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Teacher learning via video instruction: Five case studies

Hauser, Doreen Ann, M.S.

The University of Arizona, 1988
TEACHER LEARNING VIA VIDEO INSTRUCTION:
FIVE CASE STUDIES

By
DOREEN ANN HAUSER

A Thesis Submitted to the Faculty of the
SCHOOL OF FAMILY AND CONSUMER RESOURCES
In Partial Fulfillment of the Requirement
for the Degree of
MASTER OF SCIENCE
WITH A MAJOR IN HOME ECONOMICS EDUCATION
In the Graduate College
THE UNIVERSITY OF ARIZONA

1988
STATEMENT BY AUTHOR

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APPROVAL BY THESIS DIRECTOR

This thesis has been approved on the date shown below:

Maureen E. Kelly  
8/22/88
Assistant Professor of Home Economics Education
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This research was conducted to study how five home economics teachers learned three new teaching techniques through an inservice distance education project. The researcher looked specifically at: (1) How effective were video assisted self-instructional packets for teaching individual learners new methods of instruction? (2) How do teachers transfer knowledge of a particular method to actual classroom use? Lastly, (3) Is there a relationship between one's learning style and style of teaching? Each case study draws upon data from the participant's background, test scores, interviews, self-reports, staff reports, student products, and evaluator observations.

Researchers speculate that for the three of the five teachers, whose post test scores and videotaped demonstration of a method in use in their classroom, their learning style may influence their style of teaching. The other two teachers, who were unable to transfer the information, did not have consistent learning styles, were not comfortable users of the media, and reported having too many things going on in their personal life which interfered with the learning process.
INTRODUCTION

During times of limited budgets and threats of cut-backs, providers of professional development programs must be concerned with course effectiveness and cost for participants in terms of time and money. Consequently, the characteristics of effective inservice education programs have been a popular area of study.

Researchers studying the delivery of inservice education have focused on such areas as the needs of teachers at various career stages (Christensen, Burke, Fessler, and Hagstrom, 1983), elements of effective programs (Sparks, 1983), and reported effectiveness of various distance education methods (Kelly, Paris, Sweedler, and Doiron, 1985). Traditionally, inservice programs have either been offered through face to face meetings in a central location or through radio, television, or written packets. With the integration of technology into education, inservice opportunities are being implemented through videotape, computer, and, in some locations, interactive video.

Currently, there are an estimated 10,000 U.S. companies using video for training and communications
programs (Cartwright, 1986). Industries are using this medium to: provide employee orientations, to teach sales, customer and safety procedures, and to offer beginning through advanced skill training.

Formal education has also integrated video into the classroom. From the preschool level through graduate training, educators are using this media to: teach particular skills, to review information, to promote self-evaluation, and to evoke student interest.

Despite its widespread use, evaluation of video as an effective instructional media is not consistent from one study to another. Moldstad (1974) attributes this to a number of problems, such as poor research designs, data collection methods, and sample selection. However, when attention is given to the match between media attributes and learner characteristics, Wilkinson (1980) noted that video programs can have a significant impact on student achievement and self image.

Specifically, when teaching adults, Apps (1985) concluded that there are a great number of factors that influence learning. Factors such as income level, beliefs, political views, and personal situation influence the learning process of adults. Moreover, in an extensive literature review on teacher development, Christensen et al. (1983) concluded that adults have the
need to learn quickly and continue with daily activities and responsibilities.

In addition, an adult's particular learning style appears to influence how one learns. In recent years, researchers have designed different inventories and questionnaires to measure an individual's learning style. Recently, there has been considerable discussion about the need to match a student's learning style to particular teaching methods. Numerous studies sampled pre-school through college learners (Gregorc, 1979; Hunt, 1979) seeking to establish a variety of student learning styles and to hypothesize that teachers need to teach to these styles in order to increase their effectiveness. But one glaring hole in the research remains. Do teachers teach the way they learn? Does a teacher's own learning style influence their ability to learn new methods of instruction? Assuming that video programs can be carefully integrated into a graduate education course, can teachers learn new teaching techniques from this media? Or, will their learning style, stage of development, or comfort with the media interfere with the ability to learn new teaching methods?

There are many unanswered questions to these educational issues. Theories are yet to be developed.
But through case studies, such as this one, insight may be given to future studies.

Statement of the Problem

For the past three years, Arizona has been without state home economics inservice teacher educators, who were responsible for providing up-to-date, face to face training around the state. Even though these positions were eliminated, the need for training and updating still exists. Thus, it became the goal of this study to find alternative methods to meet the inservice needs of southern Arizona home economics teachers.

