions sometimes placed a learner statement in "responses" when it might have been equally appropriate to place in "momentary states." Thus issues of reliability in the placement of statements in categories continued to be a potential problem for the study. However, the researcher found the process to be more useful than the product in its systematic focus on each statement in its context within the interview. Whereas discrete statements might fit more than one category, the process did yield emerging patterns which were believed to be descriptive of the learner's reported experience.

The broad category definitions were:

Abstract Structure -- relatively stable elements of the person system such as knowledge of the past, attitudes, opinions and values, individual and shared rules, long term expectations about the future, purposes and goals, and past experiences.

Momentary States -- Transient elements of the person system occurring in anticipation of or within the time frame of the learning situation, related or unrelated to the situation itself, such as emotions, physiological states, attention level, and degree of intensity.

Perceptual Cognitive Structure -- Perceptions related to the learning situation such as thoughts, opinions, judgments, descriptions, ascriptions, reported as occurring within or following the time frame of the situation.

Input Selection -- Cues and observations reported or mentioned as having occurred within and about the learning situation including identification of time factors.

Response -- a statement of reaction or outcome either overt or covert including affective, cognitive, physiological, psychomotor, or behavioral domains.

The data display was a large layout which illustrated the conceptual relationships of the broad categories as they emerged in the interview. For efficiency in reporting the data, the diagramatic features of the model were not used. Table 9 shows an example of this stage of data preparation with the exception that the analyst worked from handwritten material. Double parentheses are used to identify analyst's comments or reflections.

Second Coding -- Patterns and Analytic Categories

Whereas "first level coding is a device for summarizing segments of data", "pattern coding is a way of grouping those summaries into a smaller number of overarching themes or constructs" (Miles & Huberman, 1984, p. 68). The previously

described process provided the data display for identification of themes or patterns which stand out as key features in a given learner's experience.

The first two interviews were coded extensively, statement by statement, for themes and pattern relationships. Categories were named and defined as they emerged. "Indecks" cards were used to trace the subsequent occurrences of each category, and punched for ease in retrieval.

The categories, labels and definitions which were developed from the first two interviews were organized by category type and are presented in Table 10.

Table 10

Patterns and Analytic Categories Identified from Two Interviews

Category Name	Definition	Code ID
AS(Abstract structure): General opinions, beliefs, values	Statements that assert or imply beliefs, opinions, values, goals, which transcend the learning situation	AS:opin, value
AS: Learning styles	Personal attribution of a particular characteristic or preference related to learning	AS:lrn pref
AS: Past experience teaching	Report or description of past experience as a teacher	AS:Pex (tchng)
AS: Past experience with other learners	Report of past experience, associations with other learners and any meaning or significance significance attached to it	AS:Pex (oth lrn)
AS: Past experience	Report of past experience with physical setting and any meaning or	AS:Pex (set)

with physical setting	significance attached	
AS: Past experience with teacher	Report of past experience, associations with teacher and any meaning, significance, expectations attached.	AS:Pex (tcher)
AS: Prior knowledge	Report of extent or recency of contact or experience with content area	AS:PrKn
AS: Perceived expectations of self or others	Reported perception that coworkers, others, or self hold expectations of learner related to learning situation	AS:Exp
AS: Purpose	Statement of purpose(s) for involvement including process of decision making for involvement	AS:Purp
MS(Momentary states): Anticipation	Thoughts, feelings directed toward the session in some way and reported as having occurred prior to arriving	MS:Antic
MS: Attention level	Degree of attention, involvement, intensity during the session	MS:Att
MS/Response interaction	Reported response to all or part of the session which could have become an influence on attention or subsequent response	MS/Resp
MS:Extraneous factors/ response	Cues, perceptions, responses not course related and serving to reduce attention level	MS:Ext/ resp
Cue/Perception interaction: Content	Observations about content connected with opinions, judgments, meanings about it	Cue/Perc (cont)
Cue/Perception interaction: Environment	Observations of environment connected with opinions, judgments, meanings about it	Cue/Perc (envir)
Cue/Perception interaction: Teacher	Observations of teacher connected with opinions, judgments, meanings about him/her	Cue/Perc (teach)
Perceived Content/Resp interaction	Description of content related to a general or specific response to all or part of a session	P:Cont/ Resp
Perceived	Description of environment related	P:Envir/

environment/ Response interaction	to general or specific response to all or part of a session	Resp
Perceived methods/Resp interaction	Description of methods related to response	P:Meth/ Resp
Perceived Other learners/Resp interaction	Observations or perceptions of other learners connected with meaning or importance for own learning	P:OL/ Resp
Perceived Social contact/Resp	Report of social contact in situation connected with any response or importance, significance	P:Soc/ Resp
Perceived Teacher behavior/Resp (content)	Responses connected with teacher behaviors that are directed toward content, e.g. direct reference, eyes focused on notes	P:Teach (content)
(organization)	Responses connected with teacher behaviors concerned with organization of material	P:Teach (org)
(practical)	Responses connected with teacher behaviors related to practice, application of content	P:Teach (pract)
Perceived Methods/Resp interaction	Responses connected with teaching methods	P:TM/ Resp
Perceived Time/Resp interaction	Responses such as attention level restlessness, enjoyment, connecte or attributed to temporal aspects	P:Time/ Resp
Outcome Response: Affective	Feelings or values reported as outcomes or as existing following the session and attributed to the learning situation	OR:Aff
Outcome Response: Cognitive	Perceived knowledge gain attributed to the learning situation	OR:Cog
Outcome Response: Planned use	Statement related to plans for use of any outcome from the session	OR:Plan

The statement by statement coding of the first two

interviews revealed some trivial items, for example, a category was established for "prior experience with other learners" even though the response of both learners was "none" to that question. For subsequent interviews, if a judgment was made that information specifically elicited by the interviewer was not significant to the learner, it was not categorized. Using the constant comparative method of analysis, as incidents were added, they were compared with earlier incidents in that category.

Reflections and observations were documented in memos or on the category "Indecks" cards. New categories were added and fruitless ones were dropped or modified as subsequent interviews were coded. For example, "cue/perception interaction" categories were later defined as "perceptions" since in most cases the "cues" on which they were based were not readily identifiable.

At the conclusion of the fifth situation and respective interviews, a repetitive pattern of meaningful categories seemed to emerge. It was judged that the categories as revealed by this set of interviews were "saturated" as that concept was defined by Glaser and Strauss (1967). Further understandings would require a return to the field with different questions. Therefore, analysis of the remaining two situations was not included in this report. Suggestions for further study in Chapter Seven identify directions for expansion of the field study questions.

Table 11 shows how the reduced and organized data,

illustrated earlier, were further categorized by identification of potential pattern relationships. "Indecks" cards and the coded data displays were used for analysis and retained for reference or audit.

Describing the Learners' Experience

Following data reduction and pattern coding, each interview was summarized in a narrative description of that learner's experience. Pseudonyms were used to enhance readability and to protect confidentiality. A display of selected elements in the Person Situation Process Model was used to visually summarize potential relationships. The narrative summaries and displays were included for each learner in Chapter Six. Analysis included comparison with observation data, identification of logical consistencies or inconsistencies within the individual's report of that experience, and development of plausible explanations.

Comparing Learner Responses within Situations

Experiences of different learners within the same external situation were analyzed in the following manner. The full description of the situation observation was read and the summary was written. Each interview for that situation was prepared as has been described. A matrix display was used to

Table 11

Illustration of Data Display: Pattern Coding

Learner 05 "ETHEL" in Situation Two

STATEMENT NUMBER	ABSTRACT STRUCTURE	MOMENTARY STATES	CUES/PERCEPTIONS	RESPONSES	THEME CODE
1		not anticipating anything	because I'm not learning anything		MS/Resp
			because everything is so far above me	I'm not learning anything	P:Cont/ Resp
	I'm going to be going, to get a kind of general idea				AS:Purp
	almost didn't come, considered not coming anymore, but have decided to				AS:Purp
2	no school since nurses training ((30 years ago))		don't feel that it's overwhelming, just that it's too much for me to learn, the way it's being presented		AS:Prior Know
	didn't know what to expect in this class at first, 2nd letter, then I knew what it would be		and that's what it is		MS:Antic
8		[enjoyment]	amount of material stands out		
			it was pretty good session	Enjoyed it	P:Cont/ Resp
			a lot of material to be covered - she didn't try - picked out certain things for attention		P:Cont/R P:Teach (org)
			handouts, presentation, slides	enjoyed	P:TM/R
			realized if I wanted more, would have to read		OR:Cog
			she didn't get technical; it was basic stuff		P:Teach/ (cont)/R
10	Worked in nursing home for 10 years; got tired of it and went to hospital nursing -- has changed so much				AS:Prior Know
	"I have not cracked a book in thirty years"				AS:Prior Know

Table 11 (continued)

	"Want to catch up basically" don't want to work and not be caught up			AS:Purp AS:Expect
16	"I can't relate learning to anything except the way it was in nurses training"	"Really didn't give it too much thought, just keep hoping that is the way it's going to be"		AS:Lrn style MS:Antic
		didn't even realize that it's impossible for me to get what I wanted	this has helped. it gives me an overview of what's important for me to learn	OR:Plan

compare selected elements across learners and was described in narrative summary. Memos were used to capture observations and speculations for further reflection and tentative conclusions.

Throughout the process, learners' responses were compared with the observation data and with one another. The search was for understanding of similarities and differences in how different learners experienced the same external situation. Plausible explanations were given as potential forerunners to the development of hypotheses.

Comparing Learner Responses Across Situations

For learners who were interviewed following more than one situation, the data were summarized by the key themes identified within each interview for that learner, and displayed in a matrix showing relationships across those situations. Consistencies and inconsistencies were described and plausible explanations were developed.

SUMMARY

Background literature for qualitative analysis was reviewed and rationale was given for selection of the approach used in this study. The process for transformation and analysis of observation and interview data was detailed. Chapter Six reports the results of that process.

CHAPTER SIX

SITUATION OBERVATIONS AND LEARNER INTERVIEWS SUMMARY AND ANALYSIS

This chapter presents the results of the data transformation and analysis process described in Chapter Five. For this report, the first 5 situations, with 15 interviews representing 10 individuals were analyzed. In the first section, three situations are described as they were observed and as they were experienced by multiple learners. Situations Two, Four, and Five were those following which three to five learners were interviewed and provided potential for examination of cross-learner comparisons. In the next section, the focus shifts to individual learners and how they experienced different situations. Two interviews with each learner, Alice, Celia, Donna, Ione, and Jean, were analyzed to compare learner responses across two situations. Descriptive information for Situations One and Three, needed as background for analysis of Alice's experiences, is provided at the beginning of the second section. Gail's interview in Situation Three was not included as part of a multiple learner comparison, nor for comparison with her later interview in Situation Six, and was not reported.

Each of the three situations is described from the observer's perspective. Following the description, the learner's experience of that situation is presented as reported

in the interview. Researcher's inferences, judgments, or analytic comments, if interspersed in the presentation prior to the analysis section for each learner, are enclosed in double parentheses. In the analysis section for each learner, lexical distinctions differentiate learner reports from researcher inferences. The interactive framework is used to explore relationships within the learner's experience as well as between the learner and the situation as observed or perceived.

SITUATIONS AS OBSERVED AND EXPERIENCED BY LEARNERS

Situations Two, Three, Four and Five are described from the observer's perspective. The experiences of three to five learners from each situation are reported and analyzed.

Situation Two

The situation was one session in a series of twelve, each two hours in duration, designed as a review for a nursing certification examination. Each session was taught by a different instructor, considered an expert in the subject matter. Content for each session was a different specialty in medical-surgical nursing. Extensive handouts, organized in a four inch thick notebook, included an outline, background materials, and a review quiz for each session. Lecture and audiovisual presentations were the predominant teaching methods. The session was presented twice on the same day. Participants could attend either time.

Participation was voluntary, there was a fee for enrollment, and no attendance was recorded. Credits were offered toward a mandatory continuing education requirement for maintenance of licensure.

The setting for the series was a classroom in the medical center which sponsored the series and where most of the participants practiced. Two rows of narrow tables were arranged with a center aisle. Chairs were standard "conference room type," three at each table. Windows along the right wall opened to a courtyard with trees at the second floor level. The entrance was a door off the hallway, midway on the left side of the room. When the windows or door were open there was periodic noise from outside or from the hallway. There was a table at

the back of the room where lemonade was supplied for refreshment break during each session.

For this particular session, the weather was sunny and relatively hot; the windows were open throughout, and the door was open during the early part of the session. A cool breeze from the shaded courtyard was reduced when the door was closed, but the hallway noise was diminished. Periodic noise from outside continued throughout the session. Western exposure and shifting position of the afternoon sun resulted in temperature changes during the session.

Content for the session was a specialized area of practice which includes both acute and chronic disorders. Patients with chronic disease frequently are found outside of specialty units, extending the number of areas for which the content is applicable. This session focused on four diagnoses or problem areas more frequently encountered in the specialty with overview of pathophysiology, and emphasis on nursing practice application.

The teacher was a content expert in the subject for the session with prior teaching experience. Dressed in casual street clothes and a lab coat, she appeared relaxed and comfortable. Her voice was natural but occasionally low and soft with sentences seeming to "trail off" as she glanced downward toward notes. She seemed very familiar with the content, and for the most part, looked at participants throughout the room. She started on time with an overview of the plan for the session which delimited the content to be

covered. Acknowledging the material in the notebooks and the outline as potentially overwhelming, she explained her reasons for selection of the specific parts she would cover. She occasionally invited involvement in discussion and tended to be learner-focused, that is, looked at participants, asked for feedback, attended when participants spoke, responded to participants' questions and comments. She concluded with a summary with pointers for the certification exam, and provided for discussion of the review guides.

Lecture was the principal method of instruction, supplemented with extensive handouts (over 200 pages) and slides. Slides were colorful and attractive, but tended to be more complex than the points to be made; the print was too small to be read from the middle of the room and added to the sense of complexity.

There were appoximately 20 participants, some of whom came late or left early. There was minimal note taking, participants seemed moderately attentive during the first hour. Occasionally, some participants were described as low in attention, that is, looking about the room, thumbing through notebooks, or dozing. The second hour, the general attention level seemed higher, evidenced by participants sitting forward, and by increased verbal interaction with the teacher.

Five learners were interviewed following this session. Betty, Celia, Donna, Ethel and Faye are the pseudonyms assigned to those learners.

Betty

Betty was a clinical specialist, in practice for over 15 years, with a Master's degree in nursing. Her specialty is somewhat related to the content of the session. Her purpose for attending was expressed as "looking at how other instructors taught" in order to pick up ideas for improvement of her own teaching. She acknowledged the mandatory continuing education requirement as a "catalyst" in her decision to attend the series. She already had acquired certification in another area and did not plan to take the exam for which this review was intended. Betty was scheduled to teach a later session in this series (see Figure 17).

Betty expressed a number of learning preferences. She does better when not under pressure to "write everything down." She finds it helpful to hear content verbally as well as see it visually. It is hard for her to be attentive when the presenter has an even or soft voice tone. She works at that problem, herself, as a teacher. Comments about evaluation occurred at several points in the interview. "I learn better when it's not tied to evaluation," and "I hate the evaluation process," are illustrative. Public comparison with other learners was an important factor in Betty's feeling about evaluation.

Betty's past experience included having taught in a series like this one the previous year. Participants in that series had expressed positive reactions that the content was covered in

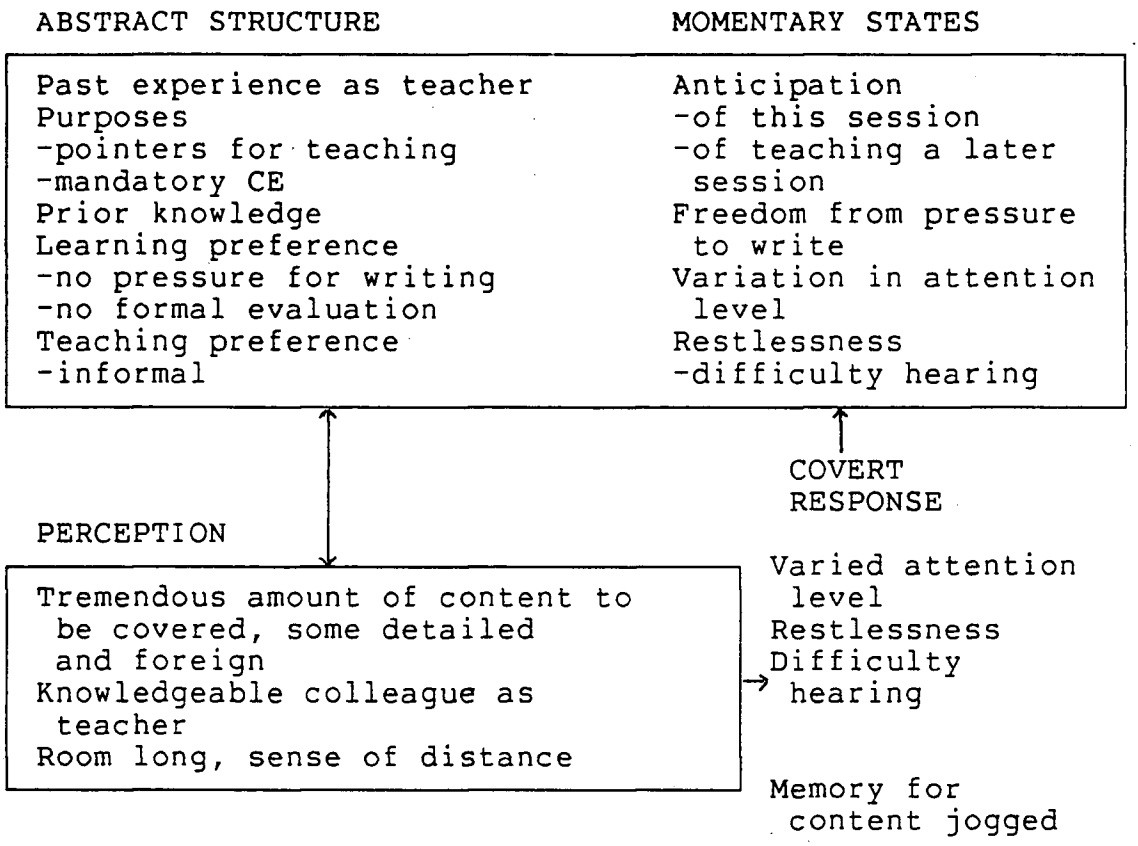

Figure 17. Elements of Betty's experience in Situation Two

depth by skilled teachers. She reported having no organized exposure to the content for this session past her formal education, but uses it in her work with patients and staff. The teacher for this session was a colleague with whom Betty works and co-teaches. She expected the presentation to be logical, sequential, and understandable.

In her own practice as a teacher, Betty preferred informal teaching which is more spontaneous and focused on specific needs. She feels anxious with formal teaching. "It's more distant from the participants," and "feels like it's more easily challenged." The shape of the room, "not really stretched out," structured so that it is comfortable for participants, and a

sense of rapport and interaction with participants were points of emphasis in her preferred teaching style.

Betty expressed positive anticipation for review of this content because it "tied" in to her specialty. She emphasized a feeling of freedom from pressure to take notes, which seemed related to availability of handout materials, and to the expectation that she would not be evaluated. Her attention level was reported as generally high. Variations were attributed to environmental factors (people moving, noise) and to content (detailed and unfamiliar). She reported restlessness toward the end of the two hours attributed to her chair not being comfortable, as well as to the time of day.

The environment prior to the beginning of the session was seen as very comfortable, conducive to informal exchange and "nice, free classroom experience." Subdued lighting and the fact that the same participants have been together for several sessions were identified as factors in that perception. During the session, it was "not a comfortable room," "long and stretched out," making it"difficult to hear," with "a sense of distance from the instructor."

She perceived the instructor as well organized and knowledgable, with a soft voice and flat tone that was sometimes difficult to hear. Content was relevant to Betty's practice but sometimes "foreign," meaning not something she deals with on a day to day basis. The instructor's overview and summary of content were perceived as organization and logical sequence.

Having her "memory bank jogged" was Betty's judgment of the

outcome of the session. She believed it would be necessary to review it several times in order to really learn it. She did not report outcome with relation to her stated purpose for the session, that is picking up pointers to improve her own teaching skill. No changes in her values were reported.

Analysis

Salient elements of the situation for Betty seemed to be the setting, the teacher, and method/content. Her purposes, prior knowledge, teaching/learning preference, and past experience with this teacher, ascribed to abstract structure, were predominant in her interview (see Table 12).

Betty's responses to this session seemed to blend roles both as a learner and as a teacher. Her purpose for attending emphasized picking up pointers for improving her own teaching. Reference to this teacher's soft voice included the observation that she was working on that in her own teaching. Her stated preference for informal teaching seemed consistent with her preferences as a learner, for example, no pressure to take notes, and no formal evaluation.

It is interesting to speculate about the influence of past teaching, or anticipation of teaching, on the experience of the adult learner. There was a sense that Betty operated at two levels, that is she experienced the content as a learner, and simultaneously observed the process as a teacher. The latter seemed to be a consistent influence within this session. That influence is understandable in light of Betty's purpose for

Table 12

Relationships between Selected Elements in Betty's Abstract Structure and her Experience of Situation Two

Betty	Setting	Teacher	Method/content
Purpose, Improve teaching	((Seemed to evaluate setting, teacher, and method in terms consistent with her own teaching preferences or problems.))		
Mandatory CE	Sat by door, distracted by traffic, noise		Tremendous amount to cover; in notebooks, no pressure to write it down, no evaluation
Prior knowledge			Content relevant, use daily, vs. "foreign," not used
Teaching/ Learning preference	Room, long, stretched out	Talked too softly	No pressure to take notes, no evaluation
Past experience with teacher (friend & colleague)		Organized, knowledgeable	

watching how other instructors teach. When that purpose is not a factor, do teachers experience adult learner roles differently than non-teachers? Betty's experience supports the possibility that a teacher (more than others?) may experience the process as a learner and also as an observer or critic of the teaching process.

Betty's distractors included noise, people moving about, and difficulty hearing the teacher's soft voice in a "long, stretched out room." Yet she selected a place midway toward the

back, just beyond the hallway door where traffic in and out of the room would pass in front of her, and where noise from the hall could be more intense. Betty left the room periodically in response to being paged. Her reasons for choice of seating and keeping the 'pager' on during the session were not discussed in the interview and may be related, that is, sitting by the door for ease in leaving to answer the page. It is interesting to speculate about a possible choice, conscious or not, to be distracted. Under what circumstances might that occur, if it does? Answering the pager apparently was, for whatever reason, a higher priority than remaining attentive throughout the session. Had elements in the situation been different, for example, formal evaluation, or had Betty's purpose included preparation for the certification exam, might choices have been different? What relationship might there have been between the mandatory CE requirement as a motivation and the relative inattention?

Betty's responses seemed consistent with her two purposes: to observe other teachers for pointers to improve her own teaching and to satisfy mandatory CE requirements. Neither purpose would require her full attention, there being no external pressures related to them. Her evaluative comments about the room, the teacher's soft voice and organization of content were consistent with the first purpose. The mandatory CE purpose simply requires attendance, and was consistent with the absence of pressure to write things down, and with her apparent willingness to be distracted from attention to the

content.

It was difficult to assess Betty's perception of her prior knowledge. At one time she reported working with the content everyday, at another it was "foreign, meaning not something I work with everyday." Those comments may have referred to different segments of the content. Her level of prior knowledge did not emerge as a strong factor in her responses. The content itself seemed secondary to her observation of the teaching process and no purposes were identified which would have placed a higher focus on learning the content per se.

There were no apparent inconsistencies between the cues Betty identified in the situation and those of the observer, although the meanings attached to them were sometimes different. For example, the room seemed long, and stretched out with distance from the instructor to Betty. The observer experienced the room as small but not uncomfortably so for the number of participants.

In summary, Betty's experience seemed consistent with her stated purposes. Her past experience as a teacher seemed related to her responses as much as or more than did her role as a learner in this situation. She seemed willing to be distracted, not strongly committed to attention to the content.

Celia

Celia was a staff nurse in a general medical-surgical unit, in practice for over 15 years, with a diploma in nursing. In reporting her purpose for attending the series, Celia commented

on the length of time since graduation. While she has taken courses, she has not achieved a long time goal of Bachelor's and Master's degrees, having been busy with children and volunteer work. She expressed a fear of obsolescence, of being surpassed by a bright son and his friends. She was determined not to let that happen.

She described herself as a good nurse, respected and secure with patient care, but aware that there was a lot she didn't know. Lately she has become bored at work, and was aware of feeling envious of interns who were learning new things. She heard about the certification exam and "it just clicked" that this would be a way to make nursing exciting again. Mandatory requirement for continuing education was not a factor in her decision to take the course since she consistently gets at least the minimum number of hours.

Relating content about trauma to fears that her son might be vulnerable, she said of such a possibility, "I couldn't handle that." The fear seemed to influence her attitude about the content itself. She said it was "in the back of my mind for the whole two hours" (see Figure 18).

Celia expressed a feeling of concern about the volume of material related to this session in the handouts. She recalled wondering how the instructor could possibly cover so much in an understandable way. Related to those thoughts, she expressed more anxiety about this session than previous ones. The concern was balanced by hope that anyone capable of putting "all that" together would be able to make it clear.

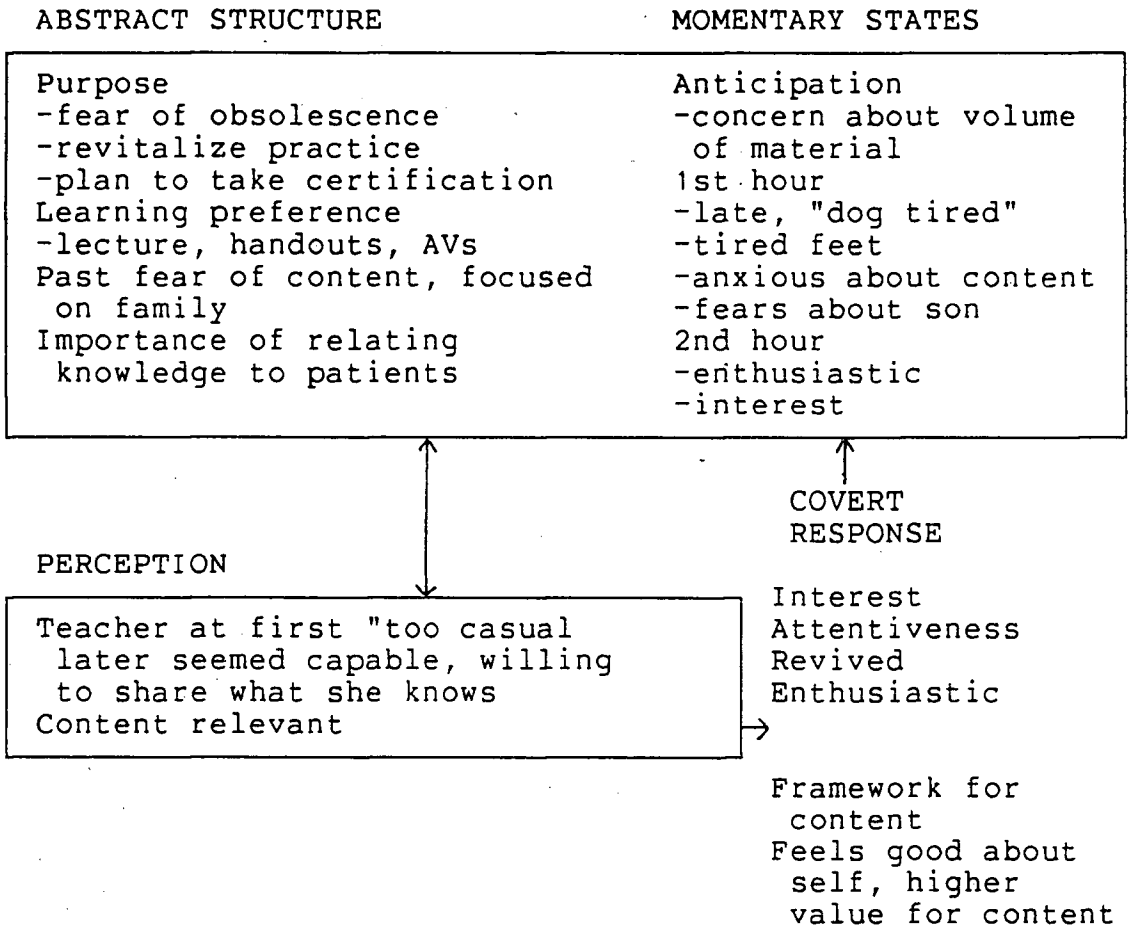

Figure 18. Elements of Celia's experience in Situation Two

Celia first perceived the instructor as more casual than previous instructors in the series, "It wasn't what I expected, I wasn't sure she could handle all that we had to handle." When the instructor responded to a participant's description of a patient problem by quickly identifying the problem, there was a turning point for Celia. The meanings she attached to that interaction were that the teacher is very knowledgable, she isn't defensive, she's happy to share what she knows, and can relate her knowledge to patients. Through that action, she demonstrated competence both as an instructor and as a person to

Celia.

Celia reported that normally a combination of lecture, handouts, and slides works well for her learning -- in fact, referred to herself as "a real slide nut." She prefers to sit up front in order to concentrate, hear, and see better. Having arrived late for this session, she had to sit in the back. She was aware of a difference in her ability to learn when she comes to class after a work day rather than a day off. Complicated by limited sleep the night before, a "hectic work day," arriving ten minutes late -- "dog tired," and having to take a seat toward the back, Celia reported "having trouble finding the core of it" at first. During the first hour, Celia was aware of "terribly tired feet" for which she tried "everything" to make them comfortable. By the second hour she was more attentive and had forgotten her tired feet. Not sure at the beginning that she would be able to last two hours, she felt revived and enthusiastic by the end, in fact expressed a wish that it were longer.

For the remainder of the lecture, Celia reported interest and attentiveness. At one point toward the end of the session, the instructor showed a scenic slide, and said this was to remind everyone that "there is life after" these kinds of health problems. Celia perceived this as a reassurance related to her personal concerns about her son. She reported taking a deep sigh, and thinking "I wish I could work with her."

The content for the session was perceived as relevant because, while she works on a general floor, she does see

patients with problems related to this content on a periodic basis. Her initial observations of the instructor were vague, "something about her presence seemed more casual." Later, the immediacy of the teacher's response to the patient description, coupled with a "big smile that just crossed her face" were related to the turning point in Celia's response to the session.

The instructor's selection of priority content, as opposed to trying to cover everything, and her suggestions for areas to focus on for study for the certification exam were cited by Celia as "being able to put all that information into a little picture frame."

Other than the scenic slide, these slides were not particularly useful to Celia. She reported that they didn't make anything clearer to her, they were just diagrams. "It's not that muddy thing anymore, now I know what to look for," was Celia's response to this session. She expressed a higher value for the content, and pleasure with herself for her change in attitude toward it. In general for the series, she feels "more fired up, work is fun again." She reported an incentive to do better "seeing those instructors, and what they had to do to get where they are." Previously not confident about her ability for working in intensive care, she has now applied and will be transferred there in a few months. She reported an ego boost when she won an argument with her son over a basic science concept she had reviewed in class.

Analysis

Celia's responses in the interview were longer, and more detailed than either Alice's or Betty's. She seemed to probe her own thoughts and sometimes showed surprise related to recollections triggered by the reseacher's questions, for example, when queried about personal comfort, she commented that she had already forgotten about how tired her feet were at the beginning of the class. Whether or not her longer, more detailed responses also were more veridical is not possible to judge.

Celia's momentary states show a different pattern than either Betty's or Alice's. For them negative reactions to something in the session became distractors to attention as the session progressed. Celia started with distractors: arrived late, "dog-tired," feet hurting, anxious about the amount of material in the books. Trouble "finding the core of it at first," was replaced by high energy and attentiveness during the second hour which seemed related to enthusiasm generated during the session and attributed to the teacher. Celia was impressed by the teacher's style, and her ability to relate that knowledge to patients.

Celia's interview was at six o'clock following "4 hours sleep last night," the "long, hectic day" and the two hour session. She seemed full of energy, her earlier fatigue not apparent. In fact, her recollection of tired feet seemed to come to her as a surprise, having been forgotten. What could

account for such a revitalization effect? Her interview suggests a high level of interest in the content prompted more by the instructor's approach and credibility than by the nature of the content itself (see Table 13). Though there are plausible explanations unrelated to the learning situation, for example, her circadian cycle may naturally include a boost in her energy level about that time of day, it also may be related to the session in some way.

Table 13

Relationships between Selected Elements in Celia's Abstract Structure and her Experience of Situation Two

Celia	Content	Teacher
Purpose, broad overview	Necessary for certification and other purposes	At first -- too casual; Later -- knowledgeable able to relate her knowledge to patients
Learning preference	Preference matched methods used in this session	
Family orientation	Fears related to this content and her son	Defused fears by scenic slide and comment, "life after . . ."
Work day, fatigue		Fatigue at first forgotten by end of session

Celia's family, especially her son, was a theme threaded through the interview. He was related to her purpose for

attending. There was a sense of pride in his intelligence, at the same time a sense of competition that she could not let him pass her by. Her fears about his vulnerability for trauma was in the back of her mind "the whole two hours."

Her changed perceptions of the content seemed to stand out in the interview. At the beginning, it was something she "shys away from." Related to her family, the fear that "someone I love would lose their independence," "that's why it is so difficult for me to work around." "It's a constant reminder of what could happen." By the end of the session, she expressed a positive enthusiasm for the content which seemed related to the teacher's style and credibility, "that she was very bright," "that she could just instantly relate her knowledge to a patient she'd taken care of," and that she could organize that content in an understandable way. Those observations, consistently focused on the teacher's ability or style were associated by Celia with her feeling a lot better about the content itself.

There were no apparent inconsistencies between the observer's and Celia's external situations. Celia's experience of that situation was highly internal and personal. Her physical fatigue, the importance to her of the teacher's style and use of knowledge, the fears about her son, and so on, seemed far more important to her experience of the situation than did any of the observable external factors.

Donna

Donna was a staff nurse on a general medical-surgical unit, in practice for 15 years, with a diploma in nursing. Her purpose for attending was related early in the interview to improvement of self-confidence. She acknowledged her plan to take the certification exam but that it was "not all that important." Later she offered, "To tell the truth, I am focusing on that test." As the interview progressed, she became increasingly open with feelings about the exam, fear that she might fail it, and finally that she was feeling panicked about it (see Figure 19).

Donna's work situation changed two years ago requiring her to take a heavier degree of responsibility for her practice. Previously able to rely on a head nurse, she now must carry primary responsibility and feels a lack of confidence in her ability to do it. "I feel like I'm a good nurse, but I don't know a lot of the reasons behind things," and "I really feel like I'm lacking in background," were her own perceptions of her current knowledge. When asked if she believed she had insufficient knowledge , she replied "They say I do have a knowledge base, on my evaluation, I have a very good knowledge base, but that I lack self-confidence."

Her learning style or preference was not very clear. She emphasized an expectation of herself that she would learn "everything," and yet knew that was "just not possible." ((She

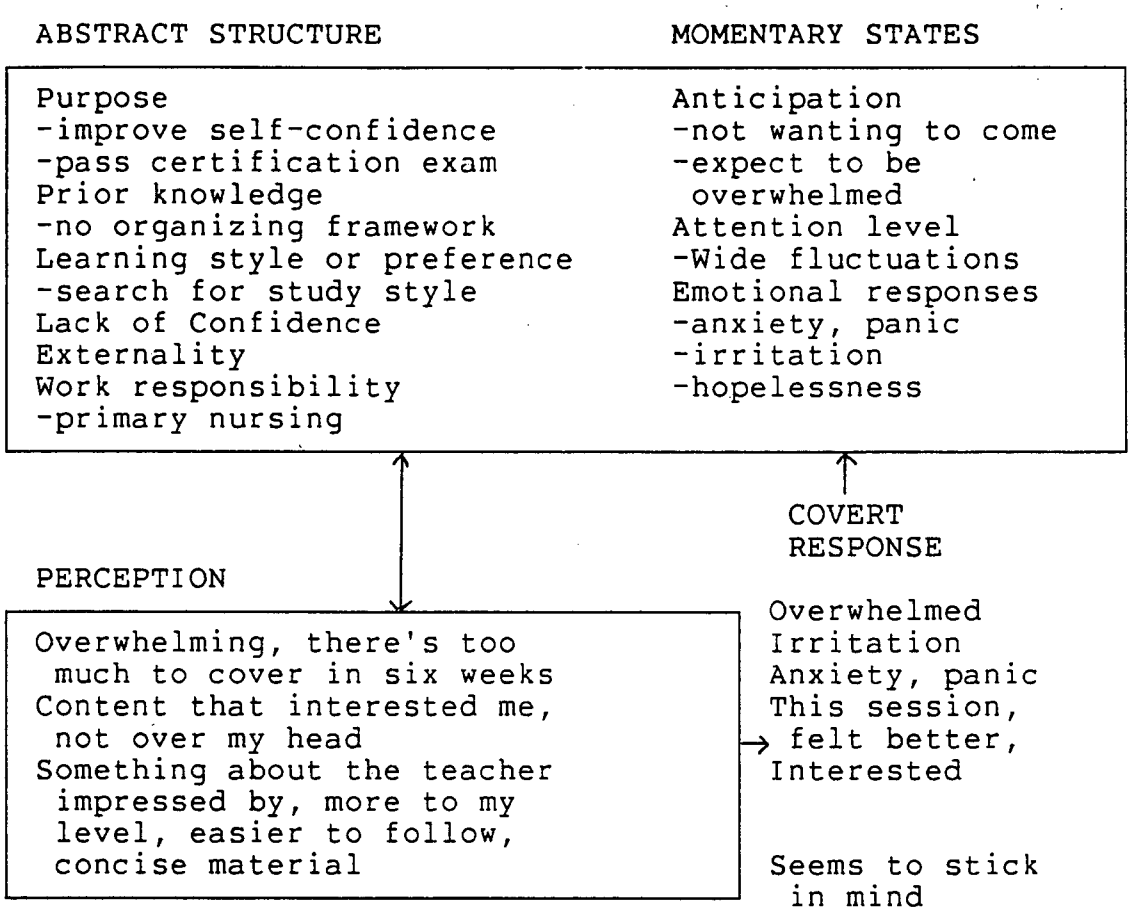

Figure 19. Elements of Donna's experience in Situation Two

seemed to seek some externally supplied framework)) and responded positively to this session when the teacher identified precisely what to learn for the test. Donna stated that she was trying to figure out a different way to study, by listening and picking out the highlights.

Several times in the interview Donna referred to her lack of self-confidence. ((In addition, she seemed to seek external approval.)) For example, she had bought a review book, and called a course coordinator to ask her opinion of it. She expressed irritation that "they don't think I need it because I have the course notebook." She pondered at some length "their

disapproval" of it, though she herself found it useful. Periodically she sought the interviewer's approval, "am I answering OK?", "I hope you don't think I'm lazy," "what do you think about the review book?" and so on.

((Donna's response to each session in the series seemed related to how closely it corresponded with her prior knowledge.)) This session was positive for her and these comments were characteristic of her perceptions. "I can remember learning it before," "it wasn't over my head," "she talked more down to my level." and "I could relate it to things in my past." In earlier sessions where content went substantially beyond her knowledge level, Donna felt frustrated and overwhelmed, and sometimes hopeless. "It's just so much material, you can't learn it all." "This is all hopeless, anyway," "I'm not going to study anymore, I'm not going to bother."

Enthusiastic at the beginning of the series, Donna's anticipation of this session included not wanting to come, in fact, finding it harder and harder to attend. Her early expectations of a broad framework within which she could be secure of her knowledge was replaced by an expectation that she would be overwhelmed.

At the beginning of the session, "something about the teacher" captured her attention. She expressed feeling OK about being there and liked the teacher's comment that there was too much on the subject to cover in two hours, and that she would limit the content to priorities for the certification test.

Donna's attention level fluctuated widely. She reported that as typical for her. "Seems like all I do is run around. . . I'm never all there. I'm always thinking about something else." Distractions within the situation included the content itself, for example anatomy -- believing it to be difficult for her she tries to memorize it on the spot and gets behind in the process. External distractions include thoughts about the freeway, home, children, dinner, and work. On work days, she feels tired or nervous depending on whether she works before or after class.

((Donna seemed anxious throughout the interview especially when discussing the amount of content to learn, her work situation, or the certification exam.)) She expressed frustration, feeling overwhelmed, worry, and finally, feeling panicked. Irritation was a frequently used descriptor and was a response to diverse situations: with other participants not being there when she arrived, with the coordinator for not endorsing the review book, with another participant who wanted her review quiz answers, and with the interview because she hadn't wanted to come in for it this morning, and so on.

Donna's perceptions of this session in the series can be summarized as: content that was concise, interesting, not over her head, easier to follow; and a teacher who knew what she was talking about, looked at people, seemed confident and relaxed, pointed out implications and what to learn for the test. Those perceptions were different from her earlier sessions where material was overwhelming, and teachers "expected you to know

everything."

Donna reported being able to remember content from this session better than earlier ones. "For some reason it just sticks in my head." Her positive feeling about the content was attributed to the teacher's limiting the amount of content for focus.

Analysis

Donna presented an image of confusion and anxiety. Her purpose, to improve self-confidence, was somehow linked with gaining knowledge but she seemed uncertain about the connection. "They say I have a very good knowledge base, but I lack self-confidence," contrasted with her own belief that she "lacks background knowledge," and "It's all too much to learn." Improvement in self-confidence also seemed linked with search for external validation. For example, her response to the coordinator's opinion about the review book suggested that she had really wanted validation rather than an opinion. It seems paradoxical that Donna wants to take the certification exam believing that success will improve her self-confidence, yet her lack of confidence seems to undermine her preparation for it and she expresses fear of failure in panic proportions.

Donna seems not to have established an effective learning strategy, nor an organizing framework in relation to this content. Added pressure at work in relation to primary nursing responsibility contributed to the array of emotions ascribed to "momentary states," which, for Donna, seem to be more pervasive

then momentary, at least for the present. How do those elements in Donna's person system interact with the learning situation? Table 14 illustrates some plausible relationships. For Donna, the salient elements in the situation seemed to be the content and the teacher. Neither setting, method, nor other participants seemed to be important factors in Donna's experience. However, content from earlier sessions was very important in her anticipation of this one, and served as a contrast for understanding her experience in Situation Two.

Donna's experience of Situation Two was different than her expectations about it. She found it less overwhelming than previous ones, and attributed that to the content (limited focus, practical implications), and to the teacher (relaxed, confident, pointed out what to study). She reported being able to listen better, being more interested, shedding the irritation she felt on arrival (though she reported that she was irritated again by the time she got home). In spite of that more positive experience, a global anxiety and feeling of being overwhelmed characterized her responses throughout the interview.

Table 14

Relationships between Selected Elements in Donna's Abstract Structure and Her Experience of Situation Two

Donna	Content, general	Content, this session	Teacher
Perception	Overwhelming, hopeless	Interesting, manageable, nursing implications	Relaxed, confident knowledgeable, looked at people, pointed out what to study for the test
Purpose	Improving self-confidence, closely related to need to learn content in order to pass certification exam		
Learning style or preference	Tries to learn it all, no organizing framework	Trying new strategy, to pick out highlights	Supplied an organizing framework, and approval for not learning everything
Lack of confidence	Doubts her ability to learn all that	Limited focus and application, seems more manageable	
Externality	Seeks some external source for framework	Delimited and organized	External authority
Work responsibility	Places pressure for current knowledge, no longer can rely on someone else to know		((Transfer authority from head nurse to teacher))
Prior knowledge	Theoretical background limited	Could remember learning this before	"Talked more down to my level"

Ethel

Ethel was a staff nurse in medical-surgical nursing. She graduated 30 years ago from a diploma program. She had worked in a nursing home for 10 years, but got tired of it, and decided to work in a hospital. In the nine months since that decision, she's discovered how much nursing has changed, not the basic skills, but the amount of knowledge required. Her purpose for taking the course was to help her "catch up." She has "not cracked a book" in 30 years and sees "everything" far above her head. What is perceived as a review for others, is "too much to learn the way its presented" for Ethel. She values knowledge and expects herself to learn. "I won't be satisfied until I learn it." How much would be satisfying was unclear. "I won't know 'til I get there." Mandatory requirements have already been met and are not a factor for this series (see Figure 20).

Ethel's concept of education was "like it was in nurse's training 30 years ago," that is, you read a chapter and come to class to hear about it or discuss it. She liked the lecture, handout, and audiovisual combination as it was used in this session. She likes to "sit up straight and take notes." She reported trying to study on her own and finds her concentration to be "nil" with nursing books, unless she's reading about something she is experiencing in her work. In anticipation of this session, Ethel said she expected nothing, because she was learning nothing. She has considered not coming to the rest of

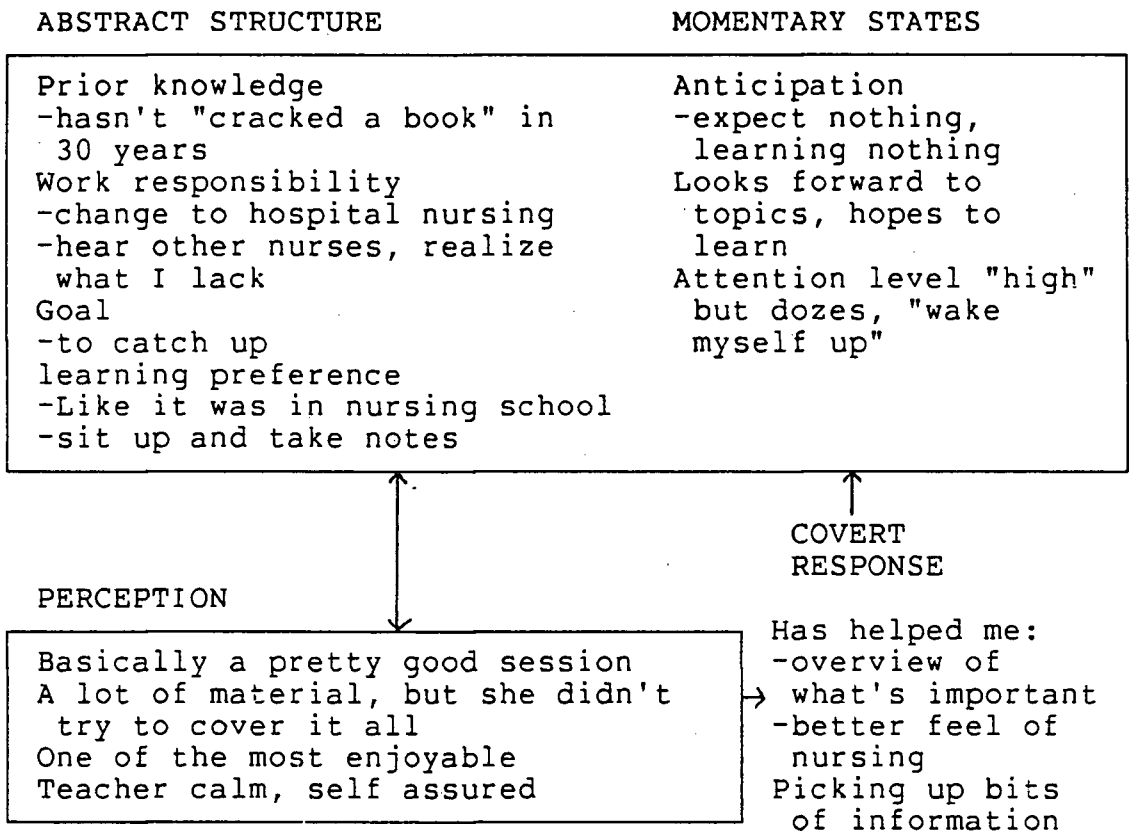

Figure 20. Elements of Ethel's experience in Situation Two

the series, but has decided to "go just to be going," to get a general idea of the content. She looks forward to the topics and hopes (rather than expects) to learn something. She had no expectations about the teacher because they're all so different, "if you don't expect anything you won't be disappointed."

Ethel reported that her attention level is high. As she described it, though she closes her eyes she still hears, and if she realizes she's not hearing she wakes herself up. She identified no personal or external distractions, though she found the chairs to be uncomfortable for sitting up and taking notes.

She found this session the most enjoyable so far, and

attributed that to the teacher's not trying to cover everything, but giving "everyday basic stuff." The teacher was seen as calm and self-assured. Ethel enjoyed the lecture "mainly because it wasn't read."

Though Ethel initially stated that she is "learning nothing," later she reported that the sessions are helping; she picks up bits of information, just not enough for her needs. She will need to "settle down and study" on her own for that. She also is getting a general framework and a sense of what's important to study. However, studying on her own is a problem, her concentration is "nil," "it's like dull, boring reading, yet I still say I want to learn."

Analysis

A chain of circumstances seemed related to Ethel's present situation. For some reason not revealed in the interview, she returned to work ten years ago. ((A typical situation might be a divorce or children growing up and leaving home.)) She got tired of working in a nursing home and decided to try hospital nursing where she found nurses talking a new and sometimes unfamiliar language. Knowledge, rather than just skills, was a required ingredient for success. Not having "cracked a book" in 30 years, she wanted to catch up. ((There was no indication in the interview that others were putting pressure on her, although she might have been reluctant to acknowledge it.))

Table 15 illustrates some plausible relationships between Ethel's person system and her experience of the learning

situation. The salient elements in the situation seemed to be content, teacher, and method. Neither setting nor other participants were emphasized in Ethel's report of her experience.

Table 15

Relationships between Selected Elements of Ethel's Person System and her Experience of Situation Two

Ethel	Content	Teacher	Method
Goal: to catch up	Wants to learn it		Too much to learn the way it's presented
Low prior knowledge	No framework, terminology unfamiliar	Covered "basic everyday stuff"	Fast paced, high content lectures designed for review
Learning preference	Wants to read a chapter and discuss it; wished they could dump it in		Keeps wishing it was like nursing school
Attention level	High volume, fast pace, couldn't keep up	Didn't read lecture, self assured, relaxed	
Anticipation	Expected to learn nothing, looks forward and hopes		

Throughout the interview there was a sense of a basically

self-confident person facing an enormous task. "I don't feel that it is overwhelming, I just know that there is too much for me to learn the way its being presented." While she expressed discouragement, she never seemed hopeless about the goal she had set for herself which would be tantamount to reeducation rather than review.

To Ethel, there is simply too much information to learn in the same manner she used 30 years ago, or in a review such as this series. Unable to concentrate just reading a text, and unable to keep up with the volume and pace of the review session, she seems to be searching for a way to tackle the task. There is a sense that Ethel's descriptions of learning style were not necessarily preferences, simply the only models she had experienced.

Ethel's perception that her attention level was high in this session is interesting in the face of her explanation that she would "wake herself up" when she was aware of not hearing. Her definition of "attention level," or her experience of it may be different from the typical, but for most dozing or partially dozing is not highly attentive. A reasonable interpretation is that she may think of herself as an "attentive person" and didn't hear a contradiction in her description. ((As an analogy, I wondered how Ethel's experience would compare with listening for two hours to fast conversation in a relatively new second language.))

It seems plausible that her extremely low prior knowledge had an influence on perceptions of the series in general -- "I'm

not learning anything," "everything is over my head." and of this session -- "It was the most enjoyable so far," because "she covered basic, everyday stuff." Ethel's goal presents a paradox. She wants to catch up but there is too much, too fast, terminology is too new, to be able to do it.

Faye

Faye was a staff nurse working as a float on various units. She had been in practice for 12 years, had a bachelor's degree in psychology, and an associate degree in nursing. Her purpose for taking the series was to prepare for the certification exam and to get a "little more diversity" in her knowledge. She thought the certification would look good on her resume for future jobs. Her purpose for more diversity in knowledge was attributed to her present position as a float. Mandatory CE was not a factor, she figures she would get enough anyway (see Figure 21).

Faye had worked for over seven years in the specialty which was the content for this session. She "loves it," was "looking forward to it," but on the other hand, found it "almost overwhelming." She knew she would be "comfortable" with the information, that it wouldn't be "too overwhelming."

With seven years experience and "a lot of conferences" in the specialty, Faye judged her prior knowledge as high, it sounded familiar to her, yet she was surprised how much of the information was new to her.

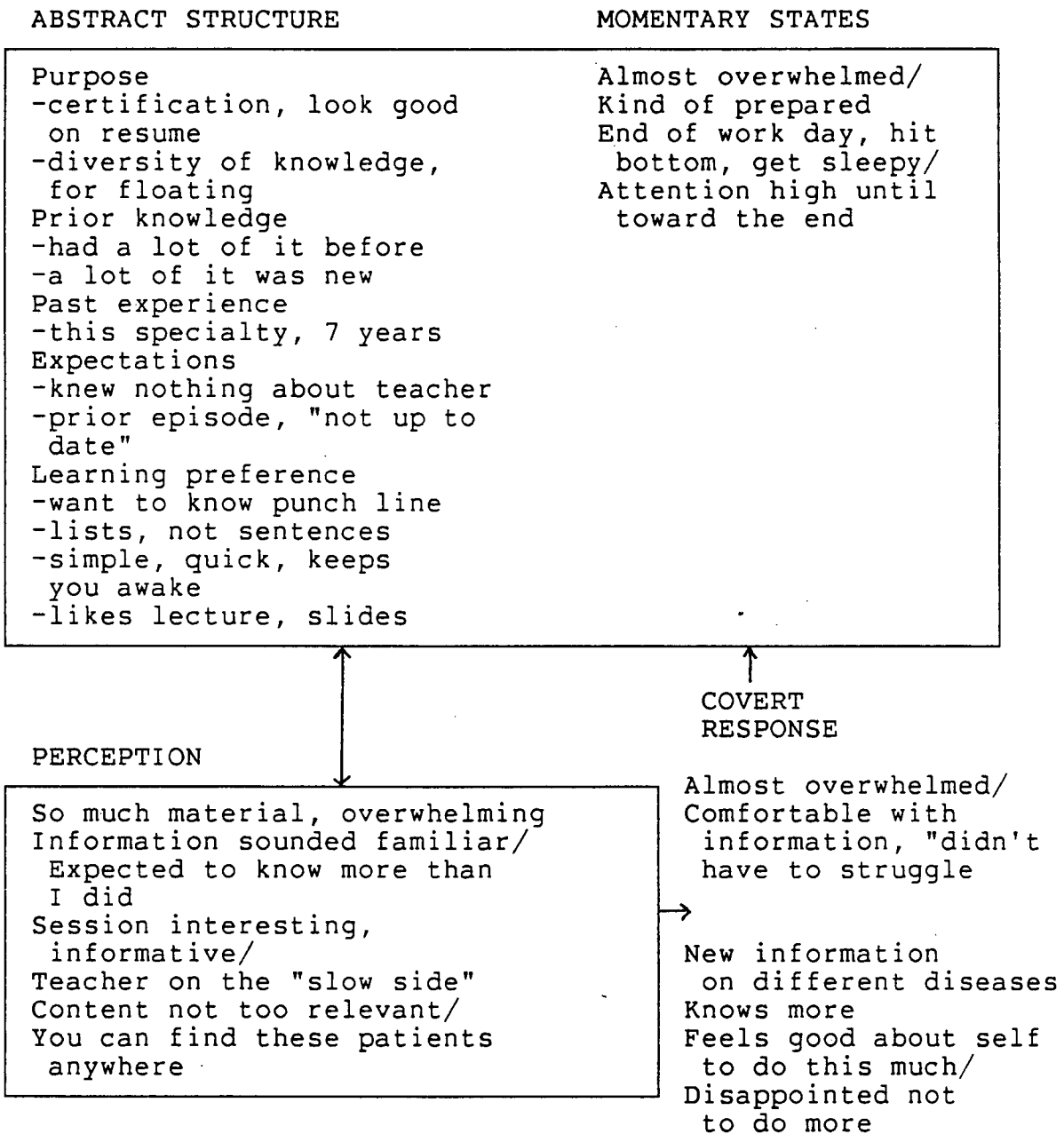

Figure 21. Elements of Faye's experience in Situation Two

At one point in the interview her prior experience with the teacher was reported as "I didn't know anything about her, so was just willing to listen." Later she related an episode at work in which Faye's suggestion for a change in a patient care

protocol had been ignored by this teacher. Faye's interpretation was that the teacher "wasn't quite up to date." ((As she reported the episode, I sensed a resentment that her suggestion had been ignored, and wondered what effect that might have on her response in this session.))

She likes lecture and slides as a format for learning and emphasized the visual part of that combination. The slides "break up the lecture," "seeing a picture helps me learn better." She likes content to be simple and quick, wants to know the "punch line," and "lists, not sentences" because she finds it easier to stay awake and to remember.

Faye summarized her attention level to be high except toward the end when she wanted the teacher to hurry and finish. She had earlier described being hot, tired and sleepy, hitting bottom at the end of a work day. Her perception of the teacher's slow easy manner was related to her "getting kind of sleepy." She found the teacher a little slow, and preferred a faster style.

Faye's perceptions of the content included surprise at the amount of new information. It was not too relevant for her right now but might be for a future job. Though she also stated that "you can find these kinds of patients everywhere."

Faye's response to the session was "knowing more than I knew" with higher values for review sessions like this. She felt good about herself for finding time to attend, but disappointed that she wasn't making more time to study.

Analysis

Faye's report of her experience was difficult to summarize, filled with a number of inconsistencies for which there were no readily apparent explanations (see Figure 21 and Table 16). She found the material almost overwhelming and comfortable. It sounded "familiar" and "confirmed what I knew," but "I expected to know more than I did," and it was "a lot of new information." The content was not relevant to her practice right now, yet she floats and "you can find these kinds of patients everywhere."

She believed the teacher to be "not quite up to date," but was surprised by the amount of "new information." She finds herself explaining the content to others because she understands it and they don't; yet she also reported not understanding it and asking her husband to go over it with her. For this session she felt "kind of prepared" and "almost overwhelmed." She "didn't know anything about the instructor" and had had a previous experience from which she concluded that the instructor was "not quite up to date." Faye "felt bombarded by information" and perceived the teacher as "a little bit on the slow side." Her attention level was perceived as high, but she "hit bottom" and was "a little sleepy at first," with the slow teacher "you get kind of sleepy." She reported having attended "a lot of conferences," and also stated that twelve years was a long enough break without studying (since nursing school).

A strong sense of point/counterpoint characterized Faye's interview. Several plausible explanations come to mind. She

Table 16

Relationships between Selected Elements in Faye's Abstract Structure and her Experience of Situation Two

Faye	Content	Teacher
Purpose, certification for resume, diversity of knowledge		
Prior knowledge	Material familiar/ or new and over-whelming	Judged "not up to date," yet presented a lot of new information
Past experience prior knowledge	7 years, this specialty	Previously ignored suggestion
Learning preference quick, "punch line"	Wants "lists" not sentences	"A little on the slow side"

may actually have experienced each of the perceptions that seemed contradictory to me, and may have a rational explanation for them. She may experience contradiction with no need for explaining them ((less likely, based on cognitive dissonance theory)). Or she may not be aware of her own perceptions and internal processes ((Nisbett and Wilson's arguments)) and respond by inventing answers which are inconsistent with one another. Faye's responses seemed casual and superficial to me, suggesting the latter explanation as plausible. On the other hand, she may have been aware of deeper processes, and not sufficiently motivated for the interview to explore them in greater depth.

Faye's preference for "the punch line, what I'm supposed to do if. . ." and "lists, not sentences" suggests a concept of knowledge that is highly structured and invariant. While much of the content in this series was presented as though it were established knowledge, it changes rapidly in response to technological and research advances. It is interesting to speculate about whether or how Faye's approach accommodates to those changes.

Comparative Analysis of Five Learners in Situation Two

Selected elements of abstract structure and momentary states are summarized for the five learners in Situation Two (see Table 17). How each of those elements may have related to perceptions of, or response to the situation is described.

Purposes of the five learners varied widely. Three planned to take the certification exam for which the course was planned, and two did not. For the three, one was motivated by a desire to rekindle her enjoyment of practice and to avoid obsolescence through more knowledge, another by a search for self-confidence, and the third, because it would look good on her resume. Improvement of teaching and mandatory education, and catching up with 30 years of knowledge were purposes for the other two learners.

Perceptions were generally consistent with the observed elements in the situation. Each of the learners expressed, in different ways, something about the volume of materials in the notebooks related to this session. For four of them the amount seemed overwhelming, for Betty, it "was all there," she didn't have to feel pressure to write it down. The difference seems consistent with the purposes of each learner. Preparing for certification, and catching up with 30 years of knowledge suggest an expectation that the content will be learned with the possible need to recall it, thus 200 pages of complex material would reasonably be perceived as overwhelming. Betty had no

Table 17

Comparison of Elements of Abstract Structure and Momentary States for Five Learners in Situation Two

	Betty	Celia	Donna	Ethel	Faye
Purpose	Improve teaching	Certification: rekindle nursing	Certification: improve self-confidence	Catch up	Certification: look good on resume
Prior knowledge	No recent formal learning, uses in practice	Experience & workshops on content	Lack of confidence in knowledge	No study in 30 years	Expected to be high, past experience, & conferences
Learning preference	Not write everything No evaluation	Lecture & slides, "a slide nut"	Wants to learn everything Search for framework	Like it was in nursing school	Lecture, slides,with emphasis on visual
Past experiences	Teaches, prefers informal; Colleague of teacher	Limited experience Shys away-fears for family	Shift to primary nursing	Change to hospital nursing	This specialty, 7 years; Contact teacher
Momentary states: Anticipation	Positive, tied in with specialty	Concerned about volume of material	Didn't want to come	Nothing, learning nothing	So much/ expects it to be familiar
Attention	Generally high with fluctuations, Left room for pager	Increased interest, higher at end	Widely fluctuated	Reported high, but dozes	Reported high, but also reported distractions

such expectation, her purposes being to observe for improvement of her teaching skills, and to meet mandatory requirements. No content focused evaluation was expected.