The most feasible way of delivering this information to the audience seemed to be through distance education for the following reasons: (1) the state does not have a technological outreach information system; and (2) the physical distance factor for over half of the home economics teachers in southern Arizona made travel to on-campus classes prohibitive (Kelly, 1985).

For teachers who are at a distance from the university, video maybe the instructional media that best assists teachers in learning new methods of instruction due to various video attributes. However, an individual's learning style or characteristics may influence
both learning and application of the newly acquired technique to the classroom.

This study is concerned with how home economics teachers learn new teaching techniques through video assisted self-instructional packets and transfer the knowledge of new teaching techniques to actual classroom use. In addition, the relationship between one's learning style and style of teaching is explored.

Study Objectives

The objectives of this study were to:

1. Evaluate the effectiveness of video assisted self-instructional packets for teaching individuals new methods of instruction.
2. Observe how teachers transfer knowledge of a particular method to actual classroom use.
3. Explore the relationship between one's learning style and style of teaching.

Research Questions

Through case studies of five southern Arizona home economics teachers the following research questions were answered:

1. How effective were video assisted self-instructional packets for teaching individual learners new methods of instruction?
2. How do teachers transfer knowledge of a particular method to actual classroom use?

3. Is there a relationship between one's learning style and style of teaching?

Definition of Terms

For the purposes of this study, the following were operationally defined:

1. Concept Attainment - a method of instruction whereby students learn through collecting and organizing information into concepts or ideas. Classified as an information processing model, this method was developed by Jerome Bruner.

2. Daily Log of Teaching Strategies - researcher developed log sheet for teachers to report daily use of teaching methods.

3. Learning Style Inventory - a self-report inventory developed by Kolb (1976) to assess a person's orientation to learning.

4. Learning Style - a person's unique orientation to learning.

5. Models of Teaching - methods of instruction organized into four models on the basis of their goals and approaches. The four models are information processing, social, personal and behavior modification.
They were developed by Marsha Weil and Bruce Joyce (1978).

6. Simulation - a method of instruction whereby students experience various social processes and examine their own reactions to them in a group setting. Classified as a social model, this method was developed by Sarene Boocock.

7. SoC Questionnaire - a self-report questionnaire developed by Hall, George, & Rutherford (1979) to measure an individual's concern about a particular innovation.

8. Synectics - a method of instruction whereby students learn creative thinking and problem solving skills. Classified as a personal, self-directed model, this method was developed by William Gordon.

9. Style of Teaching - the characteristic manner that a teacher uses to interact with their students.

10. Teacher career stage inventory (TCS) - a interview instrument focusing on a teacher's personal and professional development. This inventory was developed by Paul R. Burden (1982).
Chapter 2

LITERATURE REVIEW

The purpose of this qualitative research study is to examine how teachers who are at a distance from the university learn new methods of instruction through self-instructional videotape packages and transfer that knowledge to actual classroom use.

This research is part of a larger study which Kelly undertook in 1985. This study particularly focuses on (1) evaluating how effective self-instructional video packages are for teaching individual learners new methods of instruction; (2) studying how teachers transfer concrete knowledge of a particular method to actual classroom use; and (3) exploring relationships between learning style and style of teaching.

In this chapter, literature concerning (1) inservice education; (2) instructional technology; (3) adult learning theories and characteristics; and (4) the relationship between learning style and style of teaching.

Inservice Education

For a number of years researchers have studied how teachers learn and what might influence their
learning through inservice education (Wade, 1985). Inservice teacher education has been defined as "all activities engaged in by professional personnel during their service and designed to contribute to improvement on the job" (Kilgore, 1984, p.3). Inservice activities have ranged from short workshops to semester classes offered by institutions of higher learning.

A number of extensive reviews conducted on the results of inservice training distinguished the benefits of certain program design elements. Sparks (1983) concluded that inservice education needed to be presented in short segments spaced over time. Hilliard (1985) claimed that the most effective adult learning courses included supplemental written or other appropriate materials with the visual source. Wade (1985) concluded that effective inservice education was influenced by: (1) use of video feedback techniques, (2) use of independent study, and (3) federal, state or university program sponsorship.

An adult's need to immediately apply the new information to their current situation and get on with the daily demands of life is another important element of inservice education that does not directly affect the program design but does influence overall effectiveness. Christensen, Burke, Fessler, and Hagstrom (1985, p. 3) stated that "adults tend to experience a need to learn
quickly and get on with living." The researchers perceived that an adult's time was such a scarce commodity that they continually learn and apply relevant information to their current situation.

In addition to an adult's limited time to engage in educational activities, a learner's physical location was perceived by Kelly, Paris, Sweedler, and Doiron (1985) to be an important factor to participation in inservice activities. Because of this important fact, offering inservice education through distance instruction methods was viewed as an alternative to face to face instruction.

Distance instruction or distance learning has been commonly used to define instruction that takes place when the learner was removed from either the instructor and/or instructional materials (Levinson, 1985). Early research on innovative distance education programs around the country has been encouraging. Many distance education inservice programs delivered by radio, television, videotape, computer and/or correspondence are characterized by high achievement scores and percentile completion rates (Kelly et al., 1985). Such methods of distance instruction also reduced the learner's time investment for travel to on-site training, making it cost efficient. In fact, Levinson (1985) estimated the cost of distance
programs to be equal to or as little as 1/10 the cost of on-site inservice.

Instructional Technology

Instructional technology entered the field of education during the behavioralist era. As new media emerged and was employed for instructional purposes, researchers focused on discovering the one best media for learning. In 1986, Clark and Salomon reviewed the available literature on media in teaching for the Handbook of Research on Teaching. Results ranged from heavily favoring technology, to strong support for traditional face to face instruction. Yet, the most common conclusion drawn from the reviewed research was that there was no significant difference between face to face instruction and programs that substituted instructional technology for traditional instruction methods.

Clark and Salomon (1986) concluded that early researchers assumed learners were reactive and as a result, their research designs focused on how the media controlled learner behavior. As media was integrated into the educational field, researchers continued designing studies trying to establish the most effective instructional media.
Since each media has its own unique attributes, the focus of research has shifted to identifying critical attributes of each media and developing theories on how the media as a whole influences learning (Wilkinson, 1980). For example, videotape has the ability to: capture movement; provide repetition and immediate playback; integrate sight, feeling, and sound in one presentation; produce realistic models; and share timely, current information (Cartwright, 1986; Lawrason, 1975; Torrence, 1985; Webster, 1984).

A related area of research has focused on how learner or attributes combined with instructional media influences the learning process (Salomon, 1979; Jonassen, 1985). Salomon (1979) and more recently, Salomon and Gardner (1986) have been concerned with the learner's prior knowledge, learning style or preferences, experience and comfort with the instructional media for a particular purpose, and perception of the task. Powers and Russell (1980) examined selected learner aptitudes when presented with lecture versus videotaped presentations.

In a meta-analysis on the use of instructional technology with college students, Kulik, Kulik, & Cohen (1980) concluded that the course completion rates were higher for classes taught with instructional technology
than classes without it. Collected data from student rating sheets and achievement scores also indicated that students clearly favored the classes using technology. However, the effect sizes were not large. Therefore, Kulik et al. (1980) concluded that instructional technology would not raise every student's achievement to the same level.

In another study, Daniels (1985) concluded that when the researcher focused only on the technology to produce differences in student achievement, there were no significant differences. However, when the researcher identified student and teacher attributes as the controlling variables, the results indicated there was a difference in media effectiveness. For example, Powers and Russell (1980) investigated college student aptitudes when instructed through two different treatment groups -- videotape versus lecture. With respect to the student's ability to immediately recall information, results favored the lecture method. Powers and Russell attributed these findings to the possibility that as experienced learners, college students have learned effectively how to process lecture presentations. Alternatively, they proposed that the students were apprehensive and less comfortable with the instructional presentation through videotape since they were less
experienced with the new technology.

Another focus in recent research has explored which media was most efficient and effective for the particular task to be learned (Salomon, 1979). For example, if you plan to teach something that contains movement, some information would be lost if you decided to teach the information through the use of charts or graphs, versus film, videotape, or any other media that had the ability to capture simultaneous movement.

In light of the current redirection in media research, Wilkinson (1980) noted that results were still conflicting and lacked significant findings in either direction. Moldstad (1974) attributed these inconsistencies to problems with: research designs, sampling procedures, integration of media into educational programs, and data collection instruments. After reviewing a number of studies, the author concluded that multimedia educational programs are usually preferred by students, and facilitate equal amounts of learning in significantly less time.

Instructional Videotape

Videotape is a popular media for delivering training and informational programs. It has been demonstrated as an effective training tool for learners from
preschool through adult education (Cartwright, 1986). However, there are many advantages and disadvantages in using videotape for instruction that must be considered. The camera and video recorder (VCR) are becoming more compact in size and easier to operate (Webster, 1984). With this technological development, the camera and VCR have also become increasingly affordable for school and home buyers.