For each of the five, the in-class content was perceived as organized, clear and understandable. Faye believed it could have been more focused on patient care, the others perceived that it was directly related to practice.

Perceptions of the teacher varied but were generally consistent, seeming to provide a mosaic which matched the observer's descriptions. Only one, Betty, mentioned a "soft voice" which was difficult to hear -- consistent with her purpose for assessing teaching style. Celia saw her at first as "too casual," and then as very knowledgeable. For Donna she seemed confident and relaxed; to Ethel she was calm and reassured; to Faye she was slow and a little out of date -- consistent with Faye's perception of her experience with the teacher in the work setting.

While perceptions were consistent with the observable elements of the external situation, the experience of each learner was highly personalized and seemed to be strongly influenced by elements with each individual's background and life space.

Outcomes were generally perceived as positive. For Donna and Ethel, who had found previous sessions to be overwhelming, this session was associated with some positive gains, and a framework for further study. Celia's prior avoidance of this specialty was improved, and her fears about family vulnerability were diminished. In general, the reported outcomes were associated with purpose with one exception; Betty did not express outcome in terms of teaching improvement. ((The lack of

this information may have been a function of the interview questions which probed about knowledge before and after the class, suggesting a content focus)).

Prior knowledge of the five learners seemed to be associated with response. Donna, with lack of confidence in her knowledge level and an apparent lack of an organizing framework for the content, feels overwhelmed by the sessions in general. This session, organized in a delimited framework, was a more positive experience for her. Ethel, who hasn't "cracked a book in 30 years," sees everything as above her head, and is searching for a way to learn it. Faye's knowledge level was difficult to assess. She had attended "a lot of conferences," it all sounded familiar, but she had had a 12 year break since studying, and was surprised by the amount of new information. The remaining two seemed confident in their knowledge base and reported less anxiety, frustration.

Expressed learning preferences did not seem to be consistently related to perceptions or to response. Four liked the methods used in this session, and one expressed a disappointment that there was not more involvement. Ethel liked this lecture because it wasn't read, while Faye thought it was too slow. Some liked the slides, Celia, who usually likes slides, found them to be meaningless for her.

Past experience seemed to contribute to varied perceptions and responses. Betty's past experience as a teacher dominated her report of the experience, especially her observations of the teaching process. Celia's association of the content with

reminders of what could happen to her family occupied a part of her attention throughout the session. A shift to primary nursing responsibility was related to Donna's lack of confidence in her knowledge base. Ethel's relative lack of experience was directly associated with her situation, where the knowledge needed for practice has moved beyond her. Finally, Faye's seven years in practice related to the specialty for this session was related to her comfort with the content and confusing in light of her finding the material overwhelming and much of it unfamiliar. There was a sense in each case that past experiences were also linked with future expectations. For example, Betty expected to teach again, Celia's fears were related to "what could happen," and so forth. It is interesting to speculate about the relative influence of past experience and future anticipation if it were possible to distinguish between them in a specific situation.

Momentary states common to the five learners included anticipation and attention level. Two, Betty and Faye, reported generally positive anticipation which seemed associated with familiarity of content, while the others, also including Faye, expressed varying degrees of concern about the volume of material and expectations to be overwhelmed.

Attention level increased progressively for Celia as she forgot her fatigue and became interested in the teacher's approach to the content. It decreased toward the end for Betty, as she got restless and uncomfortable. Donna's attention level fluctuated, decreasing toward the end of each hour, with other

distractors the content itself, thoughts about home and work. Both Faye and Ethel reported high attention but also gave cues suggesting the opposite.

In summary, these five learners in one external situation had experiences which were in some ways consistent and in other ways highly individual. Elements within the situation which seemed important were related to the teacher's knowledge and style, to the content volume and difficulty, and slightly less to the teaching method.

The reception of those elements into the learner's experience seemed to be determined by purpose, prior knowledge, past experience, and learning preference. The resulting responses and momentary states further influenced how the experience progressed for the learner.

Situation Three

Continuing with the series for medical-surgical nursing certification preparation, this session was in the same room as previously described. One piece of AV equipment, a video monitor, was present in the center of the room, just in front of the first row of tables.

The room did not feel as cool to the observer as had earlier sessions. It was a hot summer day outside and almost no breeze was evident from the open windows. The amount of direct sunlight varied as the session progressed. Some of the blinds were drawn to shut out sunlight. The hallway door was closed early in the session and less noise was evident.

Content was a specialized area of practice, some of it generally relevant and some limited to specialty units. At the previous session participants had been misinformed and were expecting a different content this session. Some had brought only that section of their notebooks and some had read materials or done the review quiz on the wrong content. Backup copies of the materials were available for those who had not brought complete notebooks.

The teaching method was lecture with slides and handouts including an outline of the lecture. The lecture was presented by videotape in two 50 minute segments which had been prepared specifically for this session. Slides which reiterated handout materials were interspersed with illustrative diagrams. They were in color with the appearance of having been professionally prepared, and were legible from the back of the room.

The teacher was a clinical specialist, certified in medical-surgical nursing, with a Master's in Physiological Nursing, and extensive teaching experience. She started with an overview, and seemed to be learner focused, to talk directly to this group of participants. For example, she asked questions with pauses for response or thinking time, she referred to handout materials in front of them by page number, and made reference to their experience with this content, and went over the answers on their review sheets with them. At times, she seemed to be present rather than on videotape.

Learners seemed moderately attentive throughout the session, perhaps a little more during the second half. They

seemed to focus on the screen or handout materials. There was minimal notetaking. Some seemed drowsy at times during the session. Everyone seemed alert when the review sheets were being discussed.

Two learners were interviewed following this session. It was Alice's second and Gail's first interview.

Alice

A staff nurse on a specialty unit since her graduation from an Associate Degree program about two years ago, Alice wants to get a broad overview of medical-surgical nursing with the idea of making a job change in a few months. Beyond that she had no specific purpose for this particular session, but did describe more about her reason for wanting the job change. Now working evenings and every other weekend, she wants to find a Monday through Friday day job. Her report of the experience is summarized in Figure 22.

She had reviewed the assigned content and brought those materials, but felt OK about the change because "they had the extra materials." She reported good past experience with video presentations and with this teacher, and likes this content.

Alice attributed her enjoyment and high attention in this session to the content and the fact that it was on video. She likes video because it is well organized to cover all the material within a time structure. She did not believe inability to ask questions was a problem in this presentation, all the content was covered clearly. In fact, "sometimes a lot of questions gets the teacher off so she runs over or doesn't cover everything."

Exploring the importance of structure to her, Alice said it depends on the subject and her purpose for being there. If she thinks someone knows more about a subject she wants to learn,

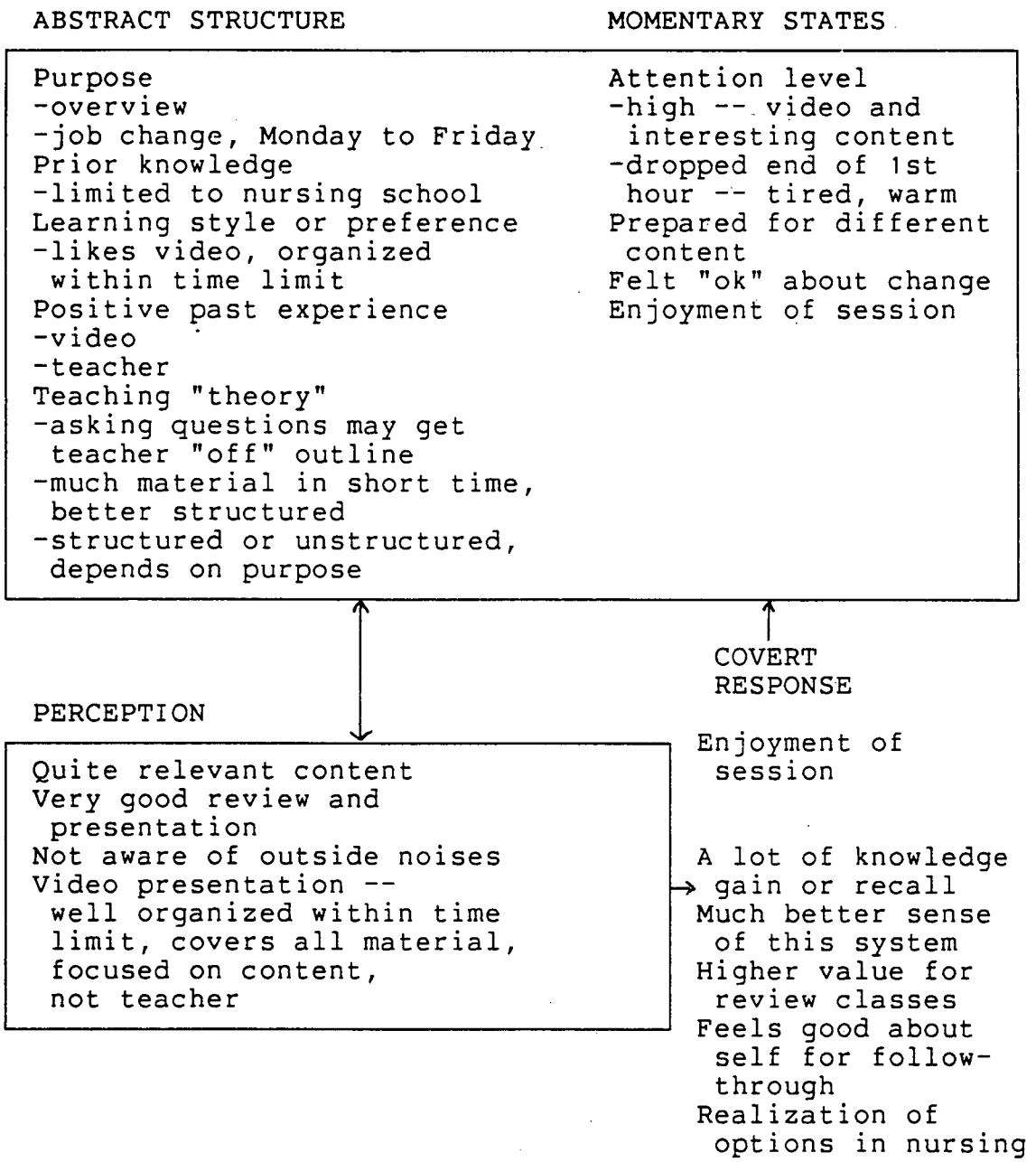

Figure 22. Elements of Alice's experience in Situation Three

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she wants to hear from them, "not everybody else." If the experience of other participants can "contribute to why I'm there," then she likes more interaction.

Alice sees the review sessions as easier than trying to get

it on your own. commitment to a specific time, paying and getting credit for it, were cited as reasons. She says she buys books but never finds the time to read them.

This session was a "very good review" and presentation, the content quite relevant and interesting for Alice. She gained a lot of knowledge, some of it recalled from her school experience. She feels good about herself because she is following through. ((There was a sense of pride in her voice, when she said,)) "I've come to every one of them so far." She is realizing that "there are a lot of other things besides what I'm doing right now," referring to her goal for a job change.

Analysis

Alice's response to this situation seemed to focus on her positive experience of the use of video presentation with its organization and structure. She "liked" the content area, always found it interesting. The most salient elements in the situation seemed to be the content and method. She perceived the teacher to be less important. In fact, she commented that the video method was good in part because the person presenting the material was less important. She reported being more aware of the content and less aware of the teacher (see Table 18). Her past experience with this teacher led her to expect a knowledgeable and well organized presentation.

Her past experience with video presentation and with this teacher seemed to set a positive tone for her reception of this session which she enjoyed. Her perception that the presentation

Table 18

Relationships between Selected Elements in Alice's Abstract Structure and her Experience of Situation Three

Alice	Content	Method
Purpose, broad overview for job change	Quite relevant	Very good review and presentation
Past experience	Always "liked" this content	Expected well organized presentation
Teaching theories	Structured or unstructured depends on purpose For high volume and short time, it is better structured	
Learning preferences Video Organized in time limit		Asking questions not necessary this time because material organized and clear

was structured to get all the material into the time frame was a factor in her positive response.

Alice expressed opinions which might be considered her personal "theories" about teaching effectiveness, especially to support her positive response to video presentation. Neither the basis for those opinions nor their relationship with Alice's response, were apparent in the interview. Do such "theories" serve to guide a positive experience and, conversely, a negative one, or are they developed to rationalize an experience after the fact? If the latter, what determines the nature of the learner's response? In Alice's first interview, she had

identified a preference for involvement, and expressed disappointment that there was not more opportunity for involvement. That theme was not evident in the second interview. Did she perceive "involvement" from the teacher's style even on the videotape, or how is that preference compatible with her experience in this session where "questions were not necessary"? Her perceptions were comparable, with differences only in degree. The sessions were interesting, and provided good overviews in their respective content areas.

Gail

Gail was a night charge nurse on a surgical nursing unit with 10 years experience and a Bachelor of Science in Nursing. She had been in her current area of practice for the past four years. Her original purpose for taking the series had been preparation for the certification exam. Now she reports being happy about it for another reason, the review of content in new areas of practice beyond her own. Gail had found herself getting bored with her job, and believed the certification would be a measurable way of showing progress. Mandatory CE requirements had already been met and were not a factor in her purpose for this series. Her experience is summarized in Figure 23.

Her past experience with video prresentations in nursing school had been negative; she "hated watching the machine." Any lecture on TV is "kind of sterile" and clear cut, with no

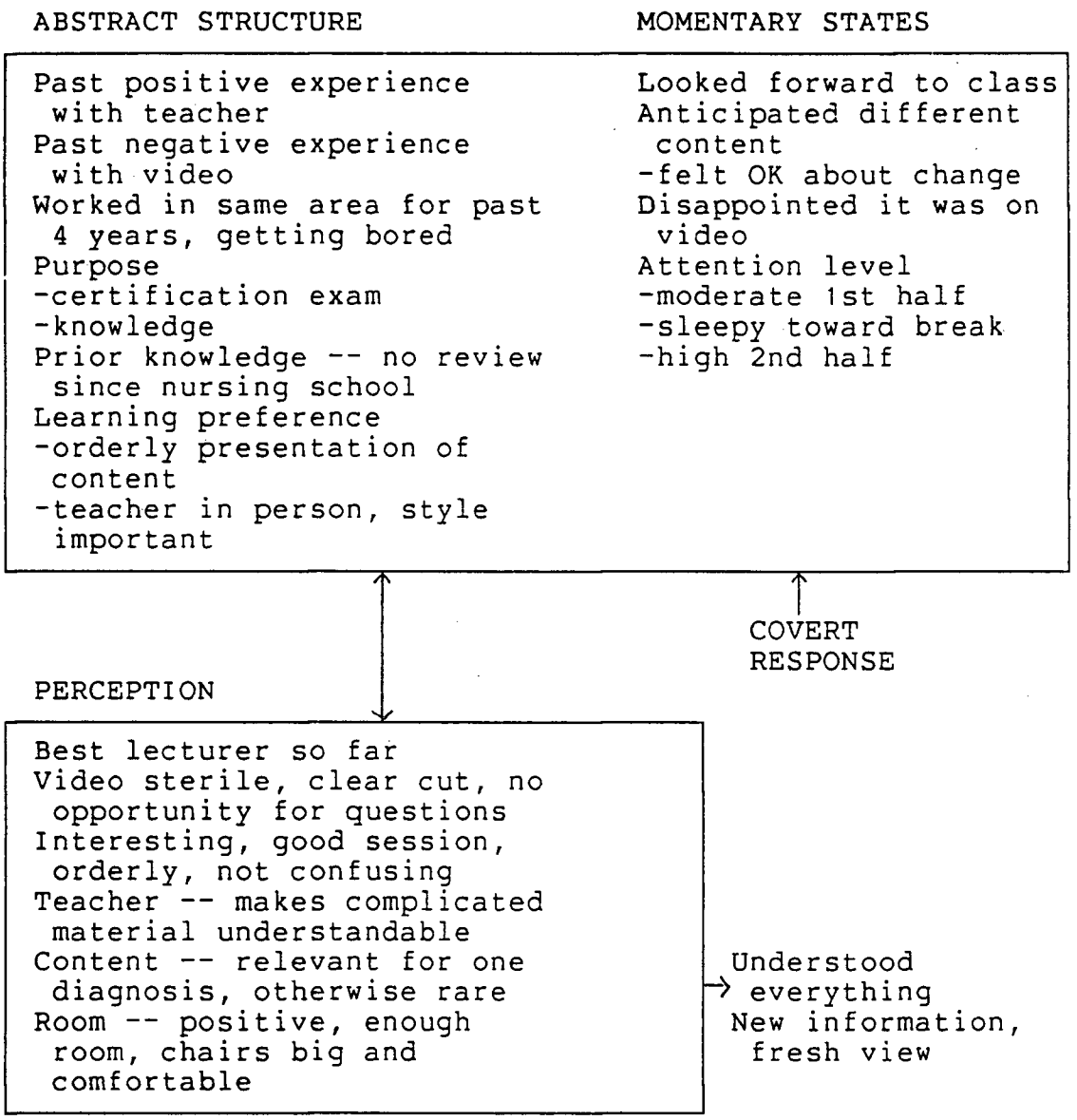

Figure 23. Elements of Gail's experience in Situation Three

opportunity for questions. However, she had had positive experience with this teacher and believed her to be "the best lecturer we've had so far."

Gail looked forward to the sessions. Although she had anticipated content with which she was familiar, she was happy about the switch because she was rested and thought it would be

easier to assimilate the more difficult subject which was covered in this session.

She preferred to sit up front, near the window, and likes room to move around. She finds the chairs comfortable and roomy. Gail believes the teacher's style is the most important factor for her learning. She cited as examples this teacher and the one in Situation One who "went along with the outline" as opposed to the teacher in Situation Two who "baffled me" by jumping around and not going in a logical order. She resented use of examples because they took away from time for more content. The teacher in this session was seen as able to explain very complicated things understandably.

Gail's attention level was moderately high during the first hour (she found herself getting sleepy toward break time) and high during the second hour. She attributed lower attention to content which was "pretty cut and dry." She saw the content as very relevant especially related to one diagnosis which she sees frequently.

She gained quite a lot of information, not having studied this area since nursing school. She valued review sessions and the content more and felt good about herself for following through with the commitment and "doing something just for me."

Analysis

The salient elements in Gail's experience seemed to be the teacher's style, teaching method, and content (see Table 19). Her perceptions seemed related to her purpose, her past

experiences and expectations related to the teacher and video presentations.

Table 19

Relationships between Selected Elements of Gail's Person System and her Experience of Situation Three

Gail	Teacher's style	Method	Content
Perception	Best lecturer so far, able to explain things clearly	Sterile and clear cut, no opportunity to ask questions	Organized, followed outline
Purpose, certification, review	Knowledgeable	Handicap, partly overcome by teacher's skill	Sufficiently detailed
Past experience Teacher Video presentation	Positive with teacher, Negative with video. If anyone could make a video presentation good, this teacher could do it		
Learning preference	Teacher's style most important factor	Likes teacher in person	Focus on content without taking time out for examples

Gail's expectation that the video presentation would be a sterile, clear cut experience was offset by her expectation for this teacher's ability. Consistent with those expectations, she attributed any negative effect to the video, and any positive

effect to the teacher. In fact, she reported that the teacher's style is the single factor consistently most important for her learning. Style was equated with logical order, not "skipping around." In a previous session, she had resented taking "time out" to have participants think of examples because it cut into time for other "important information."

She commented on Situation One as positive, the teacher "went right along with the outline." In situation Two, she was "baffled," because the teacher "jumped around." Sections of that content with which Gail was more familiar made sense, others did not.

Gail's purpose, to prepare for the certification exam, seemed logically consistent with her focus on organization and volume of content, any single bit of information might be useful in the exam. She was not tolerant of emphasis on application to nursing practice (Situation Two), or participant involvement to relate content to their own experience (another earlier session). Those episodes were seen as taking time from the purpose, presentation of facts for the exam. It is interesting to speculate about what Gail's response might be in a learning situation where her purpose is application to practice rather than preparation for certification.

Comparative Analysis of Two Learners in Situation Three

Selected elements of abstract structure and momentary states for Alice and Gail are summarized (see Table 20), and each of those elements are related to perceptions of, or

response to Situation Three.

Table 20

Comparison of Abstract Structure and Momentary States for Two Learners in Situation Three

	Alice	Gail
Purpose	Overview for job change	Review for certification exam
Past experience, teacher	Previous class -- knowledgeable presents information well	Previous class -- best lecturer so far, able to explain very complicated things clearly
Past experience	Positive, likes organization	Negative, a lot of videos in nursing school
Prior knowledge	No study of this content since nursing school, 2 years	No study of this content since nursing school, 10 years
Learning preference	Content organized within a time limit	Teacher's style, -orderly, follows outline -focus on amount of content
Momentary states:		
Attention	High, dropped at end of each hour, tired and warm	High; dropped at end of first hour -- sleepy

Both Alice and Gail expressed comparable preferences for well organized content. For Alice, organization was attributed to the fact that it was a video presentation and they had to get it all within a time frame. For Gail, it was attributed to the teacher's style which was seen as overcoming the disadvantage of

the video format. Both had previous experience with this teacher and expected the session to be well organized and clearly presented.

Neither had studied this particular content since nursing school, two years for Alice, and ten years for Gail. They were consistent in their perception of a positive knowledge gain, increased value for review sessions like this, and feeling good about themselves for following through on the commitment to attend.

The two learners maintained a fairly high attention level with a drop before the break. Alice also reported a drop at the end of the two hours.

The primary difference between these two learners related to their past experience with video presentations. For Alice, the fact that the session was videotaped added to her expectation that it would be good. For Gail, it was a handicap which was overcome because the teacher was a "good lecturer," able to make very complicated material understandable.

For this situation, purpose did not seem to differentiate learner perception or response. Both learners, with purposes of broad overview and preparation for certification, respectively,, were attentive and reported positive gains. There were no criticisms of too much detail (for broad overview) or not enough content (for certification).

Situation Four

The setting was essentially the same as previous sessions. Positions of the front tables and screen had been adjusted slightly resulting in better visibility of the screen. The day was overcast and rainy. The windows were closed and shades were drawn. Room temperature seemed comfortable early in the session, and increasingly warm during the latter part. The hallway door was closed and noise was negligible at first. During the break, the door was left open. Noise led to the instructor's request that it be closed. One participant brought a pre-school child who played at or under her table toward the back of the room. Except for the mother, participants were not noticeably attentive to the child.

Content for the session was a specialty area which cuts across most other areas of practice. Emphasis was on pathophysiology, drugs, medical, surgical, and dietary treatment regimes. There was limited reference to nursing care application.

The teacher was a school of nursing faculty member, had a Ph.D. in physiology, and conducts animal research related to the subject discussed in this session. She gave an overview of content for the session using a topical outline which was in the notebooks and on transparency. Her voice was clear and natural. She occasionally referred to notes but for the most part seemed to ad lib the presentation. She seemed in touch with

participants, that is scanned the room and responded fully to participants questions; but was predominantly content focused -- referred to "so much to cover," did not repeat questions or ascertain that they were heard by all students, talked faster in second hour to cover more content.

Teaching methods were lecture, handouts, and overhead transparencies which were primarily duplicates of the handout materials. She occasionally introduced new materials and commented that the outline was for last year's class. Slides were in evidence but not used. At one point, the teacher commented that she had given up on the slides. Print on transparencies was too small to be read from the back half of the room. Some illustrative drawings were used and were clear and related to the concepts being presented.

Learners seemed attentive, looking at the notebook and at the instructor. There was a moderate level of notetaking and noticeable restlessness about 10 to 15 minutes before the end of each hour. Energy level seemed low during the break, that is, one participant had her head down on table, one had her shoes off, two with feet up in chairs, and so forth. One participant slept or seemed to fight sleep throughout the session.

Three learners were interviewed following this session. For all three, Helen, Ione, and Jean, this was the first interview.

Helen

Helen was a staff nurse in a specialty rehabilitation unit with four years experience and a Bachelor of Science in Nursing. Her purpose for taking the series was to get a good review. Out of school for "a few years," she thought there was a lot in the back of her mind that was rusty. She likes her present job but doesn't want to do it forever, and anticipates a need to decide between a management or a clinical career. ((A good review of anatomy and physiology seemed related to that decision.)) CE requirements, having been met, were not a factor in her purpose (see Figure 24).

Helen recalled positive past experience with this teacher but could not recall when or in what context. She expected a good review, and in general for the series, had expected more case studies. Her learning preference when there is a lot of material like this, is lecture with handouts and audiovisuals.

In anticipation of the session, Helen was anxious about not having prepared. ((There was no reference to or evidence of anxiety having occurred during the session.)) She usually looks forward to and enjoys the classes.

Her attention lagged as the teacher talked faster and started to skip material in order to finish. Helen attributed that response to knowing there were things that wouldn't be covered and feeling some pressure about preparing for the certification exam. Helen described herself as mentally tired

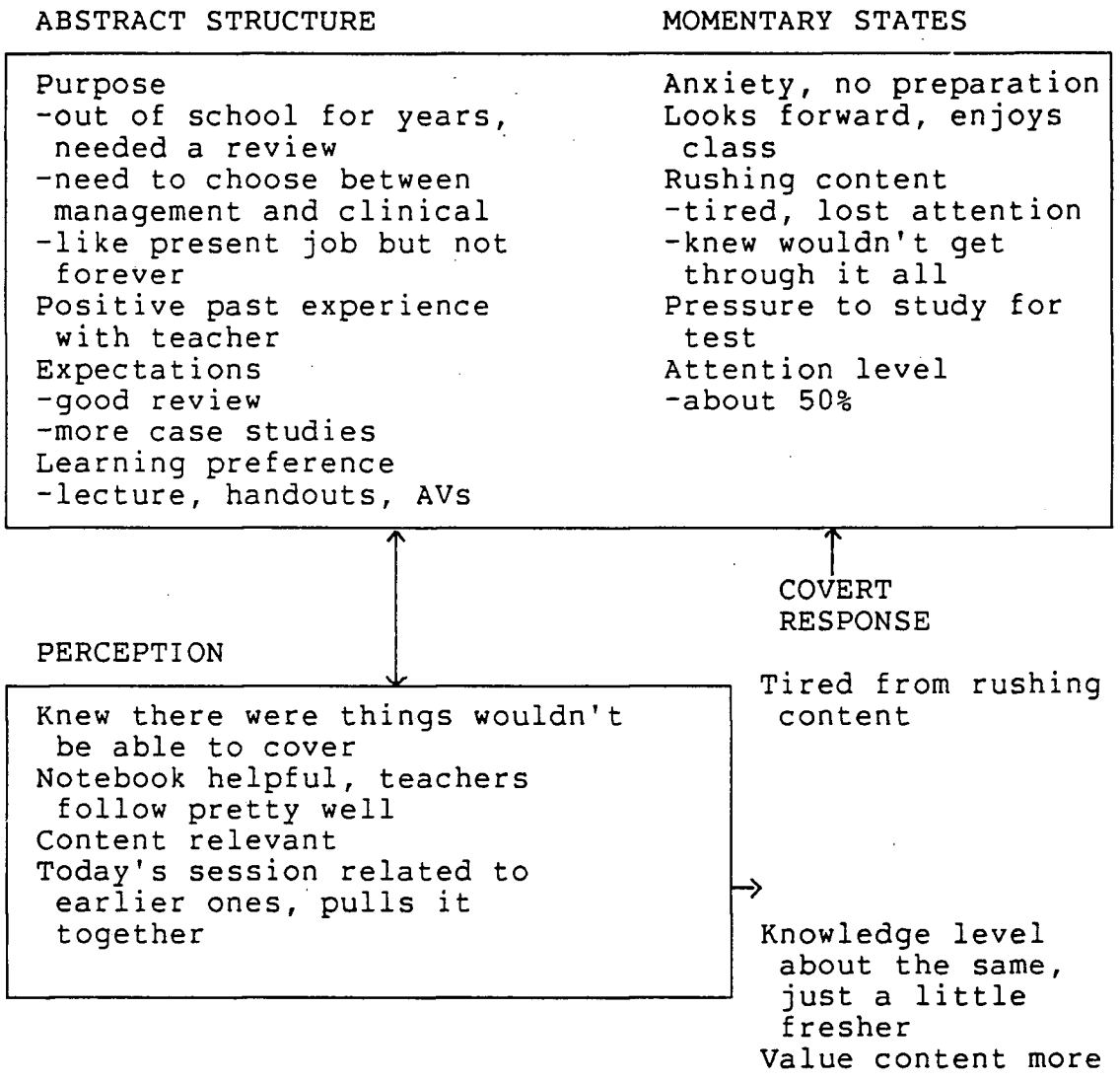

Figure 24. Elements of Helen's experience in Situation Four

at that point in the session and less able to concentrate. She would have liked another hour to cover the material well, but knowing it would be rushed and not covered completely, she lost concentration and reflected on her need to study it on her own for the test.

Though Helen had expected more case studies in the series, there was no expression of disappointment. She attributed their absence to the "time element."

The content was perceived as relevant with today's session especially helpful in putting content from other sessions together. Outcomes were higher value for the content because of more awareness of it, and knowledge level about the same as before the session, "just a little fresher."

Analysis

Helen's emphasis seemed to be on the content as the most salient element for her experience. Though the teacher and method were positively perceived, she referred most often to the amount and organization of content (see Table 21).

Table 21

Relationships between Selected Elements in Helen's Abstract Structure and her Experience of Situation Four

Helen	Content
Purpose, Review, Certification	Needed for review and certification, reported pressure to study for test
Learning preference Lecture, AVs Case studies	Lost attentiveness when content rushed or skipped
Prior knowledge	No classes since nursing school

Although Helen plans to take the certification exam, her emphasis was on the review of information with preparation for

the exam seemingly secondary. She mentioned pressure about preparation for the exam later in the interview related to the volume of material introduced in the classes and the observation that not everything could be covered. She did not dwell on it and there were no overt signs of anxiety. The combination of desire for review and pressure for the certification exam were consistent with her attentiveness throughout most of the session and with her relatively higher focus on amount and organization of content.

Helen's response to this session was generally positive except for her loss of attentiveness when the teacher speeded the rate of presentation and began to skip over materials. It is interesting to note a similarity between Helen and several earlier learners where loss of attentiveness was attributed to "speeding up" to cover more material.

Ione

Ione was a staff nurse in a specialty surgical unit for the past six years with a total of 12 years experience in nursing. She has a Bachelor of Science and was certified in critical care nursing two years ago. Her purpose for taking this series was to get a good review and the credits required for maintaining her critical care certification. She has no plans to take the medical-surgical certification exam this year (see Figure 25).

Her anticipation was of just another class where she would probably learn more than what she already knows. Ione described her attention level as pretty alert at first. She soon began to get frustrated and sleepy because she couldn't follow the presentation on the topical outline. Efforts to find the place, checking to see if any page numbers were missing, were further distractors. Unable to keep up, she lost interest. ((Ione had been observed as sleeping or seeming to fight sleep through most of the session.))

The break helped her to wake up and she felt more attentive the second hour. She "just listened" and didn't try to take notes because she realized that things would be covered besides the outline. Ione believed she was a little more attentive this session than previous ones because the content was not too complex.

She preferred detailed outlines, involvement in discussion, more frequent breaks, use of diagrams and little side stories,

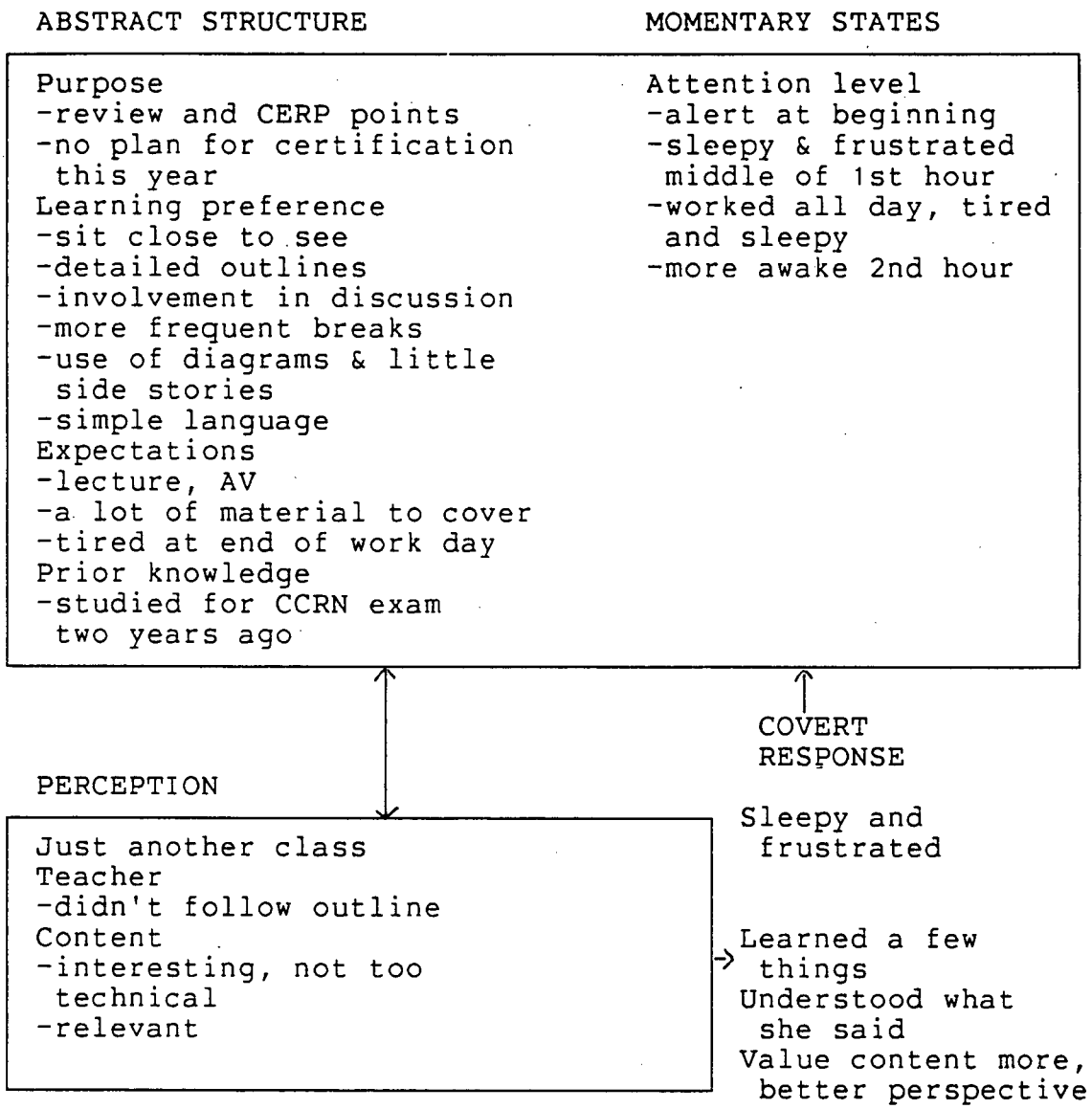

Figure 25. Elements of Ione's experience in Situation Four

use of simple language and changing voice tones. Those preferences were associated with keeping her awake and attentive. She liked for the teacher to throw out questions because it wakes her up.

She expected a lot of material and lecture format, and knew she would be tired at the end of the work day. Her most recent exposure to this content, which she perceived as relevant, was

in her study for the critical care exam two years ago.

In general, she perceived the session as pretty interesting, not too technical and believed she had learned a few things, had understood the material. She thought she had the content "in better perspective" and therefore valued it more.

Analysis

The predominant theme in Ione's experience was her effort to remain awake (see Table 22). The content seemed to be more a vehicle to serve that function than information to be learned. For example, she liked "a little side story" because it was interesting and woke her up. Even involvement in discussion was associated with its effect on her ability to pay attention.

It is reasonable to assume that Ione, having passed the critical care certification exam, has a fairly good knowledge level. Yet her focus on the outline as a way to keep up and her need for simple language, not too complex nor too technical, suggests more limited understanding.

Her purposes, a review and mandatory CE requirements, were not inconsistent with her general response. That is, she could achieve them both, especially the latter, without a high level of attentiveness. It is interesting to observe similarities in purpose for learners who want and do not want information that is "detailed and technical." A pending certification exam seems to be related to tolerance or expectation for more technical detail. Those for whom the purpose is broad overview or CE

Table 22

Relationships between Selected Elements in Ione's Abstract Structure and her Experience of Situation Four

Ione	Content	Teacher	Method
Purpose, Review	Interesting, not too technical	Didn't follow outline, made it harder to listen	Outline too general
Learning preference	Predominant theme: Strategies for ways to be kept awake		

credits generally are less attentive to such detail.

Jean

Jean was a clinical specialist with a Ph.D. in nursing science and a total of 15 years experience in nursing. She had taught an earlier session in this series. Her purpose for attending the series was a general overview, and to observe other teachers with the goal to improve her own effectiveness. For this particular session, her interest in the content was low, and because of a busy day, she would not have attended except for her commitment to do the interview (see Figure 26).

She described a busy day including work and teaching responsibilities, a doctor's appointment, and concerns about buying a house, complicated by parking inconveniences, and taking time out for lunch.

Her teaching experience and theories about teaching effectiveness were evident in her perceptions of the situation. She was disappointed with content focused on pathophysiology, and a teaching style which did not involve participants. She recently attended a teaching effectiveness workshop where her belief in the importance of participation was reinforced, and has an active goal to improve her own teaching effectiveness in that regard. She acknowledged a tendency to be critical of herself as well as other teachers.

Jean saw the content as generally uninteresting but relevant because patients do have those kinds of problems. She believed straight pathophysiology is only relevant if it is

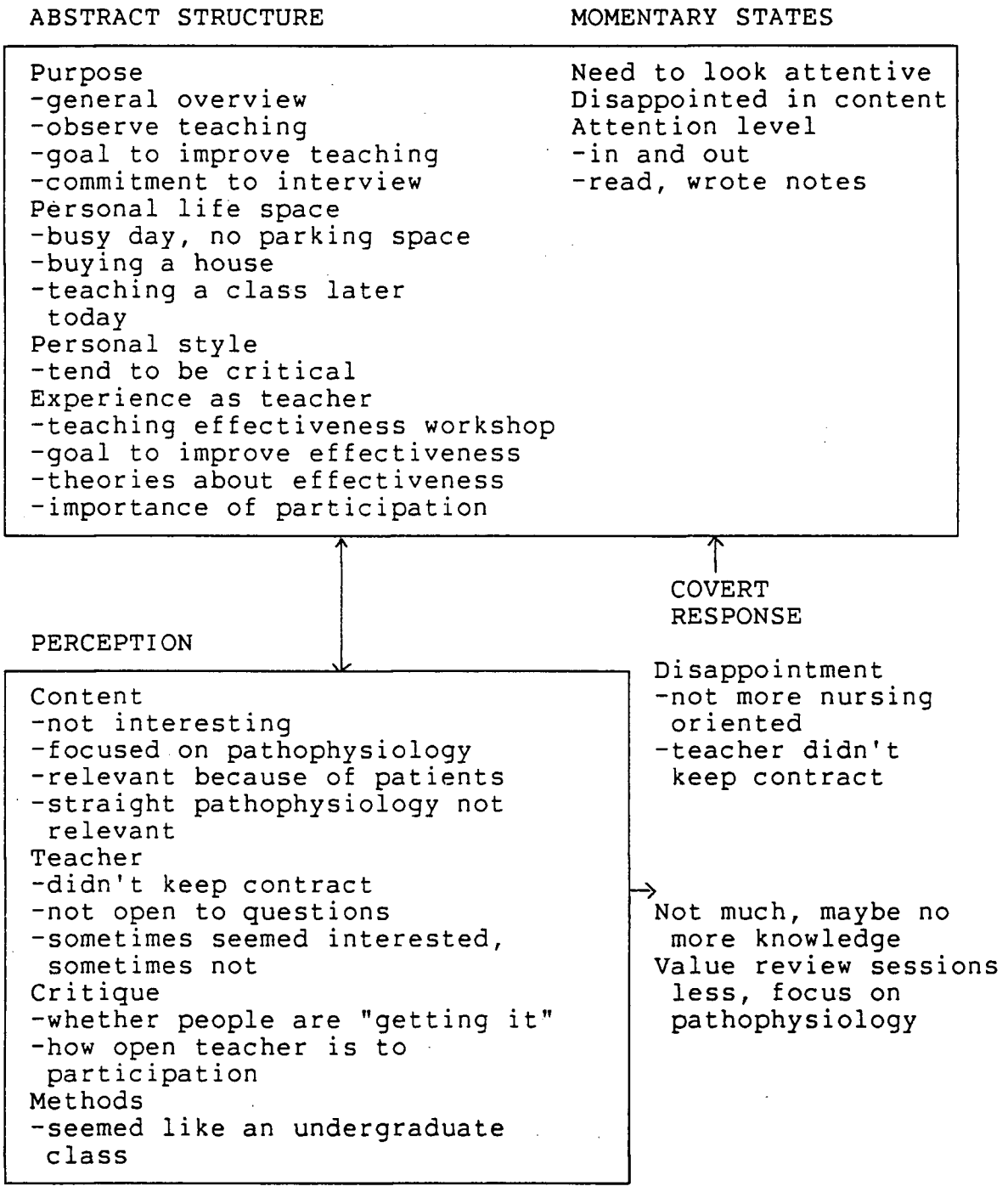

Figure 26. Elements of Jean's experience in Situation Four

applied to patients or nursing care, and reported a tendency to convert the content in her mind to those applications.

Jean's perception of this teacher was that she didn't "keep her part of the contract," meaning that she was asked to cover nursing application and not just pathophysiology, and that she was not prepared and did not allow time to cover the review quiz. Jean perceived the teacher's priority as "getting all that information out" rather than what the participants might do with it. She judged the teacher as not open to questions, because she did not pause long enough to encourage them. The class seemed like an undergraduate pathophysiology class to Jean.

She expressed a need to look attentive, whether she was or not, because of the interviewer's presence. In general, Jean believes people should look attentive as a matter of courtesy and was distressed about one learner who consistently "nods off" in class. She was reassured to notice this participant sleeping in more than just the class which Jean had taught earlier.

Jean's attention level was lower in this session than in previous ones and she used the time for reading materials that she had with her and writing notes to a friend seated beside her. Occasionally something would pique her interest: when the teacher acted more interested herself, or when she gave clinical examples or "just interesting information."

She believed she may have gained a little more knowledge, but not much, and couldn't think of one example of information she hadn't known before the session. She valued review sessions less and attributed that to the focus on pathophysiology rather than application.

Analysis

Throughout the interview, Jean's response seemed to come less from Jean as learner, and more from Jean as critic of the teaching process (see Table 23). That response was consistent with her dual purpose to get a state of the art overview of content, and to improve her own teaching effectiveness.

Table 23

Relationships between Selected Elements in Jean's Abstract Structure and her Experience of Situation Four

Jean	Content	Teacher
Awareness of interview	Need to "look attentive" whether she was or not	
Purpose, modified as commitment to interview, low interest in content	Generally uninteresting but relevant to patients with those problems	Didn't keep her part of the contract
Teacher role	Criticized as oriented to pathophysiology rather than application	Criticized as interested in "getting information out" rather than understanding
Teaching theories	Learning occurs best with focus on application to practice	Learning occurs best with involvement of learners

Her ideas about teaching effectiveness and her belief that

focus on application and involvement of participants were essential, seemed to be important factors in her critique of and response to the session.

Jean's open acknowledgement that her commitment to do the interview was a determining factor in her decision to attend the session was at first considered a bias which would invalidate the report of her experience. From another perspective, the interview was simply a part of Jean's overall life space which influenced her purpose and decision making. How that purpose, to honor her commitment to the interview, influenced her response to the situation is open to question. She reported thinking that she must look attentive for the interviewer's benefit. There were no other connections drawn. Her reported belief that "looking attentive" is a participant's minimal responsibility, raises a question about any influence the interviewer may have had on that part of her behavior.

It is reasonable to assume that she may not have been present at all except for the interview. Her level of attentiveness was consistent with her configuration of purposes and her limited interest in this subject and this teacher's focus. "State of the art" nursing implications were not covered in Jean's perception, the teacher's style did not match Jean's beliefs and values, and commitment to the interview did not require attentiveness.

With this analysis, the potential importance of something which might be called "personal life space" begins to come into focus. As Jean described her day, it became apparent that even

something as unrelated as trouble finding a parking space, could influence a learner's attendance and attentiveness to a learning situation. Thoughts about the house she was hoping to buy, the class she planned to teach after this session, and a myriad of others competed for space in her attention. What determines when attention will be focused on the session or on one of its competitors? Relevance of the content, pressure behind learning it (related to purpose and consequence) and the relative weight of the distracting influences seem plausible. Jean attended when the teacher sounded interested, or used a clinical example, otherwise focused her attention on other concerns.

Comparative Analysis of Three Learners in Situation Four

Selected elements of abstract structure and momentary states are summarized for the three learners in Situation Four (see Table 24), and each of those elements are related to their perceptions of or response to the situation.

Table 24

Comparison of Abstract Structure and Momentary States for Three Learners in Situation Four

	Helen	Ione	Jean
Purpose	Review, eventual job change	Review Mandatory CE	Overview Improve teaching Interview
Learning preference	Lecture for a lot of material	Methods which would keep her awake	Participation Focus on application
Life space	Career decisions	Work day before class	Teaching class Buying house Parking problems
Momentary states:			
Attention	High, dropped when presentation was rushed	Sleepy, frustrated with outline	Low, content uninteresting, focus on pathophysiology

Purposes varied somewhat. While each focused on purpose for a review, only Helen planned to take the certification exam. Both Ione's and Jean's purposes seemed to have less pressure

behind them. There were no apparent consequences if the material was not learned, consistent with the lower attention levels of each.

Perceptions of the situation also were varied. Helen saw the content as relevant, interesting and not too technical. Jean, however, perceived its focus on pathophysiology as a negative factor, and the teacher as not living up to her contract for application to nursing practice. Jean's theory of teaching effectiveness requires opportunity for participation which she did not perceive to have occurred sufficiently in this session.

Outcomes were relatively low but somewhat positive for two of the learners. For Helen, her knowledge was about the same, but a little fresher. Ione understood the context and learned a few things. Jean believed she had learned little if anything, and valued review sessions less than she had previously.

Learning preferences were consistent with those perceptions and responses. To cover a lot of material like this, Helen prefers lecture. Ione likes whatever will keep her awake. Jean's discussion seemed more her theories about teaching than learning preferences per se. That perspective was consistent with her past experience as a teacher and her current focus on teaching effectiveness. It might be assumed, though there is minimal connecting evidence, that her preferences as a learner match her theories as a teacher. In any case, there was consistency between her low attentiveness and her perception that those theories were not used.

Identified factors in the personal life space either seemed to add valence to the learning experience or distractions from it. Helen, with anticipated need for knowledge related to a career decision and the certification exam, seemed more attentive until the teacher rushed the presentation. Ione's work day was associated with feeling tired and sleepy, and there were no apparent offsetting factors for attentiveness.

Situation Five

The setting was as previously described with tables and screen returned to their original positions. The windows were closed and the hallway door was closed early and opened later in the session. Once again, loud hallway noise was noticeable with the door open. A dietary employee came in twice during the session to clean up the previous setting and to bring the new refreshments. There was noise with both activities but no overt sign that it was noticed. Once again, the young child played at his mother's table toward the back of the room.

Content was divided into 2 one hour segments. The first half (A) was a specialized area of content which applies to all medical-surgical patients. The focus moved back and forth between review of basic concepts which are relatively well established in the field and application to nursing practice.

The teacher (A) was a clinical specialist, with a Master's in Nursing. She gave an overview of the session, referred to material in the notebooks, and used overhead transparencies, some duplicative of handouts and some additional material. She periodically referred to content as "old", or "familiar" and seemed apologetic about that. She encouraged interaction, asked for responses, and used examples. Sometimes she read from the outline. She did elicit some discussion from participants, more than had occurred in previous sessions. She went overtime by 10 minutes, apparently unaware of 50 minute hours necessary for an

interim break.

Methods (A) were lecture/discussion, handouts and transparencies, with print too small for the back of the room. She tended not to review the material directly and no one requested that she do so.

Content for the second half (B) was a specialty area of practice with minimal application to general practice or other specialties. The focus of the session was on one aspect of normal physiology, with about 10-15 minutes given to pathophysiology of two diseases.

The teacher (B) was a specialist in her content area with a Master's in Nursing. She seemed to have a bad situation at the start. At her scheduled time to begin, the participants were just starting their break. She announced "keep your break short, I have another class to teach after this and a lot of material to cover." ((There was tension in her voice, and I wondered if her intention was an indirect message to the other teacher.))

She did not introduce herself, and asked participants to ignore the outline for the most part. She mentioned her decision to focus on one normal physiological process rather than "skim over" the top of everything else. Her voice was natural, she was poised, and referred briefly to her notes but did not read them. She used illustrative transparencies which were somewhat complex but legible, and she reviewed them extensively. She stood beside the projector in a position which blocked the screen for some participants. No one asked her to

move.

Once again the learners for both segments seemed attentive, with more interaction than in previous sessions. There were late-comers and early-leavers; no one seemed to notice.

One episode about midpoint in the first lecture involved Celia, who was later to be interviewed. She asked a question -- the tone of her voice and the nature of the question seemed a veiled "challenge" to the teacher who became a bit defensive. After a brief exchange the session continued. Celia remained very alert, in fact almost "keyed up," through the rest of the session.

Celia

This was Celia's second interview. A staff nurse on a general medical-surgical unit, Celia's purpose for the series was to avoid obsolescence, to rekindle enjoyment of practice, and to prepare for the certification. She expanded on that statement of purpose by commenting on her nervousness that a diploma wouldn't "stand up very well." She wants a degree but in the meantime expects certification to "work" ((presumably for job security)).

Celia was tired and sleepy for the first 15 minutes or so and then began to react to the teacher and the content. She saw the teacher as starting out "very professsional," and based on earlier classes in the series, expected her to give some helpful "tips." But instead, "she said exactly what I heard 17 years ago," and it hasn't worked. Celia expressed disappointment,

anger, and resentment that she was hearing it all over again and perceived the teacher as getting it out of the book, not from real experience. "She had it so simplified," "just gave more mumble-jumble" (see Figure 27).

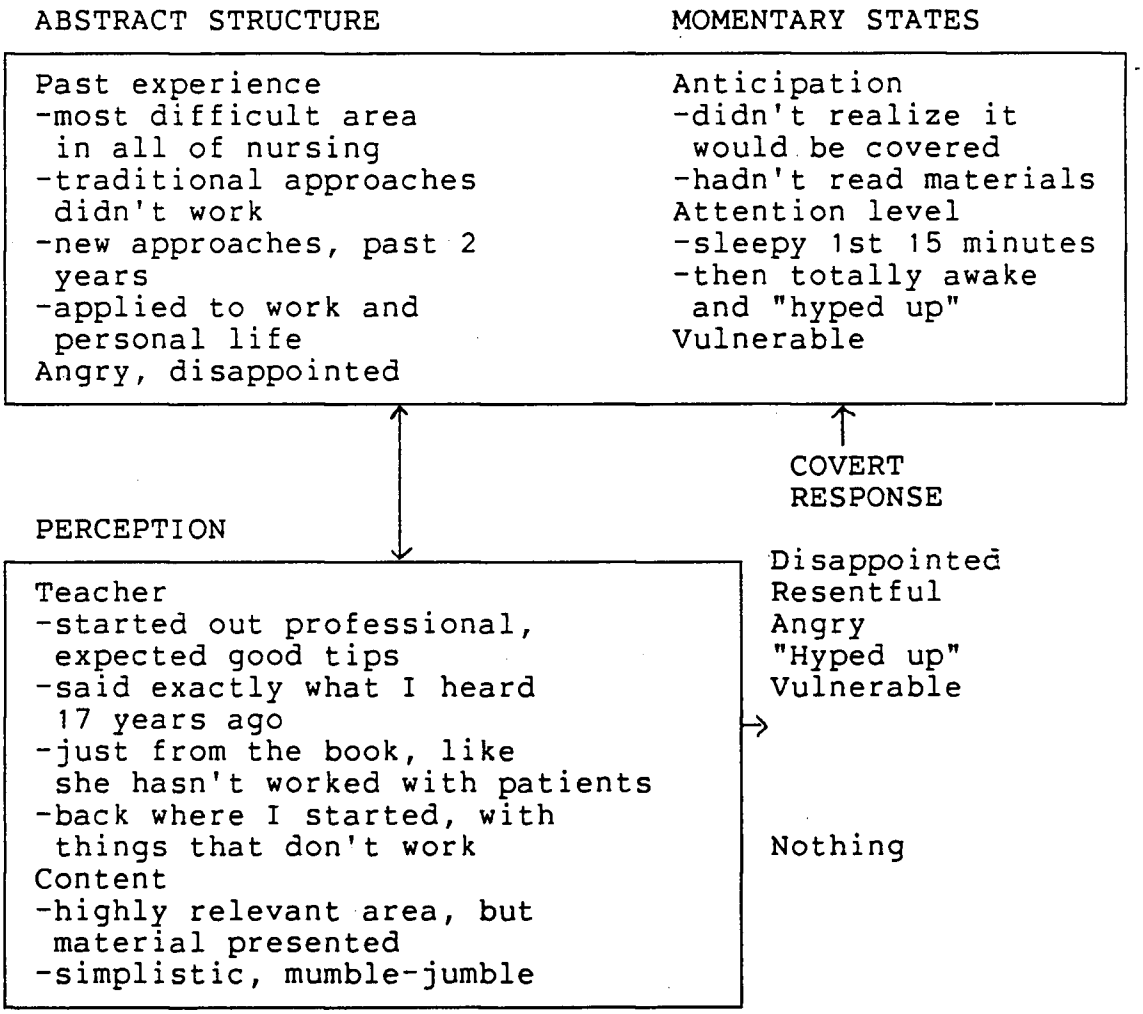

Figure 27. Elements of Celia's experience in Situation Five, First Segment

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Referring to her response, Celia believed that she herself

has made important breakthroughs with this practice area and in her personal life during the past two years. This session brought back a flood of memories of painful and frustrating situations to Celia, which she experienced as frustration and anger all over again. She saw the content area as highly relevant but the material presented in the session as not helpful.

For the second segment, Celia was looking forward to the review. She had had five years experience in this practice area several years ago, and wanted to find out how much she remembered. As the session started, she had to take a few minutes to "cool down" before she could attend. She told herself, "your buttons were pressed because of some difficult situations, now throw that out and move on." The content in the second half was entirely different from what she had expected and she found it personally relevant and fascinating. She related the content to her young daughter and did not think of it in relation to her nursing practice. She believed that she gained a lot of new information (see Figure 28).

During the second segment, when the hallway noise was particularly loud and frequent, Celia had been totally unaware of it, so absorbed was she in the presentation. Related to the differences in her experience of the two situations, Celia pointed to her own past experience as an important factor. She described herself as relaxed and attentive in the second half, and "hyped up" and vulnerable in the first.

Commenting on earlier sessions, Celia expressed

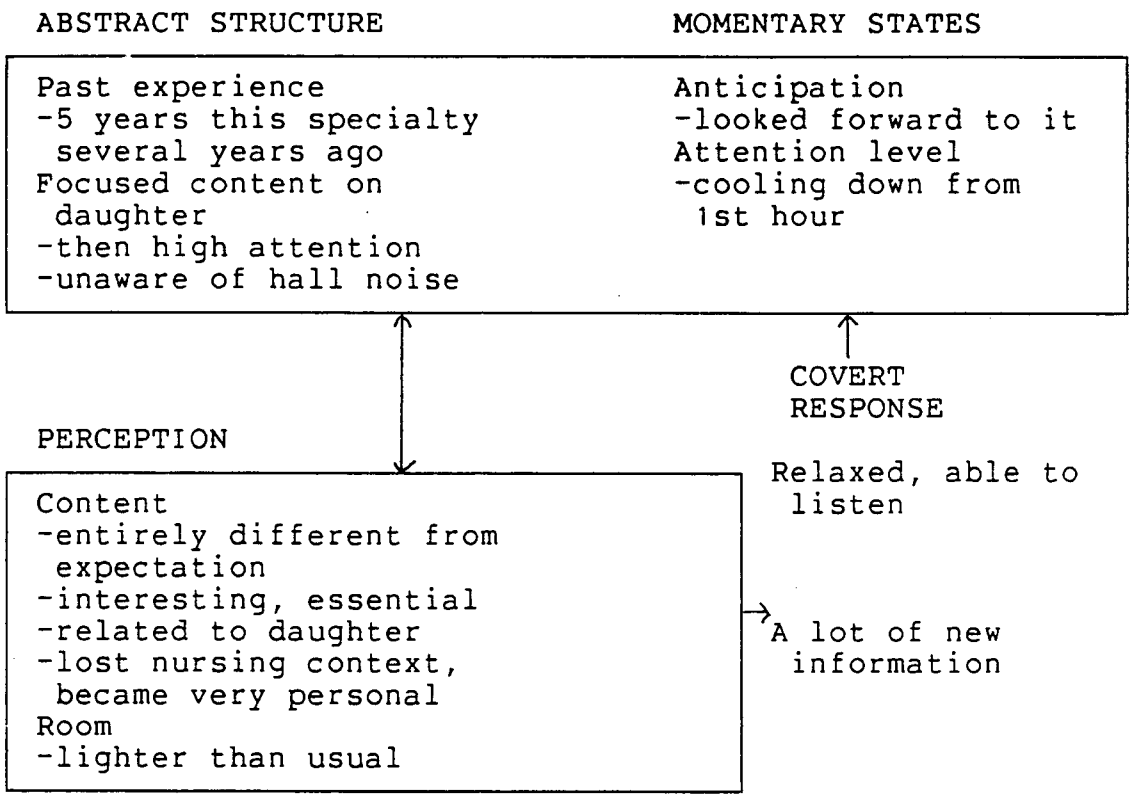

Figure 28. Elements of Celia's experience in Situation Five, Second Segment

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disappointment in the taped session (Situation Three). She had wanted to see a person up there and felt that the teacher just filled in the 50 minutes, and that she talked too fast.

Analysis

Differences in Celia's experience of these two episodes are striking. Celia's recollection of painful past experiences came bubbling to the surface as she heard this teacher describe approaches which she associated with those experiences. Having found answers which were more satisfactory to her in the past two years, Celia seemed to react to the continued existence of

the earlier theories (see Table 25).

Table 25

Relationships between Selected Elements in Celia's Abstract Structure and her Experience of Situation Five

Celia	Teacher/content segment A	Teacher/content segment B
Past experience related to content area	Negative work and personal experience: anger with teacher for presenting this content, "simplistic, mumble-jumble"	Positive work experience: content relevant and fascinating. Personal experience, related health problem
Family reference	Relationship improved with new methods, ((proving old theories didn't work))	Related content to daughter -- future, and to self -- present

The intensity of her reaction was interesting. She has on other occasions heard old, perhaps even outdated information without anger. What were the factors in this situation which made a difference? What combination of circumstances lead to anger on the one hand and boredom or distraction on the other? Cues to those answers may lie in Celia's report of her past experiences. The emotions she experienced in the learning situation wore the same labels for her as those she reported feeling in the original situations. This episode serves as a graphic illustration of the interaction between person and

situation.

Celia's response to the second half of the session was equally interesting. Able to put aside the emotion fairly quickly, she became so absorbed in the information that she was unaware of loud noise a few feet away through the open door. She related the information to her own personal experience and to her daughter's future. Though it was not at all relevant to her nursing practice, she judged it to be highly relevant to her personal life. In the interview she mentioned planning the conversation she would have with her daughter as a result of the session.

Donna

This was Donna's second interview. A staff nurse on a general medical-surgical unit, Donna's purpose for the series was preparation for the certification exam. Expressing lack of confidence in her own knowledge level, she thought the class would be "just my answer, that I'll know everything." The result is far different. Compared with the volume of material, and the knowledge of instructors she feels like she knows even less, and wonders what she has been doing for the past 18 years. She attends every class because she paid "all that money" for them and enjoys them as a diversion from other concerns (see Figure 29).

Donna was upset when she arrived for this session. She attributed that to scheduling problems at work and something about her group therapy session the previous evening. She selected a seat by her co-workers for security, and felt a special need to talk to them, to be sure they felt like she did about work, the schedule, and the test.