Another advantage to instructional videotape is the opportunity to learn in one's own home and at a self-selected time (Kelly et al., 1985). Thus, the advantage of a course that selects videotape as the delivery vehicle is that it opens college enrollment to a whole new population, thus potentially expanding the clientele base (Cartwright, 1986). Another advantage of a well-designed videotaped program is that it can save the viewer up to 75% of the time it would take if they were learning it through the lecture method (Cartwright, 1986). This advantage is achieved since designers of video programs present only the necessary information in a well-planned lesson, often using a variety of media and instructional tools.

Control of the video lesson is a significant advantage for the individual learner (Schumacher, 1967, p. 5). If a segment needs to be repeated, a learner can
view the portion over and over again, until it becomes clear in their mind. Thus, videotape allows the learner to actively control the learning situation.

Video allows the learner to attain information through at least three senses (Torrence, 1985). Learners can cognitively acquire the information through seeing and hearing. When the task is performed through psychomotor activity, the viewer can model the proper actions. Motion, close-ups, and images of the instructor recorded on tape can motivate the learner and evoke emotion.

A significant disadvantage to delivering inservice education through videotape is the viewer's expectation of a flashy, entertaining production such as the ones they see on television and in professional productions (Cartwright, 1986). This type of production is often out of the developer's budget as lighting, directing, editing, and reproduction costs are high. Cartwright (1986) estimated that a fairly sophisticated videotape program would cost approximately $500 to $1000 per finished minute. Therefore, a significant disadvantage of delivering distance education instruction through videotape is the high production cost.

Production of effective videotape programs also requires more preparation time by the instructor, so one does not become a "talking head" (e.g., primarily a
videotape of a person lecturing). Instructors must use all of the capabilities of videotape to greatly enhance learning opportunities (Bair, 1967). To make a successful instructional video, the product should contain moving images, charts, photographs, slides, displays, and the actual learning environment.

To summarize, the following are advantages of instructional video: (1) compact size, ease in operating, and affordability; (2) learners ability to control the learning environment; and (3) use of this medium to learn in a variety of ways. The main disadvantage of video is the high production and preparation cost.

Adult Learning Theories and Characteristics

Malcolm Knowles (1973) proposed that teaching adults was totally different from teaching youth. This would imply that when one instructs adult learners versus a youth audience, there are a number of adult learning theories and characteristics that instructors should know and use.

In 1985, Jerold W. Apps described how, what, and why an adult pursues learning. He believes psychological, socio-logical, biological, historical, and political forces influence adult learning.
Psychologically, adults learn as a result of previous mental training. At the same time, adults are affected by sociological forces, including their income level and amount of education. Biological changes, such as a decrease in one's reaction time and ability to hear and see, occur as an adult advances in age. Historical events (i.e., the Depression, Vietnam conflict) induce certain values, beliefs and ideals in each individual. In addition, one's political views could sway how and what an individual learns.

In summary, Apps emphasized that an adult's learning process is influenced by a personal, intricate web of forces that should be considered when designing an adult education course.

Furthermore, researchers theorize that we process or learn information differently depending upon what we are expected to do with it and our prior experience with similar knowledge. Reviewing studies on cognitive transfer from programming Salomon and Perkins (1987) described the difference between "low road transfer" and "high road transfer". Low road transfer occurs when an individual processes the information almost automatically, whereas high road transfer transpires when the task requires selectively applying the new information to another situation. To achieve high road transfer, the learner
must have used cognitive effort and mindful decontextualization. The learner also must have been motivated and possessed some cognitive skills. Thus, teachers who learn new methods of instruction and employ them in their classroom utilize high road transfer.

Learner characteristics

When investigating adult learning, one could also look at an individual's stage of development. Brundage and MacKeracher (1980) believed that a person's life stage could influence how and what they learned. They explained that if an adult was in a stage of transition, they were more likely to be interested and challenged to learn something new than a person content in their current stage of life. For example, a new teacher or one who has just resigned from teaching would likely be in a stage of transition and ready to expand or acquire new talents or interests.

In a similar vein, Burden (1983) noted that teachers pass through three career development stages. The first year of teaching (Stage 1) is described as the survival stage. New teachers are trying to: master skills, control feelings of inadequacy, and develop record keeping, motivation and disciplinary strategies. During a teacher's second through fourth year of
teaching, Burden established that they enter Stage 2, called the adjustment stage. Stage 2 teachers report increasing their knowledge of teaching activities, student needs and curriculum. In addition, their confidence and ease of teaching increases. Burden refers to Stage 3 as the mature stage. Having taught five years or more, teachers in this stage expressed a willingness to try new teaching methods in order to meet the needs of their individual students. Stage 3 teachers are also found to be more confident and comfortable in their professional role. Since each period is characterized by different concerns, Burden concluded that teachers could benefit more from inservice training that focused on information relevant to their stage of development.