The first hour was ideal to Donna because it related to why she was upset. She felt reassured and her mood improved. The teacher seemed to use her own knowledge, and a free style of talking. Donna "could have listened to her all day," and related the content primarily to herself. She also believed it to be highly relevant to practice but those were not the connections she made during the lecture. Her attention level

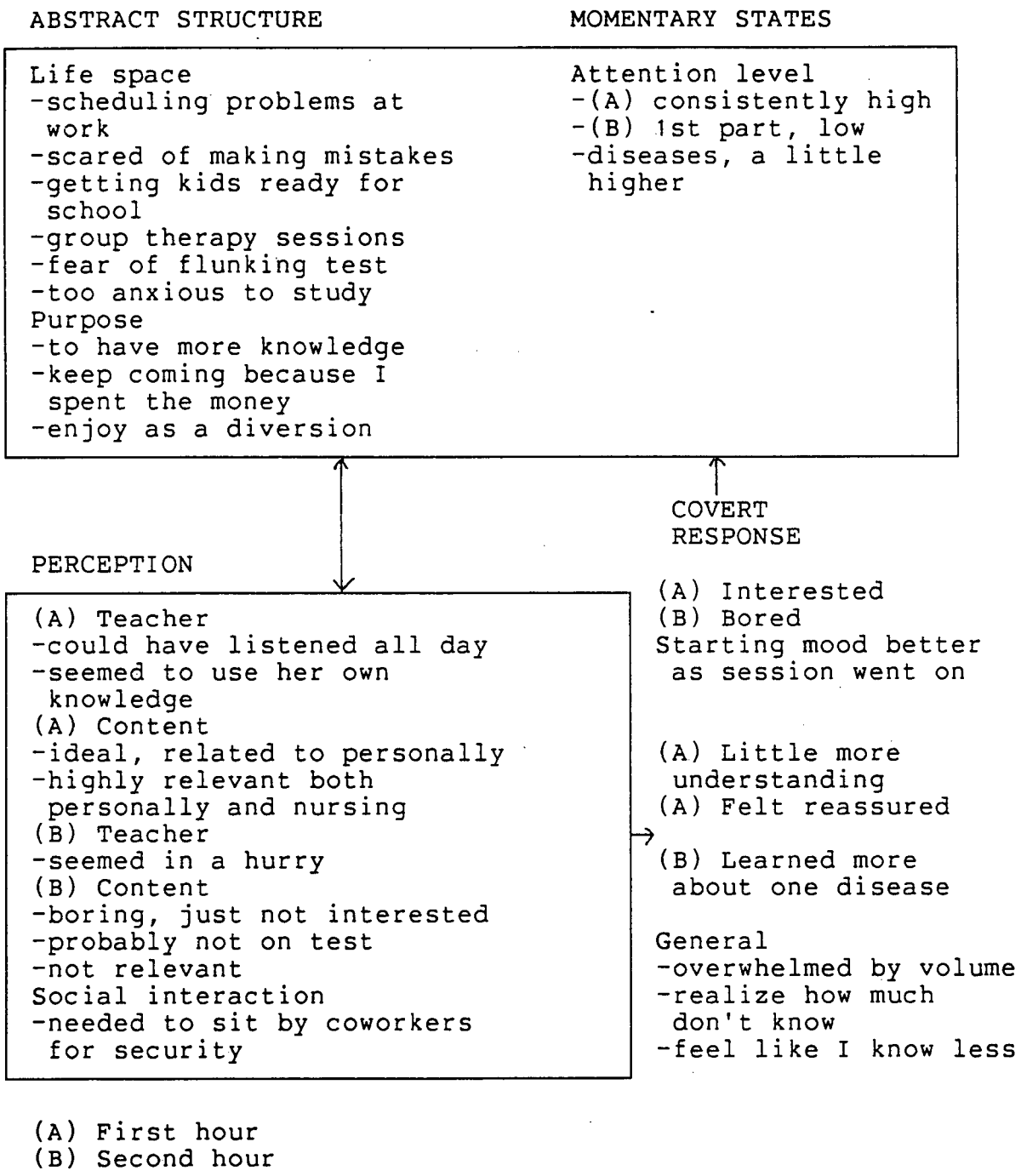

Figure 29. Elements of Donna's experience in Situation Five

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was high without fluctuation during the first hour. Learning outcomes were: a little more understanding and feeling reassured.

The second hour, Donna was less attentive. She believed she can't learn anatomy and physiology from a lecture, that she needs to study it on her own. She also did not expect that content on the test, and found it boring. Her attention level improved at the end when disease processes were discussed. She expressed anger at one bit of information which related to a previous personal illness. Donna thought the teacher seemed like she was in a hurry, and wondered "why bother?" She learned a little about one disease process, otherwise would have to study it more to learn it.

In addition to the work schedule problems and group therapy sessions about which she was upset, Donna felt pressure to get her children ready to start back to school. She loves nursing but is scared of making mistakes because of something she doesn't know. Also afraid of being the only one to flunk the certification exam, she tries to study but finds herself too overwhelmed and anxious to concentrate.

Analysis

A prominent theme in Donna's interview was the marked difference in her response to the two segments of content (see Table 26). The first, highly relevant to her current personal life, seemed to capture and hold her attention throughout the session. This was content she has always liked and found easy to understand.

The second segment hooked into her belief that anatomy and

Table 26

Relationships between Selected Elements in Donna's Abstract Structure and her Experience of Situation Five

Donna	Content, segment A	Content, segment B
Personal experience	Highly relevant, directly applicable to self	Negative past experience, related to anger and anxiety
Life space, need for reassurance	Found content encouraging, helpful	Rushed, boring, not relevant
Purpose: to have more knowledge	A little more understanding	Probably not relevant to the test
to pass the exam	Overwhelmed by volume	

physiology is hard to understand and she can't learn it this way. As a result, she did not pay attention, and may have set up a self-fulfilling prophecy. She also expressed lack of interest in the subject and some anger and anxiety about a earlier negative experience she had had.

Donna seemed overwhelmed by her perception of her own knowledge lack expressed as fear of making mistakes at work, and fear of flunking the test (especially if she were the only one to flunk it). Efforts to study seem to be thwarted by anxiety -- beliefs that it is impossible, there's too much to learn, and so on. The classes which, in the simplest sense, are information resources to her, contribute to her problem. As she sees the volume of material, and hears how knowledgeable the instructors are, she feels even less adequate.

Ione

This was Ione's second interview. She was a staff nurse in a specialty unit which had been closed, probably on a temporary basis, that day. She expressed confidence in the future, that the unit would reopen, and that something else would be available in the meantime. She was not under immediate financial pressure. Though it had been a tense, busy day, she was not distracted by thinking about it during the class. As she expressed it: she just sat down, relaxed into her chair, and fell asleep. Later, she moved around and woke up, and things flowed better (see Figure 30).

Ione's purpose was for review and mandatory CE credits. For this session, aware of the interview, she tried to pay more particular attention to what she was doing. Related to that comment she offered ideas or "theories" about how class could have been more effective. "Using different ways of presenting," and "delivering sound well" are illustrative. She observed that men teachers tend to shout and keep you awake, while women have soft voices. ((Ione herself speaks slowly and softly.))

Ione perceived the content in the first segment as relevant both personally and in nursing, and expressed a desire to know more. Her prior knowledge was described as not in depth, and her gains in this session as minimal. The teacher was relaxed and seemed to understand anything. On the other hand, she had a soft, monotonous voice and read the material.

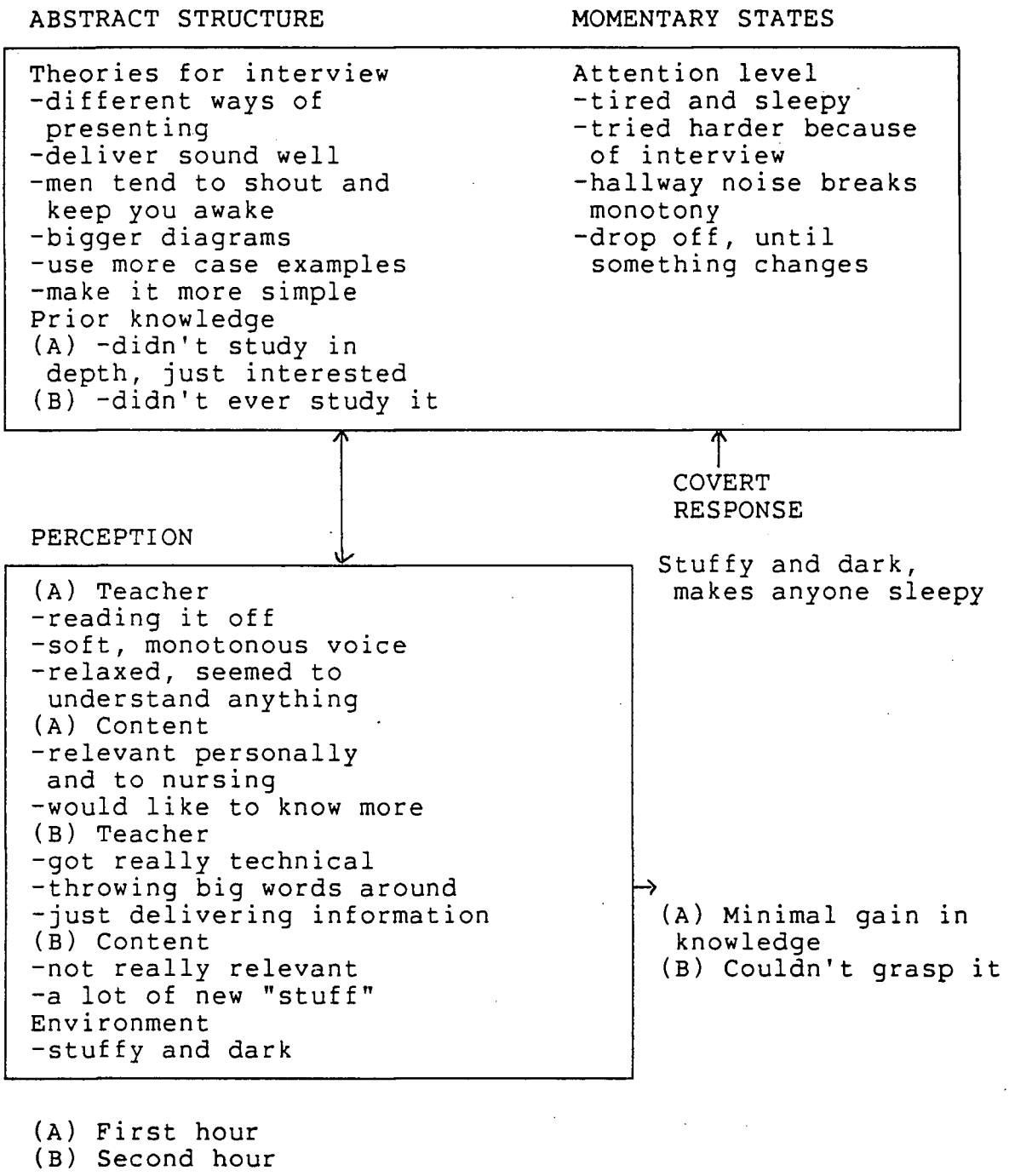

Figure 30. Elements of Ione's experience in Situation Five

The second segment had content that was really technical, not relevant, "a lot of new stuff with big words." Ione could not recall having ever studied it before. The teacher was

perceived as just delivering information, "throwing around big words" Ione couldn't follow her at all, just couldn't grasp it, though she thought she was more awake during this segment.

The room was stuffy and dark to Ione, the kind of place that would "make anybody sleepy." Rather than becoming distracted by hallway noise, Ione was grateful for it, it broke the monotony and woke her up.

Analysis

Ione's responses again seemed to center around sleeping or efforts to stay awake. Her awareness before the session that she was scheduled for an interview, prompted her to try to pay attention to what she was doing ((to generate answers she thought the interviewer might like?)) Along that line she proposed a number of suggestions or "theories." Her emphasis seemed to be on ways to keep people awake rather than on learning. Presumably the former is a necessary condition for the latter, but Ione did not make that connection overtly.

Her prior knowledge, limited in both content areas for this session, seemed to be more important in her response to the second segment which was highly detailed and technical. More familiar language and focus on application made the first segment seem more understandable to her, though the teacher's soft voice did not keep her awake as much.

There was no sense of pressure for Ione to learn the content. Nothing in her purpose or her life space in general suggests either negative or positive consequences related to

learning it. The CE credits for maintenance of her certification are not based on content evaluation. Thus her purpose is not inconsistent with her level of attentiveness. The interview seemed to give her more incentive to stay alert, to be able to identify things which she might report.

Jean

This was Jean's second interview. Her original purposes had been a broad overview and observation for improvement of her teaching. Her purposes for this session were somewhat more narrow, to support a friend and colleague who was teaching, and because of the commitment to the interview. She knew the first content very well and was not vitally interested in the second. Because of a busy day and driving back and forth between her office and the hospital, she would have chosen not to come except for those two specific and more delimited purposes (see Figure 31).

Jean felt the time pressure of seeing patients, and was preoccupied by the progression in her buying of a house. She had a child in day care and kept her pager on so that she could be reached if he needed her. Early in the first hour, Jean realized the pager wasn't working, got nervous about it, and left to check the batteries.

On return she was moderately attentive. She perceived the content (A) as relevant, stuff <u>they</u> ((emphasis mine)) need to hear now and then." She thought the teacher was poised, and presented herself well, did a good job. As a friend and colleague, she takes pride in those accomplishments and wants others to respond well to her friend's teaching. Jean perceived the teacher as relaxed, comfortable with the information, and interested in the learners.

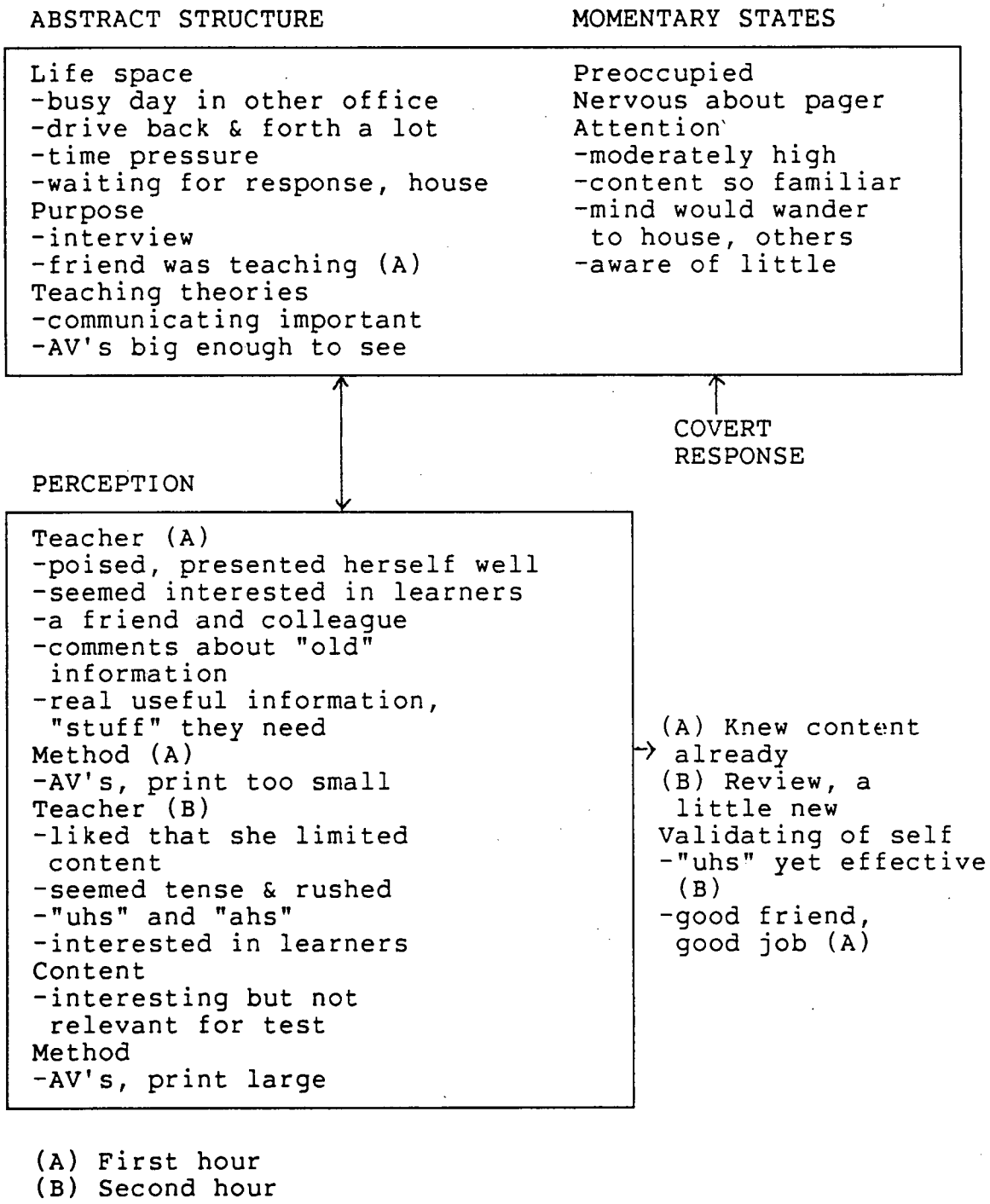

Figure 31. Elements of Jean's experience in Situation Five

She had two perspectives on the teacher's comments about "old" information. One, it suggested that the teacher didn't assume a blank slate, and recognized that learners already know

something. On the other hand, it seemed apologetic and tended to discount what the teacher was saying.

Jean's perceptions of the second hour (B) included observation that the teacher seemed more rushed and tense than usual. She was perceived as interested in the learners, soliciting information from them to be sure they understood. Jean was aware of "ums" and "ahs" because she is working to improve that habit herself, and found it reassuring that someone else, who is perceived as very effective, does it as well.

Jean thought the AVs were used effectively in the second hour. She believed the first teacher should either make the print bigger or not use transparencies at all.

Her attention level was moderately high, though the content was so familiar that she would find her mind wandering, especially to the house she's trying to buy. She was aware of the little boy behind her, and found that not an unpleasant distraction.

In terms of outcome, Jean knew the first content well already, and learned a little new information in the second. She found both sessions self-validating in the observation of the second teacher's "uhs," and pride of association with the good job which she perceived was done by her friend in the first segment.

Analysis

Jean's role as friend seems much more prominent in this interview than either teacher or learner roles. Her perceptions of her friend and colleague were essentially positive to glowing. Her criticism was limited to the use of AVs with print too small, and the possibility that she ought not to discount her content by emphasizing its being old. Noticing that the second teacher seemed more rushed and tense than usual, she had not noticed that some of the time had been preempted by the first teacher. Jean was aware that her association with the teacher influenced her perceptions but was not sure how it did. She believes it probably is a combination of "higher expectations" and "benefit of the doubt."

As she describes her schedule and the factors in her life that preoccupy her thoughts, Jean paints a vivid picture of a life space that blends into the classroom setting. For Jean, those factors serve as distractors in a learning situation which is essentially unrelated to them. If the learning were somehow connected with, for example, her child or buying the house, those might serve instead as driving forces or motivation for learning.

Comparative Analysis of Four Learners in Situation Five

These experiences are remarkably different for the same learner between the 2 one-hour segments, and also between learners (see Table 27). Perceptions from one learner to the next seem not even to be describing the same situation. Celia's very negative and very positive experiences of the first and second hours respectively, were reversed for Donna and somewhat for Ione. Jean, with whom both teachers are colleagues and one also a friend, had essentially positive perceptions of both segments, though her interest in the content and her attentiveness were low.

It is probable that not all of the data for understanding those differences was obtained or obtainable from the interviews. However, there are some speculative connections which can be made. Each of the described responses can be logically associated with elements in the past experience and current life space of the learner. Celia perceived the material (A) as outdated. Why would outdated material, sometimes associated with boredom, in this case lead to anger? Celia described painful past experiences in which she had felt personally battered as she tried, unsuccessfully, to use the concepts presented in segment A. As the content unfolded, her recollections of those events seemed to be accompanied by the emotions that had been associated with them at the time, primarily frustration and anger. Rather than just remembering

Table 27

Comparison of Abstract Structure and Momentary States for Four Learners in Situation Five

	Celia	Donna	Ione	Jean
Purpose	Certification Review	Knowledge, confidence Certification	Review CE credits	Overview Teaching improvement Interview
Past experience: Content	(A) Most difficult practice area	Likes it, Relates it to self	Minimal interesting	Very familiar Uses it in practice
	(B) 5 years in specialty enjoyed	Personal health problem, negative experience	None, boring	Some familiarity and a little interest
Life space	(A) 100% improvement with new approach	Problems and fears -work -test	Work day tense, busy Unit closed	Buying house Busy work day Child in day care
	(B) Related content to daughter			
Attention	Sleepy at first, then high	high(A) low(B)	Sleepy, efforts wake up	Low--in and out

the events and a cognitive awareness of the emotions, she actually reexperienced them.

In the same segment, Donna responded very positively. She had been struggling on a personal level with the problems which

were discussed. In the content she found reassurance, and labels to attach in order to better understand what might be happening for her and, perhaps, some approaches which might be helpful.

Ione reported no strong past experience or current situations, nor a strong reaction to the session. She found it interesting when she could stay awake. Jean, who had no interest in the content because it is completely familiar to her, observed the teacher who was a colleague and friend. She tended to observe the situation rather than experience it, and to see it in a positive light. She paid minimal attention to the content, and "looked attentive" for benefit of the interviewer, and presumably for her friend as well.

There were equally diverse perceptions and reactions to the second segment of content. Celia had had positive past working experience in the specialty area, though the content itself was new to her. She also had a daughter to whom the content has or will have direct application. As the content unfolded she made connections about how she would use the content for her daughter's benefit.

To the contrary, the same content brought to Donna's memory a negative personal experience in which she had felt humiliated. She expressed anger and boredom related to that segment of content.

Those speculations suggest hypotheses which would require substantiating research and for which the body of literature on memory would be helpful. If events are remembered holistically

and if accompanying emotions are reexperienced as current emotions then a variety of strong responses in educational sessions could be understood in those terms.

EXPERIENCE OF INDIVIDUAL LEARNERS ACROSS SITUATIONS

Five individual learners were interviewed following two different situations. Reported experiences of the two situations are compared and analyzed for each learner. Consistencies and inconsistencies are described and plausible relationships between each individual learner and situations are developed.

Alice

Alice was interviewed following Situations One and Three. Situation Three and Alice's interview following it were previously described. Situation One and the respective interview are presented here for comparative analysis.

Situation One

This situation was a session in the twelve session series previously described. The setting was essentially the same. Once again, the weather was sunny and hot, the windows were open throughout, and the door was open during parts of the session. There was a cool breeze from the windows, and periodic noise from outside and from the hallway.

Content was a highly specialized area of practice for which the knowledge base has mushroomed in the past few years. Most

of the content probably would be new to those not working directly in the area. There was a heavy focus on detail pertaining to pathophysiology, drugs and treatments, and brief reference to application in nursing practice.

The teacher was a specialist in the content area and had limited teaching experience. She wore street clothes which were softly tailored, fashionable. Her voice was natural and clear, posture straight and relaxed. Though she seemed very familiar with the content, she consistently looked either at her notes or at one particular participant to her front right. She started on time with an overview of the session which included an invitation to interrupt for questions. Rapid pace, eyes directed toward notes, frequent reference to "too much to cover," led to the conclusion that her manner of presentation did not support the invitation for interruption, and there were none throughout the session.

Lecture was the method of instruction, supplemented with handouts in the notebooks, and transparencies which were primarily duplicates of handouts. Print size on the transparencies was frequently too small for reading from the back half of the room. The projector light was left on the screen for periods of time between transparencies. Content was logically organized and rapidly paced, with the second hour particularly rushed. The teacher could be characterized as content-focused, that is, she looked at her notes, referred to amount and importance of content, and rushed toward the end to cover more content.

Approximately 20 participants were present for part or all of the session. Some were late in arriving or left early, apparently related to work schedules. In general, participants seemed attentive, postures were alert, eyes were directed toward the teacher or materials, some were taking notes. There were no overt responses to potential distractors, such as noise, people moving in the room, or the bright light on the screen. Toward the end of the second hour, there were signs of restlessness, shifting positions. The one participant who was interviewed following this session, Alice, sat toward the front of the room to the teacher's left.

Alice's Experience of Situation One

Alice was a staff nurse in a specialized unit not related to the content area for this session. She had been in practice for two years with an associate degree in nursing. Alice's purpose for attending the series was to review different areas of practice toward the goal of a job change which she plans to make within six months. Mandatory requirements, already having been met, played no part in her purpose for attending the series. She does not plan to take the certification exam in the forseeable future (see Figure 32).

Alice prefers involvement, discussion, use of examples, and case studies, over lecture. She was disappointed that there was no participant involvement, but believed there may have been a need for lecture with "so much to be covered in such a short

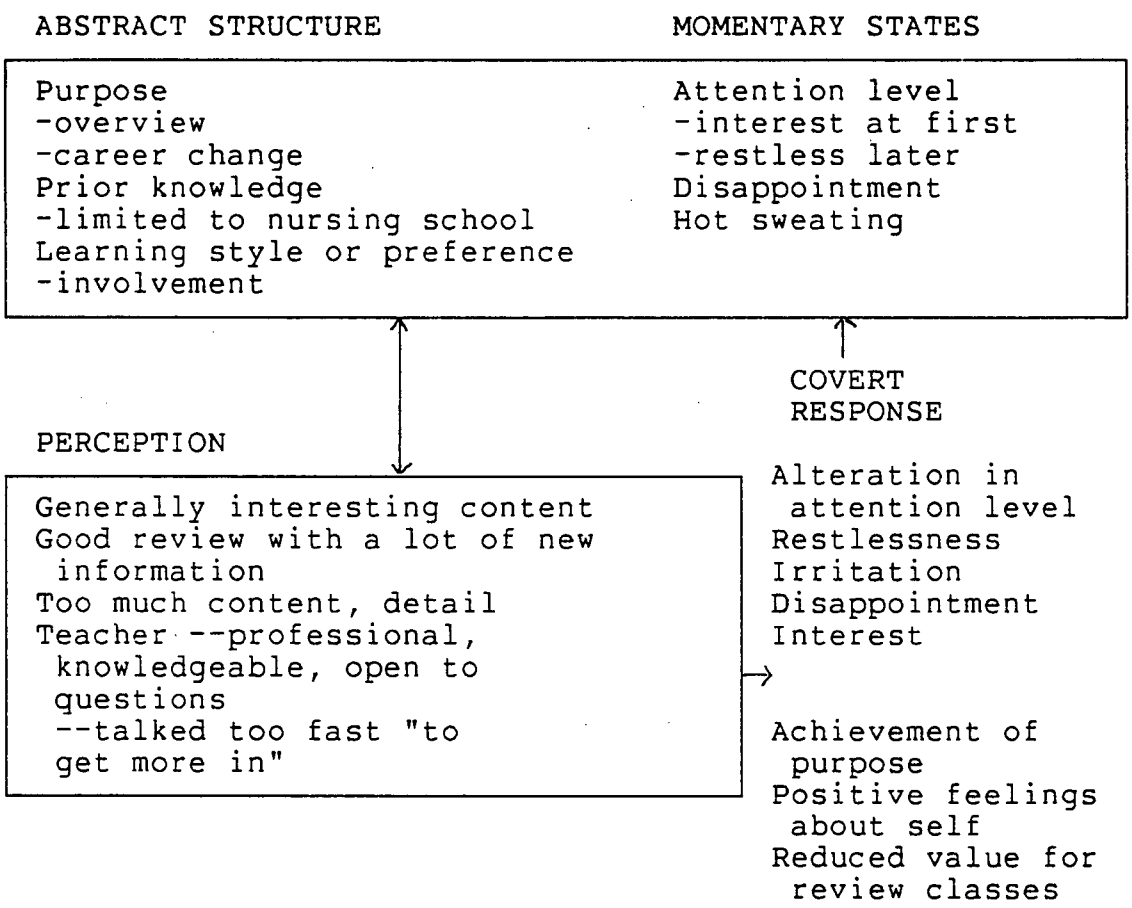

Figure 32. Elements of Alice's experience in Situation One

time." She believed there was too much information, and wished less had been covered more slowly and more thoroughly. She prefers to sit "up front" as an aid to maintaining attention. She had no past experience with this teacher or other learners and her prior knowledge of the content was limited to exposure during her basic nursing preparation.

Alice expressed irritation with some of the sessions that have tended to run overtime. "I find it a little irritating that they're not more organized. I know that there's a lot to cover but if they know they only have two hours, I think they should . . . get it in two hours." Under pressure to get from

class to work, she must leave on time and it bothers her to leave before class is over.

Alice was attentive during the first hour, and liked having the outline to follow for notetaking. Use of examples helped her to listen. Her attention level dropped when the content was more technical or about things she knew she "would never have any use for." She was distracted at times by outside noises and reported conscious efforts to remain attentive. When becoming aware that her mind was elsewhere, such as on evening plans, she would pull her focus back by taking notes. She attributed restlessness and loss of concentration toward the end of the session to the teacher's "talking faster to get more in." She also was aware of being hot and sweating toward the end of the session.

Her perceptions of the situation in general were: interesting content, a "good" review with a lot of new information, but "too much" of it with unnecessary detail. She saw the teacher as professional and knowledgeable with dress, demeanor, and clarity in speech related to that perception. The teacher's comment at the beginning that she would answer questions along the way led Alice to the perception that "she welcomed questions" and "seemed to be a pretty open person."

Alice believed that she had achieved her purpose for review of this content. She had positive feelings about herself for having attended every class so far. Her feeling of value for "classes like this" was reduced because too much was covered in too little time. She expressed a more positive feeling about

one aspect of the content, a particularly invasive treatment, which had previously been negative for her.

Analysis

Analysis of Alice's report of her experience reveals some reasonable consistencies between some elements of abstract structure and her perceptions of and response to the situation (see Table 28). For Alice, the salient elements in the situation seemed to be content and the teacher's style and method of presentation. Related elements of abstract structure were purpose, learning preference, and prior knowledge.

Table 28

Relationships between Selected Elements of Alice's Abstract Structure and her Experience of Situation One

Alice	Content	Teacher/method
Purpose, broad overview, eventual job change	Too much, too detailed, too technical	Restlessness, lower attention when teacher talked faster to "get more in"
Preference for involvement	Wished for less content	Disappointed at lack of involvement
Relatively low prior knowledge	Unfamiliar content ((limited assimilative context))	High volume, fast pace

Her purpose, a broad overview for a career change, would

require less technical detail for its achievement, than would a purpose related to preparing for a certification exam. That difference could explain a drop in attention level with technical and detailed content, restlessness as the teacher talked faster to "get more in," and a wish that less had been covered. If she were to select and move to this practice area, it is reasonable to predict that her purpose and response to such a session would be different, and that her interest in the technical detail would be high. In this interaction, a relationship between purpose and attention level seems plausible.

Preference for involvement in learning might explain Alice's disappointment that it was lacking, her use of note taking as a strategy to stay attentive, and her wish for less content which would provide potentially more opportunity for involvement. It is interesting to speculate whether, for persons who prefer to be involved, there is a cumulative effect of non-involvement which could have contributed to restlessness during the second hour. Though she stated a preference for involvement, she also justified its lack under the circumstances of this series and reported that her purposes were achieved by the method used. Had she not been able to justify the teaching methods which were used, how might that change have affected her achievement?

Relatively low prior knowledge, no experience with the content since a brief exposure in school, would provide a limited assimilative framework, making it difficult to keep up

with high volume and fast pace of unfamiliar content -- plausible to associate with restlessness and drop in attention level.

Alice's reports of momentary states were frequently linked to her perceptions of the situation: restlessness and loss of concentration as the rate of presentation increased, feelings of irritation or disappointment as class ran overtime or did not involve learners, loss of attentiveness as content became more detailed, and so on. Those elements, which were considered covert responses toward something in the situation, immediately became potential influences on the continuing development of Alice's experience. It is reasonable to assume that for the period of time affected by restlessness, irritation, or loss of attention, Alice's learning would be reduced and her subjective experience would be less than positive. Distraction by outside noise and awareness of being too warm were reported as occurring toward the end of the two hours. It is interesting to speculate if noise and heat were distractors in themselves, or if loss of attention due to other factors created opportunity to notice them.

Alice's cues and resulting perceptions of the situation were consistent with the observer's with one exception. Alice cited the teacher's beginning comment as meaning that she was open to interruption for questions or discussion, while the observer noted the beginning comment to be inconsistent with the nonverbal cues the teacher gave throughout the session.

In summary, Alice's experience of this situation seemed

consistent with elements of her abstract structure: purpose, learning preference, and relatively low prior knowledge. Momentary states were associated with or attributed to the session, except for noise and heat as distractors.

Comparison of Alice's Experiences in Two Situations

Abstract Structure

Alice's purpose remained the same, to get an overview of the field in order to prepare for a job change. In the second interview she revealed a bit more of the motivation behind that goal, desire for a better working schedule.

Her prior knowledge was assumed to be comparable, having studied neither since nursing school. While that is a questionable assumption, (she may not have learned them comparably in the first place, or may have had different rates of memory loss, and so forth), there was nothing in the two experiences to suggest a different amount of prior knowledge on Alice's part. In each, her knowledge was whatever she had obtained in an associate degree program two years ago with no subsequent experience. Her frustration in Situation One as the teacher talked faster to get everything in, may have been related to the ratio of new, technical information to her knowledge in that area. The video presentation, also dealing with complex and technical information, was evenly paced and clearly presented throughout, enabling Alice to keep up.

Data suggesting Alice's learning style or preference were

inconsistent. In Situation One, Alice expressed disappointment that there was not more involvement of participants. In Three, she saw the video as an advantage because questions could not get the teacher off her outline. In both, organization of content within the specified time frame was important for Alice. The video seemed to represent the ideal, since it was prepackaged to do just that. She could know at the beginning that it would end precisely on time. She believed inability to ask questions was not a problem in this video presentation because the material was presented so clearly.

Alice's past experience with video presentations and with the teacher seemed to establish a positive set for that session. She associated no particular past experiences with the earlier session.

Alice explained her ideas about differences in learning situations that are important to her. Whether a class should be structured or not depends on the content and her purpose. If she wants concrete information that the instructor knows, then she wants to hear from that person. If the experience of other people can contribute to her purpose, then she likes less structure, more involvement. Those ideas and the available data do not provide explanation for her disappointment at the lack of involvement in One, since it seemed to match the first description.

Momentary States

In each situation, Alice's attention level was high when the content was organized and moderately paced. It tended to drop and restlessness increased in Situation One when the pace increased and when content was more technical. For Alice's purpose, an overview, more technical information would have been less relevant. Data are not available to suggest whether Alice consistently responds to more technical information with loss of attention, or only when it is less relevant to her purpose. She did not identify loss of attention with technical information in the second situation, suggesting that pace of presentation may have been the more important factor.

She noticed being tired and too warm, and remembered those conditions as distractors. She consciously sought to remain attentive by sitting up front, and by taking notes. In Situation One, she was aware of outside noises, in Three she was not. It is interesting to speculate whether noise was a distractor, or whether when attention was low for other reasons, noise became noticeable.

Perceptions

Situation One was a good review of generally interesting content, Three a very good review of quite relevant content, a difference in degree of emphasis. Nature of the content itself, the manner of presentation, or a combination of both, may explain the difference in Alice's description of her

perceptions.

She perceived too much content and too much technical detail in One, but did not make similar observations of Three. The content in both sessions tended to be comparably complex and detailed. The manner of presentation seems to have made a difference in Alice's judgment of the content. When she could understand and keep up, any amount of content or detail was satisfactory. When she did not, she attributed that to the situation.

Responses

Alice achieved her purpose in both sessions. In addition, she felt good about herself for being there, for following through with her commitment to attend. She expressed a lower value for review sessions after One, and higher after Three. Those feelings were logically consistent with her general perceptions and may have been speculations on her part rather than an awareness of underlying values.

Celia

Celia was interviewed following Situations Two and Five. Situation Five involved two instructors and two segments of content. Her experiences were expressed in superlative terms. Her perception of Situation Two and the second segment of Five were extremely positive, while the first segment of Five was extremely negative.

Abstract Structure

Celia's purposes were the same throughout. In the second interview she revealed a bit more of the motivation behind her purpose, that is, concern that her educational preparation, a diploma in nursing, would not be sufficient for the future. Certification, at first presented as a way to rekindle her enjoyment of practice, was also seen as a holding measure for job security until she can go back to school for a degree. The two perspectives are not incompatible. It is reasonable to assume that both are accurate and probably limited reflections of a complex set of motivations.

The only data related to Celia's learning style suggest a preference for lecture and audiovisuals. There was no exploration of other possibilities, other types of learning situations, or past experiences with other methods.

For these three areas of content, Celia was consistent in

relating them to family or personal concerns, seemingly more so than to work or practice concerns. In Situation Two, thoughts about her son were in her mind the entire two hours, and in Five(B), the content was consistently related to her daughter. In Five(A), related episodes were primarily past work experiences, but she mentioned application of her new approaches in her family life as well, citing 100% improvement there as evidence that the old approaches don't work.

Past experience seemed important in Celia's response to Five(A). She related several painful episodes which had been brought to awareness related to this content. While on the one hand she attributed her anger to the content and to the teacher's style and manner of presentation, at a later point in the interview she seemed to realize that her past experience was somehow related as well. The intensity of her emotional reaction, expressed as anger toward the teacher, was interesting. On a cognitive level, it could be considered irrational since this teacher had nothing to do with the painful experiences which were recalled. The data were compatible with the concept that recollection of past experiences is accompanied by actual emotions, including related physiological changes, which are associated with them.

Momentary States

Celia's experience illustrates varied sources for momentary states which may affect the learner's response in a situation. States may be unrelated to the learning situation itself, for

example, fatigue after a work day, family relationships and concerns, physiological needs. They also may be direct responses to events within the situation, somehow reflective of a unique combination of the situation and the person. For example, the content and style of presentation (situation factors) called forth recollections from Celia's past experience (person factors) with a resulting response. Had either set of factors been different, it is assumed that the response also would have been different.

Perceptions

In two of the three episodes, Celia's response seemed to blend her perceptions of teacher and content in interesting ways. In Situation Two, positive response to the teacher's ability resulted in better feelings about the content. In Five(A), negative reactions to the content were expressed toward the teacher, including her style and manner of presentation.

Ione

Ione was interviewed following Situations Four and Five. The theme threaded through her experience was sleeping or conditions which enabled her to wake up.

Abstract Structure

Ione's purpose was a review and credits to satisfy mandatory CE requirements. There was no inherent pressure to learn or retain the content in those purposes, consistent with her low attentiveness and limited learning outcomes.

Ione's learning preferences and theories about effective classes, were consistently focused on ways to keep people awake. Even unrelated events such as hallway noises, and "little side stories," were appreciated as a break in the monotony for her.

Prior knowledge was difficult to assess from the interview data. Based on her perceptions of the content and her general response, it would be reasonable to assume that her prior knowledge was marginal. Yet two years earlier she had passed the critical care certification exam which would require a fairly good knowledge base. She specifically identified her knowledge of content in Situations Five(A) and (B) as limited.

Data about Ione's life space, personal or work related, was limited. She attended class at the end of work days which presumably was related to her fatigue and sleepiness. On the

day of Situation Five, her unit had closed, and it was not known when it would reopen. ((Closure of a unit tends to be stressful to staff who either are laid off, or reassigned to unfamiliar units.)) Ione did not express concern about it, when queried she said she was sure it would reopen soon and that something would be available in the meantime. She said she didn't even think about it during the class.

Momentary States

Sleepiness and low attention levels dominated the analysis of momentary states for these two situations. Ione was observed to sleep during the other observed situations as well. She did not seem troubled, embarrassed, or apologetic about it as some might have. She seemed rather matter of fact and seemed to place responsibility on the teacher to keep her awake.

Perceptions

Ione's perceptions were logically consistent with her purpose and attention level. She expressed interest in some of the content but not at a level sufficient to keep her awake or hold her attention. The content about which she expressed the most interest, Five(A), was also associated with the teacher's soft, monotonous voice, and she slept through much of it.

For Situation Five, she perceived the room as stuffy and dark which she believed would make anyone sleepy. Celia, on the other hand, had seen it as lighter than usual.

Teachers tended to be perceived in ways which could justify lower attention: not following the outline; soft, monotonous voice; and throwing big words around, just delivering information.

Response

Ione's perception of her knowledge gains ranged from not being able to grasp it in Five(B), to learning a few things in Four, and Five(A), consistent with her reported level of attentiveness.

Donna

Donna also was interviewed following Situations Two and Five. Her general perceptions of Two and Five(A) were positive, of Five(B) negative. All three experiences seemed to sit in a larger arena of apprehension and anxiety.

Abstract Structure

Donna's purpose centered around her lack of self confidence which she associated with limitation in her knowledge. She saw certification as a way to bolster her confidence and the class as a way to gain knowledge both for confidence and to pass the exam.

The interviews did not provide a means to estimate her actual knowledge level in any objective sense. She cited others as saying that she does have a good knowledge base. However, her own lack of confidence and anxiety seem to involve her in a self-defeating spiral. Too anxious to study, she cannot achieve the knowledge which she believes would satisfy her need for confidence and reduce her anxiety. The classes in general compounded her awareness of how much there is that she doesn't know and she is overwhelmed by the sheer volume of it. She doesn't seem to have or be able to develop a delimiting framework to make the task manageable.

There are no data to suggest how long this set of

circumstances has existed for Donna, whether it was triggered or merely exacerbated by a shift to primary nursing responsibility two years ago. The pressure of that responsibility and fear that she will make a mistake seem to weigh on Donna's mind. Previously having been able to rely on a head nurse for judgment, the new work arrangement does not provide that resource.

In addition to the work situation, Donna's life space includes family responsibilities such as getting children ready to start back to school. She is attending group therapy sessions the purpose of which was not offered nor probed.

Momentary States

For both sessions, Donna arrived feeling irritated or upset and not wanting to come. Her positive response to Two and Five(A) helped her mood and she reported liking the classes as a diversion from other concerns.

Her attention level fluctuated widely in Situation Two though she found the content interesting and easier to follow than previous content. Apprehensions or the content itself competed for her attention with the ongoing presentation. She tried to memorize detailed material which might be on the test at the time, and as a result would find herself losing touch with the presentation.

In Five(A) the content was directly related to matters of personal concern to Donna and she was highly attentive. She could have listened all day. That content contained little if

anything of a detailed or technical nature which had in previous sessions presented a problem for Donna.

Content in Five(B) was highly technical, not of personal interest, and not perceived as relevant to the test. Attention was low but did not carry the same weight of intensity as did her descriptions of fluctuations in Two.

Jean

Jean was interviewed following Situations Four and Five. In both situations she seemed to play an observer role. In one as critic and in the other as supporter.

Abstract Structure

Jean's purpose had originally been to get a general overview, and to observe other teachers as a way to improve her own teaching. Both the interviews occurred following the session which Jean taught. There were no data related to Jean's perceptions of sessions prior to teaching her own. Whether that made a difference in her interest or attention is not known.

For both sessions, Jean saw her commitment to do the interviews as a factor in her choice to attend the class. For Situation Five, she also was motivated to be present as a support for her friend.

Jean's life space seems full both as work and in her personal life. Busy work schedule, buying a house and so forth were elements which would have led her to miss class, and which preoccupied her at times during class. These issues seemed to hold more valence for Jean than any interest she may have had in the content being presented.

A part of her life space is her teaching responsibility.

That, combined with her purpose to improve her teaching, was consistent with her general perceptions which were critique or support about the teaching process.

Momentary States

Jean's attention level was described as "in and out," preoccupied with work, house buying and other personal issues. She expressed disappointment when the content was focused on pathophysiology. That and a high degree of familiarity with the content were associated with lower attention.

Perception

Jean's perceptions of the teachers presented possible inconsistencies for her. In Situation Four, Jean emphasized her belief that the teacher had not kept her part of the contract because she had, among other things, run overtime. However, Jean had not noticed that the teacher in Five(A) had also gone 10 minutes overtime. Even though she noticed that the next teacher seemed unusually tense and rushed, a possible connection between that and the first teacher's not keeping to her contracted time was not made. It seems possible that a "halo effect" was operating.

The content was either not interesting or very familiar to Jean, contributing to her low attentiveness.

Responses

Minimal tc no knowledge gains were reported consistent with her perceptions, her prior knowledge level, and her purposes for attending the sessions.

Summary and Analysis of Experience -- Within and Across Situations

All learners observed in these situations tacitly accepted the learner role which seemed to be assigned by the situation and its surrounding culture. Overtly, they sat in rows as the chairs had been placed, responded to teacher queries if made, raised questions if invited, used assigned times for breaks, and so forth. They arrived at or slightly after the starting time except as related to work schedules for which they might have arrived up to 30 minutes late, an accepted custom for hospital in-house programs. Covert response, as reported in the interviews, tended to be more idiosyncratic.

Comparison of each learner across two situations reveals some consistent and some different responses. For some learners, there was a sense of unfolding revelation, especially with regard to purpose for attending the series. There seemed to be a hierarchy of purposes, the complexity of which was never fully revealed. For example, at the first interview, Alice gave her purpose as a broad overview to prepare for a possible job change. In the second, she revealed more of her motivation for that job change as a better work schedule. Other factors related to purpose -- the job change, the work schedule and so forth, are assumed to exist either consciously or unconsciously for Alice, and to have a potential influence on her attendance, attention, and her response to the situation.

In another example, Celia reported a variety of slants on purpose for attending -- fear of obsolescence and desire for knowledge, concern that her level of educational attainment would not be sufficient in the future, eagerness for the stimulation of learning, determination not to be surpassed by her son, and so forth. It might be argued that the more positive statements were given as a socially acceptable response, while the more negative ones were accurate reflections of her purpose. An equally defensible interpretation is that all were veridical and illustrate the complexity of motivation. It is further assumed that the report of purpose for each subject represents but a small part of the full network of factors which would underlie the motivation for attending.

Since the observed situations were part of the same series, purpose was expected, and usually was, the same for each learner. However, in Jean's case, the purpose seems to have shifted. Originally she attended to observe other teacher's styles for pointers to improve her own teaching. Her interviews were conducted for sessions which followed the one she taught. She seemed to be less focused on that purpose and used her agreement to be interviewed as a prime motivation for attendance. Comparisons are difficult to draw since Jean had not been interviewed during the time when her original purpose was current.

Different purposes were interpreted to be consistent with responses of different learners within a situation. For example, learners who would take the certification exam placed

noticeably higher emphasis on content (amount, detail, organization) than did those who would not. In fact, some of those whose purposes were different from certification perceived the content to be too much, or too detailed.

Comparisons of relative prior knowledge as a factor in different responses for the same individual are limited in this sample. The similar nature of content would suggest that for each learner, prior knowledge would be comparable.

Past experience was found to be a potent factor related to differential response for some learners. For example, Celia's experience in Situation Five. Celia overtly related her attention in each session to family associations as well. Past experience with video presentations differentiated Alice's and Gail's experiences of Situation Three, and may have explained a slightly more positive response for Alice than was true for her in an earlier session.

Momentary states which were explored in these interviews tended to be attributed to something within the situation. The attribution itself can be seen to have antecedents both within the learner and the situation. For example, Jean's response to pathophysiology as content relates to an objective characteristic of the content itself, and to her own interpretation of the value of such content.

Physiological factors such as fatigue or thirst, and external distractors such as noise, seemed to play a sporadic part in the learners' responses. There was a sense that such factors were noticed as a result of distraction, rather than

leading to or causing distraction.

Perceptions of situations were consistent with each learner's response. For example, when the teacher was perceived as rushing the presentation, there was a consistently associated drop in attention level. The same teacher behavior, not perceived as rushed by a different learner, resulted in a more attentive response. An alternative interpretation is that the response (attention, inattention) was experienced, and the reported perception was developed to explain or justify it.

SUMMARY

Five situations were described as observed by the researcher. Learners' experiences of those situations were reported and analyzed. Consistencies and inconsistencies for different learners in the same external situation were based in part on elements in the situation, and in part on elements unique to the individuals. Experiences for the same learners in different external situations also were examined. Conclusions and tentative hypotheses about learner/situation interactions are presented in Chapter Seven.

CHAPTER SEVEN

SUMMARY AND INTEGRATION OF FINDINGS

Through triangulation of data sources, this study sought a theoretical perspective from prior research in adult education, and an empirical perspective from adult learners within specific learning situations. The purposes of the study, to understand how adult learners experience learning situations and to seek plausible explanations regarding that interaction, suggest that the two perspectives were expected to be related. A common framework was used for organization of data to facilitate the integrative analysis. A brief summary of each phase of the study is followed by integration of findings from both.

SUMMARY, RESEARCH REVIEW

The review of research in adult education revealed a limited and fragmented knowledge base for understanding learner/situation interaction. Most reviewed studies had a focus which was limited either to learner or to situation, treating the other part of the interaction as a constant or as a 'black box.' Those studies which did deal with both were relatively narrow in scope. No studies were found which treated the interaction in a holistic framework. No cumulative research streams were encountered and no dialogic process between opposing perspectives was found. It was concluded that development of a broad theoretical perspective and research agenda would be useful to the field.

Substantive areas revealed in the analysis were categorized as (a) characteristics of the learner, (b) elements in the situation, and (c) relationships or interactions between them. Most frequently found characteristics of the learner were ascribed to abstract structure, that is, relatively stable elements of the person's life situation. Almost nonexistent were studies of learner perception, of cue selection from the external situation, or of momentary states (emotions, intentions, etc.).

Limited study of learner perceptions, combined with frequent use of implicit and explicit assumptions about perceptions, and speculations about varied perceptions as post

hoc explanations of phenomena, were suggestive of the potential importance of perception as a study variable. Cue selection or momentary states of learners were ignored, presumably as error or "noise" -- implying that their effects were expected to be random. The possibility of systematic effect was not explored and merits consideration.

Most frequently found situation elements were teaching method, and educational orientation of the teacher. Studies which included both learner and situation as variables focused on (a) the effect of participation in planning on outcome, (b) learner perceptions of teacher behavior, and (c) interaction of prior knowledge and advance organizers. Analysis of each cluster of studies in Chapter Four included suggestions for further study of the principal constructs in that cluster.

SUMMARY, FIELD STUDY

The field study included observation of specific learning situations followed by interview of one or more learners from each situation. Comparisons were made of multiple learners within situations, and of individual learners across situations. It was thought that differences for an individual learner across situations would yield data about situational effects, while differences between learners would identify idiosyncratic effects. Such clear cut interpretations were not possible to make. In both sets of analyses, similarities and dissimilarities in response were potentially attributable to

either or both individual and situational elements.

Categories for organization of data were developed within the Person Situation Process Model. Elements of the situation were setting, content, method, teacher, and other learners. Of those, content, teacher, and method were consistently more salient to learners. Consistently salient elements of abstract structure were purpose, prior knowledge, past experience, and current 'life space.' Momentary states most often mentioned began as covert responses to something in the situation and lingered as potential influences on the continuing situation. Relative attention level during the session was explored as a momentary state. Perceptions (descriptions, judgments) of the situation were analyzed in terms of logical consistency with other elements. Similarities and differences in response were explored in an effort to understand their potential antecedents.

INTEGRATION OF FINDINGS

Each data source and respective analysis yielded a partial view of adult learner/situation interaction, as though they were pictures shot from different camera angles, or perhaps from different types of cameras. Reviewed studies used group shots, and sometimes focused on internal processes through use of measuring instruments. The second order languages of statistics and abstract constructs were used to describe the scene. The field study used individual profiles and focused on the experience as lived by each learner, with first order language

maintained. The major substantive elements which emerged in either or both aspects of the study are illustrated in Table 29 using the same organizing framework as in earlier analyses. Each element is considered in turn with contributions from both aspects of the study explored and relationships suggested.

Links between the research review and field study are somewhat tenuous. The relatively abstract terms and aggregate measures of the first were not directly comparable to the first order language, and idiosyncratic experience of the second. The analysis is couched in tentative terms and suggests areas and directions for further research rather than firm conclusions.

Abstract Structure

Abstract structure was defined as the person's life situation or cognitive universe containing knowledge of the past, attitudes, opinions, rules, and long term expectations. Though the preponderance of variables in both aspects of the study were ascribable to this category, data are seen as only a small part of the potential for abstract structure which is recognized as a broad and complex construct.

Ego Development

Prior efforts to link inadequate ego development with low-literate adult students were argued to be inconclusive. Though the construct of ego development seems intuitively appealing as

Table 29

Summary of Major Elements Identified from Prior Research and Field Study Analyses

Situation	Person		
	Abstract structure	Momentary states	Perception
Teacher -cognitive style -behavior -orientation	Ego development	Attention level	Content -relevance -volume -nature
	Autonomy	Emotional response	
Content -nature -organization	Cognitive development	Curiosity	Teacher behavior
	Learning styles and preferences		
Method -participation in planning -telecourse -lecture -video	Cognitive style		
	Developmental tasks and life space		
Environment -match/mismatch (learning style) -bias toward field independent learners	Age, academic ability		
	Self-concept		
	Prior knowledge		
	Purpose		
	Past experience		
	Participation in planning		

an adult learner variable, this sample of studies provided only a cursory view of possible relationships.

The ego development construct, couched in second order language, was not directly identifiable from the first order language of learners' reported experience. However, learners differed in their expressions of anxiety, doubt, confidence,

industry, and so forth -- concepts included in Erikson's model. In a striking example, Donna expressed feelings of doubt, guilt, inferiority, and despair. Those feelings seemed to immobilize her in a variety of ways including her efforts to prepare for the certification exam. Several learners related their purpose for attending the series to avoidance of obsolescence (stagnation?). On the positive side of the same issue, several related purpose to enriching their practice or effectiveness (generativity?). Within Erikson's model, learners in the age range of this sample would be expected to be at the stage of resolving generativity/stagnation issues. The ego development theory would explain Donna's relative immobilization at this stage as inadequate resolution of earlier stages. The data do not seem incompatible with those interpretations.

Conclusions related to ego development were that (a) adults vary with regard to levels or stages of ego development, and that (b) resolved or unresolved ego development issues can be related to the adult's purpose, choice of resources, and ability to accomplish learning goals.

Potential for understanding relationships between this construct and adult learners is barely tapped. Further study would be enhanced by development of theoretical and empirical links between them. For example, can an association be found between ego development and levels of literacy? learning purposes? cognitive ability? Are inadequate resolutions of ego development stages amenable to educational intervention?

Autonomy

Varied concepts of autonomy were reflected in this cluster of reviewed studies and illustrate the complexity and ambiguity of the construct. The word is frequently used and seldom defined in adult education literature. It was concluded that greater clarity is needed as a basis for further research.

Data from the field study further illustrate the complexity of the construct. Consistent with Moore's (1972) concept of autonomy as control over learning, the interviewees could be described as autonomous in the sense that they freely chose to attend, and as nonautonomous in that the sessions were tightly structured and no choices were offered. However, each learner maintained control, conscious or unconscious, over attention and response. Inability to control the overt characteristics of the situation was not an issue for any of the learners. Though several expressed disappointment about some aspects, none seemed to believe they should have had the power to change them. Further, some learners expressed the expectation that the teacher, as a content expert, should be responsible for judging the importance of the content which would be presented.

Interviewees differed from one another with regard to Chene's (1983) concept of freedom from established norms, freedom to set goals and to judge value. Some had chosen (freely?) to subject themselves to external standards for certification. Having done that, their judgment of content was found to be different from their noncertification counterparts.

Whether or not they were in a position to judge its accuracy, those learners consistently expected the content to be organized, detailed and thorough. Others who did not plan to take the certification exam frequently complained that there was too much content and that it was too detailed.

Multiple meanings could be extracted from these observations. Autonomy is seen as an extremely complex construct in which layers of control or freedom might be identified. For example, choice at one layer may involve reduction in freedom at the next. A choice to subject oneself to external standards (e.g. certification) may result in a credential which provides greater choice, and so forth.

The concept of autonomy appears with such frequency in adult education rhetoric that it was judged to be an important construct. Clarification of its meaning and subsequent study to determine in what ways and in what contexts adult learners value and exhibit autonomy is recommended for further research.

Cognitive Development

Several theories of adult cognition were reviewed which supported continuing development of cognitive ability. A developmental perspective suggests that the construct in question represents a variable which would differentiate characteristics of an individual over time, or one adult from another at a given point in time. Sampled studies presented diverse models and represented a very small part of the literature on this construct. Even so, the sample was

sufficient to illustrate the complexity of questions involved.

The interviewed learners provided hints to variations in cognitive development. Comparison of Faye's preference for quick information, the 'punch line,' with King's (1983) reflective judgment model, is suggestive of Stages 1 or 2 -- that there is an objective reality that can be known with certainty. Content in the observed series tended to be presented at a Stage 1 or 2 level, that is, as facts which were well established and relatively unquestioned. It is interesting to speculate about Faye's response in an educational experience where the answers are not so clear cut, for example, a session on ethical issues. Would she still expect lists and answers, or would her cognitive expectations shift with the nature of the content? If so, the construct of cognitive development, presented as a person characteristic, may also be associated with the situational variable of content. No studies were found which explored that potential relationship.

Conclusions related to adult cognition were that (a) adult learners vary with respect to cognitive ability, and that (b) an individual adult may experience advancement, stability, or decline in cognitive function. Recommendations for further exploration are questions of the degree to which (a) situations vary with respect to level of cognitive function required, and (b) individuals respond differently to situational variations within some idiosyncratic range of cognitive function.

Learning Styles and Preferences

A cluster of studies which measured learning style, predominantly the Kolb construct, showed mixed results in aggregate analyses. Some studies attempted to correlate learning style measures with expressed learning preferences. No studies looked at learning style or learning preference as idiosyncratic phenomena, for example, their relationship with learner perceptions in specific situations.

There were no interview data on the learning style construct for comparative analysis with reviewed research. The second order language of Kolb's construct was not readily apparent in the first order language of learners' experience. Learning preferences were discussed by respondents. Some preferred more involvement than was offered in the class sessions, but even those accepted lecture as more or less appropriate for the purpose of the series. Some expressed a preference for lecture method, inconsistent with the prevailing perspective in adult education literature that adults prefer direct participation in learning experiences.

Ethel's report of learning preference was clearly associated with a single model from her past experience. It was observed that she had no other models to use for comparison, and was concluded that expressed learning preferences logically are limited to the range of alternatives that the individual has experienced. Learning preferences are sometimes treated as though they were guiding factors in the person's choice of

experience. This analysis suggests that preference also may be a product of experience, and raises the question of whether we like to learn the way we do because we happen to have had positive past experiences with that approach.

Pigg et al. reported weak correlations between learning style (Kolb's formulation) and preferences for selected techniques. The observation that preferences are logically plausible only within a range of experienced options suggests a confounding variable of past experience which was not dealt with in the study.

From the analyses it was concluded that adult learners vary in learning style and in learning preference. A number of questions remain concerning relationships and implications of those variations. Are the abstract concept of learning style and the first order concept of learning preference related? How does each construct influence the learner's perception of and response to different types of situations? When multiple preferences are expressed, what determinants are identified by the learner?

Cognitive Style (field dependence-independence)

Studies of cognitive style, defined as field dependence-independence, were reviewed. In general, studies show relative field-independence to be associated with higher academic achievement. Donnarumma et al. (1980) assumed an environmental bias favoring field-independent ABE/ASE students, but provided no empirical support for those assumptions.

The construct of cognitive style had no parallel in the field study data. Relative field dependence-independence may have exerted an influence on these learners' experiences, but no data emerged which were recognizable as that construct.

Research designs which combine empirical testing of constructs such as cognitive style with direct learner reports of experience would enable comparative analysis.

Age and Academic Ability

Kasworm (1980) presented findings that older undergraduates exhibit higher maturity and self-confidence than traditional age counterparts. A cluster of related studies showed contradictory findings of relationships between age and academic ability. Some studies reported older adults in the aggregate to be more able, some refuted that finding. No consistency was found relative to age groupings and academic situations used in the studies and no compelling conclusions were evident. The basic question seemed to be whether older adults can function successfully in academic settings. In this analysis it was argued that academic ability functions as a variable across age groups and that age per se is not a determinant.

Interviewees ranged in age from 25 to 54. The two learners who expressed the most difficulty with learning were in the older age range of the sample, (42 and 54). Their experienced difficulties were readily interpretable by factors other than age. For example, Ethel's prior knowledge base was affected by

the long period of time without study since she had finished school. Obviously length of time out of school would be correlated with age but knowledge level and lack of study habits were more logically connected with learning ability than age per se. Younger students, as well as some in the older range, who had more recent exposure to the content, varied with regard to reports of learning ability or difficulty.

Conclusions were that older adults are no more homogeneous in academic ability than are younger persons by virtue of age alone. Interesting questions which merit further exploration concern the basis for variations in academic ability which have been demonstrated for adults. When adults are more or less successful, what associated person or situational variables are found?

Developmental Tasks or 'Life Space' Issues

Havighurst's concept of time sensitive developmental tasks was introduced in a cluster of reviewed studies. Sources of those tasks were given as physical maturation, cultural pressures, personal values and aspirations. Merriam and Mullins (1981) reported that adults identify those tasks as continuing to be important, but suggested that the tasks may be outdated or biased toward the middle class. In this analysis, it was argued that the identified tasks are not invariantly time sensitive but that they may be important for adult learners if and when they occur.

In the field study, a logical connection could frequently

be made between 'life space' issues and the learner's purpose for attending the series. For example, Alice was ready to make a job change and sought the course to broaden her awareness of options. Betty and Jean, with role responsibilities for teaching, sought to gain information for improving their teaching skills. At other times 'life space' issues seemed to compete for attention with the learning experience. For example, Jean's pre-school child and her negotiations to buy a house were reported as distractions; Celia's experience consistently included her family as a backdrop, and so forth.

Conclusions were that (a) life tasks occur and are related to adults as learners, (b) some may be developmental and time sensitive, others may occur at any age, and (c) the nature of the tasks may change over time but the nature of the relationships to adult learners probably would remain constant. Two potential relationships between life tasks and learners were noted, (a) that life tasks will be related to purposes for engaging in learning, and (b) that life tasks unrelated to learning tasks may compete with them and serve as distractors.

Learner Andragogical Self-Concept

The cluster of studies on teacher orientations toward adult learners raises an additional question about how adults might describe themselves in terms of andragogical assumptions. Teachers of adults have been demonstrated to report certain views about characteristics of adults as learners. No comparable studies were reported for views adult learners hold

about themselves.

No clear pattern supporting or opposing the andragogical assumptions emerged from the interview data. Several cues were identified. Betty and Jean, who had attended workshops on adult education principles, expressed those principles in their interviews. It is reasonable to question whether their reports could be considered 'learner views' or 'teacher views.'

All respondents overtly accepted the conditions of highly structured methods as appropriate in the series. Some even expressed a preference for those methods. Complaints were reported when the learners perceived the methods not to have been executed well -- rushed, not organized, and so forth.

The andragogical principles established in the adult education literature as invariant conditions for adult learning were not evident in learner responses. Alice, who had expressed a preference for involvement, later expressed a preference for video presentation because it was highly structured. When asked to describe the circumstances for each, she said that her preference for structure or involvement depended on her purpose or knowledge, on the content and teacher's expertise, and on other learner's knowledge and expertise. Her preference included a combination of elements in her own abstract structure and in the situation. It was concluded that her choice of method was not driven by her 'adultness' but rather by her purpose and prior knowledge relative to the content to be presented and its context.

It was concluded that adult learners vary with respect to

preferences and judgments about appropriate teaching methods and that those variations are, in part, related to the context. The traditional prescriptive patterns based on andragogical assumptions represent one among the approaches which may be viewed as appropriate by adult learners.

Prior Knowledge

A cluster of studies on prior knowledge and content organizers supported the theory that learning new material is influenced by existing knowledge which provides an assimilative context (Mayer, 1979). Advance organizers are useful when the learner's own knowledge and ability do not provide an adequate framework. DiVesta (1974) presented the view that the volume and structure of accumulated information influence receptivity. Adults having more accumulated concepts which are more highly structured will be more likely to resist discrepant information. The two constructs seem contradictory with regard to amount of knowledge and suggest that how knowledge is structured and used may be more critical for learning. Theories of cognitive development suggest that knowledge structures vary for adults with increasing maturity in cognitive function. Would adults with more mature cognitive function require prior knowledge as an assimilative context to the same degree as those with less mature processes?

Interviewed learners provided cues related to those concepts. Donna, whose prior knowledge was judged to be limited, responded positively to an overview delimiting content

in Situation Two, supportive of the concept that advance organizers are helpful when assimilative context is weak. For Ethel, the content was all so new and so rapidly paced that she was unable to comprehend it. Her assimilative context was related to another era, when the basic terminology and role responsibilities were different. The concept of assimilative context also might explain Celia's consistent association of content with family. Perhaps for Celia, family is a central construct used for organizing her knowledge.

Within the field study, prior knowledge relative to the complexity or volume of content consistently arose as a salient element in interpreting perception or response of learners to the situation. Too much prior knowledge was associated with boredom and distraction (e.g. Jean) and too little with inability to comprehend (e.g. Ethel). Some range between those extremes seems more likely to engender positive response.

Exploration of this relationship for adult learners was extremely limited in the research review and further study is recommended.

Learner Purpose

No studies in this sample considered the concept of learner purpose as an element in perception of or response to learning situations. There were several in which this analysis led to suggestion of purpose as a plausible interactant within the respective phenomena.

In the interviews, purpose was consistently elicited. Each

learner responded with a relatively straight forward statement of single or multiple purposes. During the course of the interview(s), additional information related to goals frequently emerged. As the nature of each learner's purpose unfolded, it was apparent that it related to a larger context of the individual's life space. For example, Jean and Betty, having roles which involve teaching responsibilities, set purposes related to those roles. Celia, concerned that her level of educational preparation might not be adequate for the future, decided to take the certification exam which was part of her purpose for taking the series. Alice, desiring a better work schedule, wants to change jobs and set her purpose related to that goal.

Purposes associated with preparation for the certification exam seemed consistently related to expressions of apprehension, concern or pressure, to expectations for the content to be thorough and detailed, and to high attention levels. Other purposes for which no identifiable consequences were apparent were associated with relative relaxation, expectation for less volume and technical detail of content, and to lower attention levels.

How purposes are derived and the influence they have on input-selection, perception, attention, and response are suggested by these data, and seem sufficiently influential to merit further study. Two possibilities have been suggested: (a) that purpose is derived from the larger context of the individual's life space, and (b) that purpose influences

expectations about and perceptions of the learning experience.

Past Experience

None of the reviewed studies considered past experience of the learner as a factor in response to learning situations. Conventional wisdom in adult education is that adults are rich in experience and that learning is thereby enhanced. Thang (1984) identified teachers' attitudes about learner experience ranging from irrelevant for learning, to useful as a learning resource.

Data from the interviews suggest that, whether or not the teacher sees it as relevant, the past experience of the learner is heavily involved in the interaction. Closely associated with other constructs such as prior knowledge, past experience sets the stage for the learner's response. The most striking example of its influence was found in the difference between Celia's and Donna's responses to Situation Five(A) with Celia's unpleasant past experiences reconstructed with the range of emotions apparently intact. Donna, on the other hand, reported positive past experience and identified the content as supportive and helpful for her immediate 'life space' needs.

It was observed that learners with teaching experience were more apt to express their perceptions of the situation as critique of the process than were learners without that experience. Several learners commented on past experience with a close friend or family member having a particular diagnosis as associated with the relevance of a segment of content to them.

Effect of past experience on the learner is logically associated, at least in part, with memory. The research stream on the nature of memory could be one useful starting point for development of research on that phenomenon in adult education.

Experience of Participation in Planning

The cluster of studies on participation in planning sought to correlate the activity with achievement. The mechanism by which participation might produce that effect was not established nor sought by any of the studies. Operational definitions of participation and situational contexts varied. Findings were mixed, and no definitive conclusions were reached. It was suggested that the mechanism by which participation in planning may produce an effect on achievement would be a fruitful area for study.

In the field study, none of the interviewees had participated in planning the series or their respective learning situations, though two of them were teachers in other sessions in the series. Their perceptions which were attributed in general to their teacher role have been described, and there were no cues to suggest any 'participation' effect. In any case, their relationship to the course was unlike participation as defined in the various studies reported above.

Momentary States

The category, momentary states, was defined as transitory influences, such as emotions, motivation, intentions, and degree of intensity. Momentary states influence input selection and account for uncharacteristic ways of perceiving situations.

One cluster of reviewed studies dealt with the variables, surprise and curiosity, ascribed to momentary states. No interview data were identified related to surprise or curiosity and these elements were not explored further than was reported in Chapter Four. Two elements which consistently emerged from the interview data were attention level and emotional response.

Attention Level

Interviews elicited information about attention level which was found to vary for each individual learner within a session. Two different patterns were discernible. For some, attention level was low at first and increased as the session progressed; for others, the reverse was true, with attention dropping as times for breaks or end of session approached. There was a tendency for attention to drop as the teacher was perceived to rush to cover more content. Learners interviewed more than once seemed generally consistent in their attention pattern.

There were times when learners reported outside noise as a distraction (e.g. Betty, Alice). Another time when noise had

been noted by the observer, Celia reported having been totally unaware of it, she was so absorbed in the content (Situation Five(B). Jean reported personal life space issues as distractions. A possible interpretation suggested by these observations, is that some distractors come into awareness when attention level is low for other reasons, rather than being a "cause." There seems to be a valence for the content or learning experience (e.g. related to purpose, pressure), and a valence for distractors (e.g. related to life space, environment). The relative balance between those values could be associated with attention level. To illustrate, Jean expressed low value for the content but a need to "look attentive." Conceivably, she would have carried out that intent. When she discovered that her pager was not working, a condition she associated with her son's welfare, the balance shifted and she left the room to correct the problem. On return, she "looked attentive" and reported that on occasion she actually did attend when she found the content interesting or when the teacher sounded more interested.

Assuming that attention level is positively related to learning, it would be of interest to understand more about its dynamics.

Emotional Response to Situational Factors

Various positive and negative emotions were expressed and attributed to something within the situation. Disappointment with the lack of involvement (Alice), enthusiasm about teacher's

knowledge and ability (Celia), irritation, hopelessness with volume of content (Donna), and anger with concepts and teacher who presented them (Celia), are illustrative. Those emotions, unique to each individual, are in some way elicited by circumstances within the situation. One potential explanation is that the situation calls forth memory of past experience which is associated with a particular emotion and that emotional state is reexperienced (see Bower, 1981).

Once elicited, an emotional response seems to influence continued perceptions relative to its degree of intensity and duration. Celia's experience of Situation Five provides an interesting perspective. Anger, experienced early in the first segment, continued throughout that segment and during the break. In the second segment with a new teacher and new content, she reported taking a few minutes to cool off, and was successful in putting the anger aside. During the interview, which occurred immediately following the session, Celia's affect was noticeably different as she reported each experience. She raised her voice, talked more rapidly, seemed to feel anger again, when discussing the anger she had felt in the session and during related episodes in her past experience.

It was concluded that emotional response is an important factor for the adult learner in a learning situation and merits further study. An emerging stream of research on neurophysiology of emotions could provide one starting point for development of such studies related to adult learners.

Perceptual-Cognitive Structure

For the most part, reviewed studies were silent on learner perceptions. In some studies, perceptions were assumed, for example, that low-literate adults would experience education as frustrating, unsympathetic (Boyd & Martin, 1984). Some used varied perceptions of the learner as post hoc explanations of disappointing or mixed results, for example, learner perceptions about participation may have overridden the effects of participation (Rosenblum & Darkenwald, 1983). Others acknowledged an awareness of need for more study of how learners perceive learning situations (e.g. Kolb & Fry, 1975; Moore, 1972). Two clusters of studies dealt with learner perception as a variable, perception of relevance and of teacher behavior. Analysis of interview data revealed perceptions of relevance, volume, and nature of content, and perceptions of the teacher, as salient to the learners.

Perceived Relevance

Rossing and Long (1981) found perception of relevance to be significantly correlated with desire for knowledge. In the field study, perception of relevance was specifically elicited but not explored in depth. The basis for comparative analysis between learners, all of whom believed the content to be relevant to some extent, was limited.

It might be assumed that those who did not see the content as relevant did not enroll or persist. It would be interesting to explore the question with learners in other situations where a greater range of perceived relevance might be expected.

During analysis, questions emerged which had not been probed in the interviews. Jean commented that a segment of content was not interesting to her, but was relevant because there are patients who have those problems. Relevance is logically associated with purpose which did reveal observations of consistent variations in expectations about content and attention levels. It would appear that perception of relevance is a multifaceted construct and that in a given context, relevance for what and to whom are important elements to explore. "Relevant to my immediate purpose" is a different concept than "relevant in general to my field of practice," or "important, but not necessarily to me." The different responses described earlier for certification and noncertification related to purposes, seem logically attributable to perceived relevance of content for the certification exam. Other purposes, for example mandatory C.E., had no anticipated future event for which the content was necessarily relevant logically consistent with the lower attention levels which were noted.

Perceived Teacher Behavior

A cluster of studies provided various perspectives on learner perception of teacher behavior. The studies consistently used aggregate analysis, none explored

idiosyncratic effect of perception. Some used learners' perceptions as a means to measure teacher behavior rather than as a means to understand learners.

From analysis of the cluster it was concluded that (a) learner perception is associated with affective outcome and, in some cases, with cognitive outcome, (b) student perceptions may or may not be congruent with teacher reports of their own behavior, and (c) in some situations, perception of method, of teacher competence, and of content relevance are more predictive than teacher affective style for student outcome.

In the field study, perceptions of teacher behavior were consistently explored. A different type of response was noted for learners who also were teachers and seemed to critique the teaching process. Jean, who recently had attended a workshop on teaching effectiveness, used principles from that workshop as standards for her critique. She was strong in her criticism of lack of involvement of learners, yet acknowledged pressures of limited time and volume of content for this series. Other learners referred to the teacher's knowledge and style of delivery, and seemed to assume that lecture was an appropriate method in the situation.

Teachers who were perceived as knowledgeable, organized, and able to clearly explain complex material were associated with positive response. Warmth or affective behaviors were seldom mentioned. When teachers appeared to rush or skip material in response to time and volume pressures, learners perceived a lack of organization or control and responded with

restlessness and loss of attention.

Throughout the interviews, there were interesting occurrences when perceived teacher behavior seemed associated with the learner's own self-perception or observed behavior. For example, Betty and Ione emphasized the soft voice of the instructor as a difficulty for them; both were themselves soft spoken. Jean noticed speaking style such as use of "uhs and ahs," and acknowledged working on that problem herself as a teacher. There seemed to be a "mirror" effect, with the learner seeing in the situation something related to herself.

Perceived Content

The volume and nature of the content was frequently discussed as salient to the interviewees. As previously described, the amount and technical detail of content seemed to differentiate learners whose purposes were related to the certification exam. Prior knowledge also seemed to be associated with perception of content. Those with limited prior knowledge saw too much content, or content that was too detailed as a problem. A plausible interpretation is that the assimilative context was weak. (It is acknowledged that this argument may be tautological. Since no objective measures of prior knowledge were used, assumptions of prior knowledge were derived in part from the learner's perceptions of content difficulty.)

A close relationship was observed between perceptions of the content and of the teacher. Positive or negative

perceptions of either seemed to blend into the other. Two different episodes for Celia illustrate the phenomenon. Her perception that the teacher was knowledgeable and could relate knowledge to actual patient problems was given as a factor in her feeling more interested in and more positive about the content as the session progressed (Situation Two). In another session, her perception that the theories being presented had led her into painful past experiences with subsequent rejection of their validity, was associated with anger directed toward the teacher and "something about her style" (Situation Five(A)).

The potency of learner perceptions of learning situations is strongly suggested throughout the interview data. Their dynamics are barely touched in this analysis. Having received almost no attention in prior research, the mechanisms and effects of learner perceptions of learning situations are recommended as a priority issue for continuing research.

CHAPTER SUMMARY

Major elements identified from the respective analyses of prior research and field study data were analyzed and suggestions for further study were made. It was observed that some elements, notably those related to perception and momentary states, have received little or no attention in prior research and seem sufficiently influential to merit systematic study.

In Chapter Eight the research problem and theoretical perspective are reexamined, development of a research agenda is proposed, and the study is critiqued.

CHAPTER EIGHT

CONCLUSIONS, IMPLICATIONS AND LIMITATIONS OF THE STUDY

In this chapter, findings and conclusions are related to a reexamination of the research problem and theoretical framework of the study, and recommendations are made for development of a research agenda. A critique of the Person Situation Process Model and the general approach and research methodology is presented. Implications and limitations of the study are described.

REEXAMINATION OF THE RESEARCH PROBLEM

The research problem for this study pertained to the nature of interaction between adult learners and their learning situations: how multiple learners vary within the same learning situation, and how the same learner varies across learning situations. Adults have been characterized in different ways in the adult education literature. There has been a tendency toward homogeneous description with adults distinguished primarily by their differences from children. Andragogical assumptions about characteristics of adults have been treated as prescriptive for practice of adult education without full

consideration of the diversity of clients served. A major assumption of this study, supported by its findings, was that adults vary from one another in ways that are important in their responses as adult learners.

Comparison of Knowles' assumptions and the findings in this study presents interesting parallels. The assumption that self-concept moves from dependency to self-direction is related to the concept of autonomy. In the field study, it was seen that learners may subject themselves to external standards and to highly structured learning experiences for a variety of purposes. Relatively self-directed in the choice, the learner becomes other-directed in the method. Preparation for a certification exam was associated by learners with need for highly organized, content-focused presentations. It could be argued that these findings are consistent with Knowles' assumption, but are at odds with the typically prescribed methods attributed to it. The complexity and range of learner choice or self-direction requires a good deal more theoretical and empirical work before teaching theory or prescriptions for practice can be derived from it.

The second assumption, that adults accumulate experience which is an increasingly rich resource for learning, can also be associated with study findings. Both positive and negative relationships were found between past experience and learner perception and response. Not only is past experience a resource for learning, it also can serve as a barrier. Findings in the study suggest an important association between learners' unique

combinations of past experience and their perception of the learning situation and subsequent response to it.

The third assumption, that readiness to learn becomes oriented to developmental tasks, is related to the findings that purposes for engaging in a learning situation may be associated with 'life space' issues which may or may not be developmental in nature. For example, Donna's shift to primary nursing responsibility was not a developmental task but was associated with her purpose.

In other cases, unrelated 'life space' issues or developmental tasks may serve as distractors to learning, for example, Jean's son and house-buying activities.

The fourth assumption, that orientation shifts from subject-centeredness to performance-centeredness, was not supported by these findings. In fact, this study suggests difficulty in making an arbitrary distinction between those two perspectives. Desire for 'performance,' on the certification exam was associated with a higher content focus. The relative focus on subject or performance seems related to 'purpose' rather than to 'adultness' of the learner. Nature of the content itself was suggested as an important variable in the learner's perception of appropriate teaching methods or styles.

The findings suggest that adult education theory requires a basic understanding of adult diversity. Interacting elements which are unique to the person of the adult learner and to the learning situation are critical in efforts to understand and predict learners' responses. This study identified some of a

complex array of such elements and developed a framework in which they and others yet to be identified can be holistically considered.

Findings in the present study suggest that andragogical assumptions can be viewed as descriptive of some of the multiple ways in which adults may vary. Adults and the situations in which they learn are found to be more diverse than is represented by the andragogical perspective used to describe them.

REEXAMINATION OF THE THEORETICAL PERSPECTIVE

Interactionism served as a broad theoretical construct for the study. A reciprocal effect was posited between the person and the environment with persons free to construe the environment in different ways. That perspective was useful for this study in providing plausible alternative interpretations for prior research and was consistent with findings in the field study. Diversity of learners within the same external situation and between situations for the same learner could be understood in terms of a reciprocal effect between person and situation. A central concept in interactionist theory is the importance of perception or meanings formed by individuals in their construal of an external situation.

Perceptions of adult learners, seldom studied in the reviewed research, were found to vary among learners in the field study and were consistently related to responses as well

as to elements within the person and learning situation.

Person Situation Process Model as a Specific Model of Adult Learner/Situation Interaction

This exploratory study is a beginning effort in identification of person and situation elements which would be salient in their interaction with them. The elements which emerged from this study are viewed as a partial representation of the potential number and complexity of elements for each construct within the Person Situation Process Model.

External situations were posited (Nystedt, 1981) to include substance, qualities, and relations. For the specific case of adult learning situations, the teacher, content, and teaching methods were concluded to be salient elements of substance. Qualities included teacher skill and style, and content volume, level of abstractness, and complexity. Data were presented which suggested that learner perceptions encompass teacher, content and method in a holistic fashion with perception of one element influencing perception of others. Perceptions also were found at times to suggest a "mirror effect" with cues from the situation similar or related to something idiosyncratic to the perceiver.

The mechanisms by which situation elements influence learner response were not evident. It was clear that, for the same external situation, learner perceptions varied. Logical consistency between responses and learner perceptions supported

the interpretation that perceptions may play a mediating role between the external situation and the learner's response to it.

Abstract structure, posited by Nystedt as relatively stable aspects of the person's life situation, was found to encompass a large number of elements with a logical potential for infinitely more. Subdivision of the construct might be useful in development of some studies of adult learners. For example, a time dimension could be a distinguishing factor -- how past experiences, present purposes, and future anticipations relate to each other and how each influences perception of the situation and its relevance. First and second order constructs also could be distinguished -- for example, how the abstract concept of field dependence-independence relates to the first order lived experience of the individual learner.

Momentary states, including attention level and emotional responses within the situation itself, were found to be salient elements of the learner's first hand experience of learning situations. Prior research was not found to contribute to understanding that relationship. A complex array of momentary states and elements of abstract structure seem logically associated with learner perception. Understanding the nature of relationships among them requires much more study.

RECOMMENDATIONS FOR A RESEARCH AGENDA

In each preceding section of analysis, the questions posed, hypotheses developed, or research streams identified were considered as a potential research agenda. The summary and integration of findings provide an overview of potential areas for study of the learner as an interactant within a learning situation. Each area reviewed or observed seemed to merit further study. None was judged to be saturated nor to have reached confirmed conclusions.

Several areas suggested by the field study were noticeable by their absence from prior studies. It is recommended that research be developed to study: (a) effects of learner perceptions and of momentary states on response within learning situations, (b) associations among elements of abstract structure and momentary states and their influence on perception and response, and (c) person and situation elements associated with idiosyncratic perceptions and responses.

In a more general sense, the state of research in the field of adult education pertaining to learner/situation interaction was found to be limited in theoretical underpinnings. Few studies clearly articulated a theoretical perspective. Those studies which did use a theoretical base varied in the clarity with which the basic theory was linked to adult education phenomena. Cumulative streams of research were noticeably absent and no dialogic process between researchers with

competing theories was found.[1]

Even clusters of studies using the same measurement instrument showed no evolving pattern of theory or findings. Each study was presented as though it somehow stood alone. There was no clear picture of how each relates to a larger framework in the development of a knowledge base for the field of adult education.

Based on those observations, it is recommended that: (a) broad theoretical frameworks be developed to provide foundations on which specific phenomena might be studied and holistically related to other phenomena in the field, (b) individual researchers and research teams coordinate efforts to achieve cumulative research findings, and (c) competing theories be explored and reported dialogically in the literature.

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[1]These observations refer to studies included in this sample related to learner/situation interaction. Research streams and/or dialogue between competing theories may be found pertaining to other phenomena in adult education such as studies in participation or self-directed learning.

CRITIQUE OF THIS STUDY

The methods used in this study were developed from a review of the literature and from the context of the research problem as described. The resulting combination of approaches was believed to be appropriate and workable to achieve the purposes described for the study. How well those assumptions held through the process are explored. The Person Situation Process Model was heavily used throughout the study for organization and analysis of data. Its usefulness and limitations are analyzed. Significance and limitations of the study are described.

Comments on the Research Method

The scope of the study design was comprehensive, and could have been more fully accomplished by a team of researchers over a longer time period than was practical for this researcher. Formal and informal opportunity for dialogue would have enhanced the potential for theoretical insight beyond what a single researcher can accomplish alone.

Within that limitation, the study design was judged to be appropriate to its purposes, which were associated with search for understanding of the learner's experience in its own terms, and potential explanations of that experience in theoretical terms. Based on the belief that experience cannot be

arbitrarily separated from its context without risk of distortion, such a broad holistic design was seen as appropriate.

Triangulation of data sources was useful in the design, enabling the researcher to move back and forth from one perspective to the other. There were times when 'tunnel vision' in one part of the study was interrupted by confrontation with data from the other. The relative theoretical perspectives offered by prior research complemented the first order perspective of the field study.

Selection of constant comparative analysis (Glaser & Strauss, 1967; Miles & Huberman, 1984) was useful and enabled the researcher to identify emerging patterns in the data. However, interviews were completed before the analysis was done. As a result, many questions which emerged during analysis were not explored in subsequent interviews as had been recommended by Glaser and Strauss for the saturation of categories and development of grounded theory.

Use of the Person Situation Process Model

The Person Situation Process Model enabled organization of data in parallel terms for comparative analysis. While the model served that function well for the most part, several limitations were identified.

1. Distinctions between aspects within the model were sometimes difficult to make. Abstract structure and momentary

states have potentially overlapping dimensions, with a time element the principal distinction between them. For example, anxiety might be categorized as abstract structure (trait) or momentary states (state anxiety). In general, memory of past experiences would be considered abstract structure, while a specific recollection could be transient and considered momentary state. The diagramatic representation of the model was modified to reflect these observations. Abstract structure and momentary states were better represented by a single box rather than two as originally presented by Nystedt (1981). The diagramatic change did not clarify the conceptual blurring, but it did serve as a reminder that the concepts were sometimes indistinct.

Covert response and momentary states also were coterminous. Covert emotional responses, such as anger or pleasure, seemed also to function as influences in continuing perceptions of the situation, and thus met the definition for momentary states. That observation was reflected in the diagram by addition of an arrow from covert response to momentary states and explored in the analysis of those data.

It was difficult to discriminate between input selection, proximal situation, and perceptual-cognitive structure. Such discrimination, when made, did not appear to be fruitful in understanding the learner's experience. Reported perceptions represented the only access to what constituted the proximal situation for the learner. Cues seemed to be embedded in those perceptions. Any cues which might have been observed and not

incorporated into reported perceptions were not accessible to the researcher. While the concepts seemed important to retain within the model, the present study did not contribute to their differentiation.

2. The representation of the model in two dimensional space did not adequately reflect the complex and dynamic nature of interactions. Abstract structure alone is infinitely complex. Even what is currently known or presumed about a person's stable dispositions, past experiences, and so forth, could not be completely captured. At risk of oversimplification, it was necessary to use what appeared to be salient features of abstract structure within the given context. At no time was it assumed that the full array of interacting elements was captured within the model.

Temporal relationships were difficult to display in two dimensions. Visualization of the model as frames in a motion picture enabled its use for analysis of time relationships. However, in printed form representation of the process required blurring of the time perspective, for example, the covert response/momentary states relationship previously described.

3. The Person Situation Process Model was designed as a conceptualization of a given 'person system' interacting with a given 'situation.' Reviewed studies tended to treat subjects in the aggregate so that 'person system' was used to display an average description. While the model seemed to lend itself naturally to this use, the resulting 'person system' in an aggregate display may or may not have been reflective of reality

for any given individual. In relation to phenomena where idiosyncratic response is an important dimension, that distinction would not be directly apparent in this form of analysis. That problem is recognized as an inherent limitation of aggregate analysis rather than of this framework per se.

Using the model to organize data in conceptual papers, it was usually possible to identify or tease out elements for major components of the model. However, in empirical studies there frequently were one or two components identifiable with others related to implicit or explicit assumptions or not identifiable at all. Do the resulting 'blanks' suggest limitations in the reviewed studies, in the model itself, in both, or neither?

Limits in a reviewed study were suggested by the extent to which the study failed to account reasonably well for the complexity of the phenomenon it purported to understand or explain. If the Person Situation Process Model suggested missing elements in the study which could further understanding, it showed itself to be a useful framework.

On the other hand, the full complexity of persons and situations elude description in a two dimensional model or in a single study. Attempting to deal with all of it concurrently would frustrate efforts toward understanding. Any single use of the model is at best a partial representation of the person and the situation which interact.

In general, the model was found to be useful as an analytic framework: that is, to provide a visual representation which enabled the researcher systematically to raise questions about

the phenomenon under investigation and whether plausible elements of the situation(s) and person(s) involved were reasonably well covered. Some organizing framework was necessary for the scope and diversity of data covered by the study. This model was judged to serve that purpose.

Limitations of the Study

Limitations anticipated in the design of the study were presented in Chapter Three. Additional limitations became apparent during the conduct of the study and are reported here.

The breadth of the study itself was both a limitation and a strength. A large number of substantive areas were touched in the research review as well as in analysis of observation and interview data (e.g. field dependence-independence, purpose, curiosity, cognition). For each area, a body of literature is available which, if tapped, would more fully inform this research. Yet in order to contain the study within reasonable time and resource bounds, it was necessary to limit the depth of such coverage. It is acknowledged that some of the questions raised in the analysis may have been addressed in other studies not reviewed.

While the experimental process relies on relatively narrow but intense study of a restricted conceptual target, this study sought to illuminate a broader band. In so doing it ran the risk of loss of detail and precision, while it gained the advantage of broader scope and context.

Limitations of the Research Review

In the research review, selected studies were not methodologically nor conceptually parallel. Each study dealt with a limited segment of the potential interaction. Efforts within the present study to integrate those disparate conceptualizations and findings could be expected to yield, at best, an incomplete representation of adult learners' interactions with learning situations.

Analysis of studies within a prescribed interactionist framework may have misrepresented the intent of the original studies in some way. The intention was not to reinterpret the original study in its own terms but rather to determine whether interaction could be used to explain the same phenomenon as was studied.

Placement of clusters of studies in categories reflective of learner characteristics, learning situations, or interaction, was difficult at times and required arbitrary decisions. Categories were used to organize the research report. Since no meaning was inferred from the number or nature of clusters within a category, potential negative effect on the study is considered to be limited.

Limitations in the Field Study

The field study was limited in number and representativeness of observed situations and learners. Available time and resources, combined with the comprehensiveness of this study design, were factors in the decision to complete the analysis and report without additional samples of data.

Completion of interviews prior to analysis of data limited the ability to probe for fuller understanding as categories and questions emerged. However, not all of the interviews which were done were analyzed. It was believed that analytic categories were as fully developed as were reasonable to expect from this set of data. Further expansion will require a return to the field with new questions and insights. That next phase is planned beyond the scope of this report.

Interview questions were designed to elicit general perceptions related to elements in the external situation. On transcription, the researcher observed leads which could have been and were not probed for deeper understanding of the learner's experience. Thus the data may be more superficial than were possible to obtain. Two to four hours of intense observation were followed by up to five interviews interspersed with transcription of observation notes within a 24 hour time period. That time frame for observation and interviews, designed to minimize short term memory loss, may have contributed to researcher fatigue and reduced ability to maximize the interview situations.

Clarity and veracity of the learner accounts of their experience were expected to vary. According to Bem's self-perception theory (1972), when internal cues are weak, ambiguous or uninterpretable, persons are functionally in the same position as an outside observer, inferring their own inner states. The ability to be in touch with and to communicate experience would vary for different parts of the experience and for different learners. The depth, clarity, and internal consistency of interview data were found to vary and influenced the usefulness of the data for meaningful interpretation.

Significance of the Study

In the final analysis, the significance of this research depends on its use. It has potential to provide a source of background information on the state of the art in adult education research related to learner/situation interaction for the time span it covered. The systematic approach developed for analysis of reviewed studies in clusters provide a framework which could be used to update the review, or as a starting point for development of a research project in a given substantive area.

The detailed descriptions of actual learner experience introduce elements of abstract structure, perception, and response/momentary states interaction which have not been found in prior research. Use of first order language, in terms of the

learner's own experience, provides a starting point for development of grounded theory.

The interactionist theoretical perspective and the Person Situation Process Model are sufficiently broad to provide a foundation upon which a variety of studies on person/situation interaction could be developed. In both analyses of prior research and field study data, questions were posed, hypotheses suggested, or research streams identified to enable use of this study as a research agenda. Issues which have remained clouded for this researcher could be clarified with new perspectives from others and from subsequent research findings.

The full potential significance of the study will be achieved when the study itself is relatively indiscernible within a larger body of conceptual and empirical contributions to understanding how adult learners experience learning situations.

Epilogue

The process of conducting the study made an important contribution to my learning in research. Development of the problem, research methodology, and theoretical framework required that a substantial grounding in the literature be obtained. In addition, the data from the review of research and field study served to sensitize me to issues surrounding adult learners and learning situations about which I was previously unaware or only vaguely aware. Conduct of the study has become an important "past experience," and as such a part of my

abstract structure. I expect it to influence my practice as a teacher, my response as a learner, and my continuing research efforts.

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APPENDIX A

PILOT ANALYSIS: PERSON SITUATION PROCESS MODEL

Beder and Darkenwald (1982) studied public school and college teachers who taught both adults and pre-adults to determine if they reported teaching adults and pre-adults differently. They found differences in teaching related to relative age of the pre-adult group, the extent to which adults were perceived to differ from pre-adults, and the extent to which teachers subscribed to the belief that students with different characteristics should be taught differently. While this study was designed to demonstrate differences in teaching behaviors with preadult and adult students, it may provide insights for understanding the adult learner/educator interaction. The study used a self administered questionnaire designed to elicit teacher perceptions of teaching behavior, learning related characteristics of learners, autonomy for teaching decisions, and beliefs that certain characteristics call for different teaching behaviors.

The first principal hypothesis, "the greater the perceived difference between adults as learners and preadults as learners, the greater the overall differences in [self report of] teaching behavior," was confirmed at $p<.001$. The second hypothesis, "the

stronger the belief that different groups should be taught differently in the classroom, the greater the overall differences in [self report of] teaching behaviors," was confirmed at $p<.01$. The third hypothesis, "the greater the autonomy [perceived to be] allowed the teacher when teaching adults, the greater the overall differences in [self report of] teaching behavior," was not confirmed. However, there was little variance in degree of perceived autonomy; most respondents reported considerable autonomy. The reported teaching behaviors which varied significantly with adult and preadult groups included use of group discussion, time spent on discipline, varying of teaching techniques, giving directions, relating material to student life experiences, structuring of instructional activities, adjusting content in response to student feedback, providing emotional support to individual students.

How might these findings be understood in the context of the Person-Situation Process Model? Consider the composite "teacher" as the person system and the situation as a group of adult learners in a classroom setting.

The teacher's abstract structure includes <u>beliefs</u> that, in relation to the preadult learner, the adult learner is more intellectually curious, is more concerned with practical implications/applications, is more motivated to learn, has more confidence in ability, is more willing to take responsibility for learning, is clearer about what he wants to learn, is

willing to work harder at learning, and is less emotionally dependent on the teacher. Further the teacher's abstract structure includes the belief that, based on such differences, adults should be taught differently from preadults. Finally, the teacher perceives the degree of autonomy in decision making required to adjust teaching behaviors.

From the information included in the study, the following elements could be placed in the model. Question marks identify elements within the model which were not recognized in the study.

The teacher meets a situation--a group of adult or preadult learners in a classroom setting--and based on the perceptions and beliefs previously described, prescribes a set of teaching behaviors as appropriate. Relationships between the variables in the study can be meaningfully organized in terms of the Person-Situation Process Model. Further, additional variables which were not studied, and which could contribute to teacher behavior and learner response, are readily apparent.

More fully developed, the substance and qualities of the external situation, a classroom setting and a group of adult learners, can be assumed to include a physical environment, an organizational context, specific learning objectives or content to be taught, a time frame within which to teach, and learners who vary in a general as well as a specific sense along the dimensions: intellectual curiosity (for <u>this</u> subject), concern with practical applications (for <u>this</u> learning), motivation to

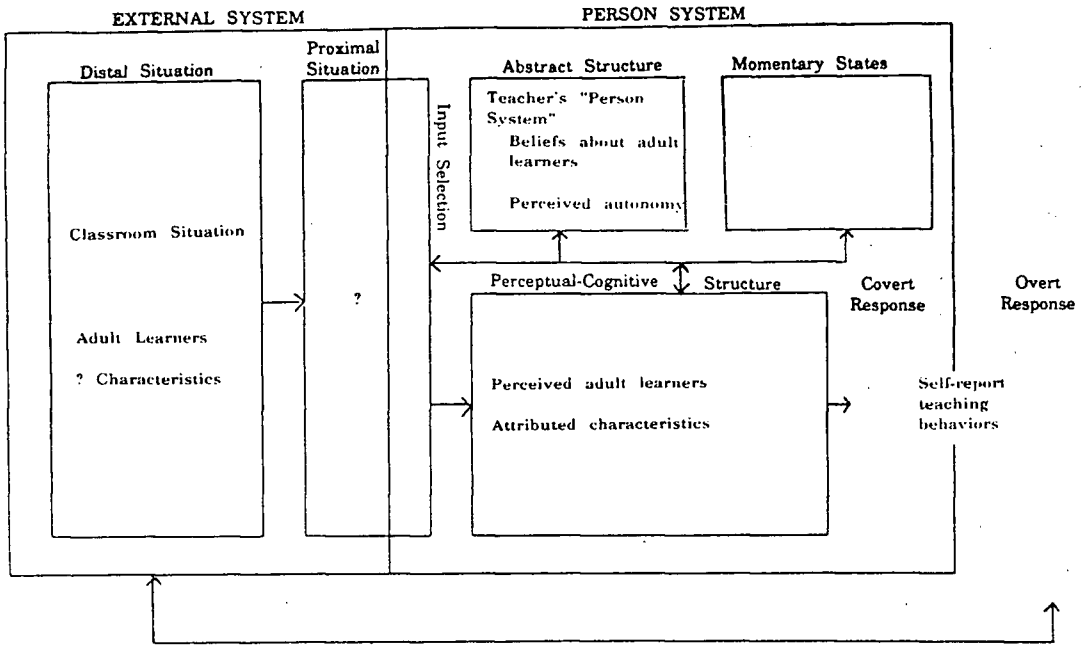

Figure Elements Related to the Teachers Orientation and Teaching Behavior (Rosenblum & Darkenwald, (1982)

learn (these objectives), confidence in ability (to master these skills), willingness to take responsibility for learning, and so on. Other features of the external situation that could be expected to vary include social status of the learners vis a vis the social status of the teacher, range and degree of prior experience and knowledge in the subject matter.

Additional elements in the teacher's abstract structure would include experience and range of teaching and interpersonal skills, ability and inclination to assess individual learner characteristics (as opposed to stereotyping), knowledge and enjoyment of the content to be taught, preparation for this session, and so on.

The concept, momentary states, offers a wide range of

variables which could enhance or buffer the potential effect of other teacher characteristics: excitment, grief, love, anxiety, fatigue, depression, anticipation--in response to budget cuts, relationship changes, common colds, evaluations.

A number of questions are raised by the review of this study in the context of the model. How do multiple characteristics of the external situation other than the "adultness" of the learners influence teacher choice of behavior? How do adult learners vary from one another in a given situation or across situations in the characteristics attributed to them in this study? The study measures how teachers vary in attributing certain characteristics to adult learners and in self report of teaching behaviors. How do actual teaching behaviors in specific situations vary from self reports and to what factors can that variance be attributed?

Moving beyond this particular study, consider the individual learner as the person system in the model. The following questions can be identified: Is there a match between the teacher's perception of behaviors and intended effect on learners, and the learner's reconstruction or meaning of teacher behaviors and intentions? What cues (input selection) are identified by the learner as related to the construed meaning?

What personality trait constructs (abstract structure) have potential explanatory power for the learner's selection of those particular cues, e.g. locus of control, trait anxiety, dogmatism, approval need, achievement need? What past

experience, values and attitudes (abstract structure) are identified by the learner as related to cue selection or meaning construction? What transient conditions (momentary state) are reported by the learner and what is their potential relationship to the cues selected or the meaning made by the learner?

Do adult learners respond differently to the same or similar teacher behaviors when the content varies? What relationship do the content, perceived teacher competency with the content, prior learner experience related to the content, have on the learner's construction of the situation? What role do other learners in a group learning situation have on the construction of the situation by the learner? What other variations in the external situation relate to different responses by the learner and how might those responses be explained?

When the same set of questions is posed with different individual learners in the same external situation, what variations are found to exist and how might they be explained?

Based on the initial assessment, it can be concluded that the Person-Situation Process Model has utility in showing potential relationships among elements of adult learner/situation interaction. Identification of the elements and their relationships could provide a basis for postulates or theoretical formulations to explain the nature of the adult learner/educator interaction.

APPENDIX B

SAMPLE PAGES FROM DECISION LOG FOR RESEARCH REVIEW

Date	#	author	Title	Location	Trace	Indy Excl	Rationale
16 July (cnt)	015	Rosenblum, S + Darkenwald, G	Effects of adult learner participation in course planning on Achievement and satisfaction	AEQ 33(3) 1983 147-153	AEQ Review	I (A)(N)(D)	A pre-situation learner experience which might affect response to situation.
-	016	Moore, A.B	An instrument to measure anomia	AE 30(2) 1980 82-91	AE Review	E	Developed an instrument to test effect of alienation on anomia. While the reverse could be a useful focus - the instrument offers little beyond the idea.
		— — —					
✓	017	Long, H.B. et al	adult cognition: Piagetian based research findings	AE 30(1) 1979 3-18	AE Review	I (A)(N)(D)	Included for purposes of ancestry - descendancy track of cognitive development in adults.
		— — —					
✓	018	Main, K.	The power load margin formula of Howard Y. McClusky as the basis for a model of teaching	AE 30(1) 1979 19-33	AE Review	I -(N)(D)	Relevant model for learner/interaction - included for ancestry - descendancy tracking of any research basis for model.
-	019	Clarke, J H	adults in the college setting: Deciding to develop skills	AE 30(2) 1980 92-100	AE Review	E	Related to decision to participate rather than to the nature of interaction during participation. (See narrative desc. July 16)
		— — —					
-	020	Wilson, RC	Personological variables related to GED retention and withdrawal	AE 30(3) 1980 173-185	AE Review	E	Participation, retention variables.
✓	021	Donnarumma, T. et al	Success in high school completion program and its relation to field dependence-independence	AE 30(4) 1980 222-232	AE Review	I (A)(N)(D)	Characteristics of adult related to situation response (success)
✓	022	Pigg, K. et al	Learning Styles in adult education: A study of County extension agents	AE 30(4) 1980 233-244	AE Review	I (A)(N)(D)	Characteristics of learners.

Date	# author	Title	Location	Trace	I-of Expl	Rationale
24 aug (Cont)	100 Okun, MA et al	Implications of Riegel's dialectic approach for adult instruction	Human Devel. 1978 21, 216-326	Rebok (1983) 072 (A)	E	Content expository - essentially recounts Reigel (048) + Arlin (046) and contributes minimally in addition to those sources.
-	101 Schaie, KW	Toward a stage theory of adult cognitive development	International J of Aging + Human Development 1977-8, 8, 129-138	Rebok (A)	I	Develops a preliminary theoretical position on adult development. Directly applicable to issues raised by Long, Arlin, etc. - Will present with those materials - rather than Kasworm - Rebok.
-	102 Weiner, B	— — — A theory of motivation for some classroom experiences	J of Ed Psych 1979, 71, 3-25	Rebok (A)	I	A theory paper which treats aspects of the learner's abstract structure - UW. Theory related to attribution, also treats loc of control.
	103 Weisz, JR + Stipek DJ	— — — Competence, contingency and the development of perceived control	Human Devel. 1982, 25 250-281	Rebok (A)	E	Explores developmental issues within the ranges of childhood - may or may not have implications for adult learner.
11 Sept	104 Koran, JJ	attention and curiosity in museums	J Res Sci Teaching 21(4) 357-363 1984	Rossing (1981) (D) 033	I	Study of the effect of adding manipulatable objects in terms of child + adult attraction.
-	105 Radford & Ellis M. et al	— — — Theoretical vs practical orientations in pre-clinical biochemistry teaching	med Educ 16(2) 76-80 1982	Grotelueschen (1982) 036 (D)	I	Further explores the nature of content organizers related to learning outcomes.
	106 Stanton HE	Teacher-Education and Experiential Groups	Cont Ed Psy 1(1) 89-97 1976	Stanton (1974) 039 (D)	E	Expository - does not meet source type criterion
/	107 Chiren, AB	— — — Modal logic: a new paradigm of development and late life potential	Hum Dev 27(1) 42-56 1984	Arlin 046 (1975) (D)	I	Presents a conceptual development which posits adult variation in mode of experience - Explains difference between mature + regressed adults.

APPENDIX C

TABLES: ELEMENTS FROM CLUSTERS OF DAI ABSTRACTS

Cluster topics include:

Table 38 ABE And Marginal Ability Students

Table 39 Cognitive Development of Adults

Table 40 Learning Style (Kolb)

Table 41 Field Dependence-Independence

Table 42 Use of Lecture

Table 43 Teacher Behavior as Perceived by Students

Table 44 Student Evaluation of Teacher Effectiveness

Table 45 Use of Content Organizers

Table 30

Dissertation Abstracts: Interactive Concepts Related to ABE and Marginal Ability Students

EXTERNAL SYSTEM Distal Situation	PERSON SYSTEM Perceptual-Cognitive Structure (**P-C S**) Abstract Structure (**A S**) Momentary States (**M S**) Response (**Resp**)	STUDY Site Sample Author
Teachers identified with "high" or "low" attrition rates	**P-C S** Learning climate -- • Group cohesiveness (perceptions about classroom peers, school, self) • Peer group norms (perceptions about teacher and academic norms)	ABE teachers (n=28) and their students (n=324) LaCagnina (1979)
Treatment conditions • Rational stage directed imagery • Cognitive restructuring • Relaxation training • Study skills counseling	**Resp** • Rationality • Self-concept • Emotionality • Study skills • Academic achievement	University students on academic probation (n=101) Corley (1980)
Teacher expectancy • List of students identified as "above average" • Control group	**A S** Self-expectancy • Enhanced by verbal expectation that they would do well • Not enhanced **Resp** • Self-concept • Achievement	Marginal black freshmen students (n=172) Haynes (1981)

Community college • ABE program • GED program Length of time im program	**A S** • Self-concept • Career aspiration	Community college programs ABE students (n=106) GED students (n=106) Clark (1982)
Treatment conditions • Competency based classes • Traditional classes	**Resp** • Life-skills achievement gain	ABE students (n=804) Kistler (1984)

Table 31

Dissertation Abstracts: Interactive Concepts Related to Cognitive Development of Adults

EXTERNAL SYSTEM Distal Situation	PERSON SYSTEM Perceptual-Cognitive Structure (**P-C S**) Abstract Structure (**A S**) Momentary States (**M S**) Response (**Resp**)	STUDY Site Sample Author
	A S • Reflective judgment • Verbal ability	Graduate students in two groups (new and advanced) (n=40) Non students in two groups (matched for age and scholastic aptitude) (n=40) Lawson (1981)
	A S Intelligence • Fluid • Crystallized **Resp** • Need for achievement • Aspiraton level • Intellectual interest • Academic achievement	Introductory educational psychology students (n=80) Eno (1979)
	A S Cognitive development (based on Perry model) Learning format preference • High to low structure	Community college and university students (n=88) Lyne (1980)

A S Critical thinking Reflective judgment	High school seniors, college sophomores, seniors and master's students, matched for critical thinking skills Brabeck (1981)

Table 32

Dissertation Abstracts: Interactive Concepts Related to Learning Style

EXTERNAL SYSTEM Distal Situation	PERSON SYSTEM Perceptual-Cognitive Structure (**P-C S**) Abstract Structure (**A S**) Momentary States (**M S**) Response (**Resp**)	STUDY Site Sample Author
	A S • Learning style • Preference for learning format	Health professionals (n=334) Bennett (1979)
	A S • Locus of control • Learning style	R.N. and generic nursing students (n=148) Huch (1982)
	A S • Age • Learning style • Length of career employment	R.N. and generic nursing students in six programs (n=343) Merritt (1984)
Learning environment • Conforming • Independent	**A S** • Learning style	Ten classes of adults, formal non-credit programs (n=120) McCall (1984)

Table 33

Dissertation Abstracts: Interactive Concepts Related to Field Dependence-Indepencence

EXTERNAL SYSTEM Distal Situation	PERSON SYSTEM Perceptual-Cognitive Structure (**P-C S**) Abstract Structure (**A S**) Momentary States (**M S**) Response (**Resp**)	STUDY Site Sample Author
	A S • Cognitive style (locus of control, field dependence-independence, and reflection-impulsivity) • Perceptions of own learning processes **Resp** • Achievement • Attitudes toward course	Introductory psychology course, undergraduates (n=93) Lewis (1979)
Treatment variables • Content (high, low) • Expressiveness (high, low)	**P-C S** • Global rating of instruction • Specific ratings of content and expressiveness **A S** • Cognitive style **Resp** • Achievement	Undergraduate ed psych courses, Videotaped lectures, female students (n=120) Roeser (1979)
	A S • Cognitive style **Resp** • Achievement on GED (old and new forms)	GED testing program (n=179) Loveall (1979)

Teacher • Cognitive style	**P-C S** • Rating of instructor **A S** • Students cognitive style	Undergraduate students (n=755) and professors (n=28) Taylor, 1980
Treatment conditions • Behavioral objectives • No behavioral objectives	**A S** • Cognitive style (GEFT) • Knowledge of objectives **Resp** • Posttest achievement	Nursing sophomores (n=54) Hoskins (1980)
	A S • Attitudes toward course and mastery method • Cognitive style (GEFT) **Resp** • Achievement	Mastery method of instruction, content (Biology, Education, Geography) Van Duyne (1980)
Courses • Psychosocial nursing • Nursing Process • Human development Content types • Natural sciences • Social sciences	**A S** • Cognitive Style • Tolerance of Ambiguity • Stress **Resp** • Achievement • Satisfaction	Sophomore nursing students (n=50) Williams (1981)
Test item conditions • Reading comprehensibility • Syntactic complexity	**A S** Cognitive style, (field dependence-independence) **Resp** • GED scores	Volunteers in seven GED testing centers (n=500) Czarnecki (1980)

• Teacher cognitive style • Content with different scientific orientations	**A S** • Student cognitive style • Cognitive style match with teacher **Resp** • Achievement tests • Course grades • Completion • Selection of specialty	Junior and senior nursing students (n=178) Faculty (n=35) Goodfellow (1981)
Teacher • Cognitive style	**A S** • Student cognitive style • Cognitive style match with teacher **Resp** • Achievement in science	Black college students and faculty Henderson (1981)
	A S • Cognitive style • Age • Prior nursing experience • Academic ability • Learning approach **Resp** • Achievement	First course in associate degree nursing program (n=162) Modular, mastery curriculum, challenge option Walker (1981)
	A S • Cognitive style • Self-concept	College students, remedial and regular (n=365) Morable (1983)

Lecture with graphic organizers • Beginning of instruction • End of instruction • Control group, no organizers	**A S** • Cognitive style **Resp** • Achievement of unit test	Undergraduate students ineducational psychology (n=132) Hawk (1983)

Table 34

Dissertation Abstracts: Interactive Concepts Related to Use of Lecture

EXTERNAL SYSTEM	PERSON SYSTEM		STUDY
- Distal Situation	Perceptual-Cognitive Structure	(**P-C S**)	Site
	Abstract Structure	(**A S**)	Sample
	Momentary States	(**M S**)	Author
	Response	(**Resp**)	
Treatment conditions	**Resp**		Fourth year undergraduates,
	Cognitive outcome		educational psychology
• Instructor centered lecture, course guides, discussion with TA, one-time-only test	• low order • Higher order		(n=55)
	Affective reactions		
	Self-perceived anxiety		Williamson (1979)
• Same with portion of discussion replaced by student interviews of each other			
• Same with portion of discussion replaced with repeated tests for mastery			
• Same with student interviews and mastery testing			

Treatment conditions • Simulation with discussion • Simulation without discussion • Discussion • Lecture • Required readings (control)	**Resp** • Achievement • Attitude toward instruction	Instructors (n=15) Nursing students (n-70) in 5 groups Strayer (1979)
Treatment conditions • Spaced lecture (not defined) • Traditional lecture Note taking No note taking Topic outline No topic outline	**Resp** • Immediate recall • Delayed recall of High importance Low importance	Junior college students (n=200) Bentley (1980)
Treatment conditions • Lecture • Discussion each combined with same slide/tape program	**Resp** • Cognitive gain • Application/use	"Ongoing classroom environment," 12 groups, 6 for each treatment Gentry (1983)

Table 35

Dissertation Abstracts: Interactive Concepts Related to Teacher Behavior as Perceived by Students

EXTERNAL SYSTEM Distal Situation	PERSON SYSTEM Perceptual-Cognitive Structure (**P-C S**) Abstract Structure (**A S**) Momentary States (**M S**) Response (**Resp**)	STUDY Site Sample Author
Teacher behavior: • Immediacy • Solidarity • Effectiveness	**P-C S** • Perceived immediacy behaviors • Perceived solidarity with teacher **Resp** • Cognitive learning • Attitudes toward instructor and course • Committment	Students (n=239) enrolled in basic communication courses of 13 instructors Andersen (1979)
Teacher self-perceived • Congruence	**P-C S** • Perceived teacher congruence **Resp** • Satisfaction • Impact	Students (n=140) enrolled in mental health technology classes, urban community college Weidenfeld (1979)
Teacher • Andragogical or • Pedagogical orientation	**P-C S** • Instructors' behaviors, andragogical or pedagogical	Instructors (n=74) Students (n=961) Four two-year colleges Kerwin (1979)

	P-C S • Liklihood of male/female, good/bad teacher to make specified self-disclosure statements	Undergraduates (n=617) Phase I
Hypothetical teacher profiles on self-disclosure: • "good" teacher • "bad" teacher • neutral • mixed	**P-C S** • Self-disclosure • Immediacy • Solidarity **Resp** • Affect	(n=451) Phase II Sorensen (1980)
Teacher • Self acceptance • Acceptance of others	**P-C S** • Student estimation of teacher concern **A S** • Self acceptance • Acceptance of others	Teachers and students in two adult high schools Roberson (1980)
Teacher • Supporting behavior • Challenging behavior	**P-C S** • Perception of teacher support or challenge	Six ed psych classes, taught by three teachers; 6-14 students in each class Seitchik (1980)

	P-C S • Instructional Variables: Content, Method, Readings, and Interaction • Dimensions of credibility: Sociability, Character, Extroversion, Competence **A S** • Major • Class standing • Required or elected enrollment **Resp** Self-reported • Affect • Satisfaction • Behavioral intention	Undergraduates (n=262) from a variety of disciplines McVeta (1981)
Classes • Cooperative, or • Competitive Teacher-student verbal behavior	**P-C S** Teacher style in competitive classrooms • Organized demeanor • Dynamism • Control and Structuring • Knowledgeable in cooperative classrooms • Friendly, likeable, empathic • Genuine, fair, helpful • Democratic shared influence	Six undergraduate classes (3 competitive and 3 cooperative) Krupp, (1981)
	P-C S Perceived teacher behaviors: • Initiation of structure • Consideration **Resp** • Intrinsic, Extrinsic, and General satisfaction	Students in ABE classes (n=?) Denton (1980)

	P-C S • Success (ratings of teacher effectiveness) • Perceived andragogical teaching strategies	Noncredit academic and occupational courses, part-time instructors (n=104), and adult students (n=965) Hampton (1982)

Table 36

Dissertation Abstracts: Interactive Concepts Related to Student Evaluation of Teacher Effectiveness

EXTERNAL SYSTEM Distal Situation	PERSON SYSTEM Perceptual-Cognitive Structure (**P-C S**) Abstract Structure (**A S**) Momentary States (**M S**) Response (**Resp**)	STUDY Site Sample Author
Systematic variation of • content (high, low) • expressiveness (high, low)	**P-C S** • global rating of presentation • Specific ratings of content and expressiveness **A S** • Cognitive style, field dependence-independence **Resp** • Achievement	Undergraduate educational psychology courses, videotaped lectures Female students (n=120) Roeser (1979)
	P-C S • Teacher effectiveness ratings **A S** • Intellectual development (Perry theory)	Students, undergraduate classes of three teachers, lecture method (n=136) Norman (1979)
Teacher • Cognitive style	**P-C S** • Evaluation of teachers **A S** • Cognitive Style	Undergraduate students (n=755) Professors (n=28) Taylor (1980)
Treatment conditions • Content (high, low) • Expressiveness (high, low)	**P-C S** • Ratings of instructor	"Intact' classes" (n=278) Ramagli (1980)

Teacher • Appearance	**P-C S** • Perceived teacher attractiveness	Male and female two-year college students (n=90) Cotton (1980)
	P-C S • Student ratings of teachers **Resp** • Student achievement	Meta-analysis of 41 studies Cohen (1980)
Teacher • Personality	**P-C S** • Perceived personality of teachers • Perceived effectiveness	Students in two-year colleges (n=275) Whittington (1983)

Table 37

Dissertation Abstracts: Interactive Concepts Related to Use of Content Organizers

EXTERNAL SYSTEM Distal Situation	PERSON SYSTEM Perceptual-Cognitive Structure (**P-C S**) Abstract Structure (**A S**) Momentary States (**M S**) Response (**Resp**)	STUDY Site Sample Author
Treatment conditions Reading passage • with organizers • without organizers	**A S** • Level of relevant prior knowledge **Resp** • Achievement test	Undergraduates in chemistry (n=80) Schwartz, 1980
Treatment conditions • Structured schema of high order concepts used as model • No model	**A S** • Prior knowledge • Verbal reasoning ability **Resp** • Achievement	College Accounting students (n=44) Chan (1980)
Treatment conditions • Printed text • Information mapping • Standard text book • Control group	**A S** • Low verbal ability **Resp** Cognitive gain scores • Fact • Concept	Undergraduates in educational psychology (n=94) Stelnicki (1980)
Advance organizers Single group, time series design • Times 1 & 2 - Study guides • Times 3 & 4 - No study guides	**M S** • State (test) anxiety **Resp** • Performance on teacher made tests	Nursing students, course in human physiology, 12 week period Lalli (1980)

Treatments -- learning and constructing concept maps • Hierarchical/ propositional • Hierarchial • Propositional	**A S** • Prior knowledge • Cognitive development • Reasoning ability **Resp** • Posttest on environmental concepts • Attitude • Ability to construct concept maps	College students, introductory natural resources course (n=114) Bousquet (1982)
Lecture with graphic organizers • Beginning of instruction • End of instruction • Control group, no graphic organizers	**A S** • Cognitive style **Resp** • Achievement on unit test	Undergraduates in Educational Psychology (n=132) Hawk (1983)
Treatment condition • Advance organizer • Non-organizer introduction	**A S** • Piagetian level formal operational concrete operational **Resp** • Immediate posttest • Delayed posttest Recall Transfer	College students in Physics 1st group -- traditional method 2nd group -- CAI Mahajan (1983)

APPENDIX D

OBSERVATION GUIDE

Prior to the situation, describe:

- Organizational framework for the educational offering
- Purposes/Goals for the session, planner's perspective
- Time frame
- Nature of planned teaching methods
- Nature of planned evaluation of learners
- Nature of relationship of offering with participants

During the situation, observe and record

- Nature of the setting including any changes as they occur
  - -classroom
  - -environmental factors (lighting, temperature)
- Teacher(s)
  - -general description
  - -specific behaviors
  - -selected verbal and nonverbal interactions with learners
  - -spatial relationship with learners
  - -social or professional status relative to learners
- Learners)
  - -general description

-general response

-selected behaviors of individuals

-selected verbal and nonverbal interaction with teacher

-learner/learner verbal and nonverbal interaction

-spatial relationship among learners

-social or professional status relative to other learners

Methods

-type(s) used

-description of use

-critique of use

-event sequence

Content

-subject matter

-level of content

-clarity of content

-clarity of objectives

-sequence or organization

APPENDIX E

A PRIORI CATEGORIES FOR CODE/RECODE

Categories to Reflect Abstract Structure

Abstract structure, was described by Nystedt (1981) as containing a person's knowledge of the past, attitudes, opinions, "rules," and long term expectations about the future. The following categories were developed as examples to reflect those features.

a) Assertion of an individual characterics or personal tendency (e.g. "I am...," "I like....," "I usually do...," etc.)

b) Purpose, intent, goal for deciding to attend this learning situation.

c) General beliefs, opinions, judgments that transcend perception of this situation (e.g. "She should be better organized" vs. "she wasn't very organized").

d) Assumption about own learning style preference. (e.g. "I always sit up front to hear better", "I like discussion", etc.)

e) Past experiences, not course related, including

perceptions about those experiences.

f) Past experiences, course related that occurred prior to arrival for the session,including perceptions of those experiences

g) Past affect, emotions that do not extend into the time frame of the learning situation.

Categories to Reflect Momentary States

Momentary states refer to transitory influences such as emotional states, motivations, intentions, degree of intensity and involvement. Nystedt (1981) acknowledged that differences between momentary states and abstract structure are not always clear, but asserted that it is useful to make the distinction. For interview data coding, categories related to momentary states require that the "state" occur temporally within the situation, but not necessarily directly related to the situation, e.g. apprehension, experienced during the session, about children who are at home alone; fatigue experienced during the session and attributed to activities prior to the session. Categories are as follow.

Transient conditions occurring within the time frame of the situation, related or unrelated to the situation itself, such as

a) Emotions

b) Physiological states

c) Attention level, degree of intensity, or involvement

within the session.

d) Motivations or intentions

e) Thoughts, not course related, but experienced within the situation.

Categories to Reflect Perceptual Cognitive Structure

The perceptual cognitive structure was defined as the person's cognitive representation of the immediate external situation (Nystedt, 1981). For purposes of analysis of interview data in this study, it was defined as reported learner perceptions related to the learning situation, and included thoughts, assumptions, ascriptions, judgments, descriptions. Perceptions were categorized as follow.

Thoughts, assumptions, ascriptions, judgments, descriptions -- about the learning situation and occurring within or following the time frame of the situation.

a) About the teacher

b) About the content

c) About the setting

d) About the teaching methods

e) General

Categories to Reflect the Input Selector

Nystedt described an input selector as the means by which a person determines what information will be attended to in construing a situation. For purposes of coding the interview data, the "input selector" was viewed as simply the observations reported by the learner, and categories are as follows.

a) About the teacher

b) About the content

c) About the setting

d) About the teaching methods

e) About other learners

f) General or not identifiable

Categories to Reflect Responses

Response to the situation was described as either overt or covert (Nystedt, 1981). For purposes of coding the interview data, that distinction will not be made. The responses reported in the interviews might be construed as covert in that they were not directly observed, or overt in that they are evident as a self report. In either case, the distinction would not change nor reflect the nature of the data. The domain of response was considered to be a more useful distinction, and the items were coded as follows.

Responses --A statement of reaction, response, outcome that is

a) Affective

b) Cognitive

c) Physiological

d) Psychomotor

e) General, or combination of factors as above Table 30 shows the pattern of data collected across situations and across learners within the same situation. Patterns differed from the design of minimums of three learners for each situation, and three situations for each learner. Availability of learners within the specified time frame, and the voluntary nature of their participation, were factors which limited achievement of the desired sample design. The first six situations were individual sessions within a series for the same group of participants which provided a logistic advantage for access to the same learners more than once. It had the disadvantage that some elements for both the learner and the situation were similar, for example, purpose for attending probably would be the same for each session, and the setting tended to be the same. The specific content and teacher(s) changed from session to session.