Change affects each individual in a different way. Some people resist change while others embrace it. In order to look at people's responses to change, researchers developed two frameworks to look at a person's concern or use of an innovation. One framework, called Levels of Use of the Innovation (LoU), accounted for the individual's skill, knowledge, and performance with the innovation (Hall, Loucks, Rutherford, & Newlove, 1975). The other framework, Stages of Concern About the Innovation (SoC), focused on the individual's feelings, thoughts, and concerns about the innovation (Hall,
George, & Rutherford, 1979). Thus, if an individual was a non-user of an instructional media, such as videotape, their level of concern about the innovation would be different from that of an experienced user.

An individual's learning style is another area where conceptual disagreement among researchers still exists. Dunn (1984, p. 12) defined learning style as "the way each person absorbs and retains information and/or skills." Keefe (1979) claimed that learning style included not only cognitive style but also affective and physiological styles.

While each individual possesses his/her own unique process for learning new information, Kolb (1976) has shown that people rely heavily on one strategy or learning style. Kolb (1976) and Gregorc (1982) believe preferred learning style is a result of heredity and the past and present interaction with the environment, school, work, and home.

Kolb's Learning Style Inventory was developed to "assess individual orientations towards learning" (Kolb, 1976, p. 67). The 1985 revised Learning Style Inventory (LSI) is a 12 item, rank-ordered test which clusters the learning style within four modes: Concrete Experience (Feeling); Reflective Observation (Watching); Abstract Conceptualization (Thinking); and Active
Experimentation (Doing). Each labeled mode is located on a quadrant side. Thus, each of the four learning styles: Accommodator, Diverger, Assimilator, and Converger, is a product of two modes. An Accommodator learns primarily from "feeling" and "doing". A Diverger relies primarily upon "feeling" and "watching". Assimilators prefer to learn through "watching" and "thinking"; whereas a Converger relies upon "thinking" and "doing".

Kendall and Sproles (1986) referred to Kolb's inventory as "one of the most well-developed approaches to learning styles, from both the theoretical and empirical perspectives," (p. 2). Reliability statistics have been generated for this inventory, which allows us to compare one's normative learning approach to another's (Kolb, 1976; Fox, 1984; Learning Style Inventory, 1985).

Style of Teaching

Kolb believes that an individual's unique learning style is a product of one's past experiences. Similarly, The Encyclopedia of Education notes that one's teaching style is also a product of own's training, experience, and personal qualities. For those involved in delivering inservice training to teachers, the exploration of the relationship between one's learning and style of teaching is a topic of great interest.
A teacher's role requires one to constantly interact with students. Since learning situations change, a teacher uses different methods to provide information, leadership, or guidance to students. The characteristic manner that a teacher uses to interact with students may be thought of as a style of teaching.

Some researchers in teacher education believe that an individual should master a single model or technique. For instance, Sirotnik (1983) found that many teachers utilized only a limited number of methods. He noted that the majority of class time was spent with teachers lecturing or students working on written assignments.

Yet others, such as Smith and Renzulli (1984), believe the number of teaching techniques used in a classroom influences a teacher's effectiveness. Specifically, they speculated that there might be a connection between the number of methods a teacher used in his/her classroom and the quality of instruction. This would suggest that if a teacher could broaden his/her style of teaching, he/she might be more effective.

Weil and Joyce (1978) believe that in order for teachers to grow, they must continually master new models of teaching and use them effectively. In a selected review of research, Joyce, Showers, and Bennett (1987)
found that almost all teachers could learn a wide variety of techniques when training included four essential parts: (1) presentation of theory, (2) demonstration of the strategy, (3) time to practice it, and (4) prompt feedback. An important variable seemed to be flexibility in learning how to incorporate these new methods into their teaching repertoire.

While Joyce et al. (1987) believe that teachers can learn new methods, what happens when they try to implement methods that are different from their basic teaching repertoire? Both students and teachers reported that they experienced stress, frustration and burnout when they had to either learn from or use methods that were inconsistent with their learning style (Smith & Renzulli, 1984).

Researchers have stated that theoretically, it has not been established if learning style influences one's style of teaching (Hunt, 1983). Lyons (1985) completed a research study suggesting there was a relationship between the two. The study focused on a sample of 20 qualitative journals kept by student teachers. Furthermore, Barbe and Milone (1980) and Friedman and Alley (1984) believed that if a teacher was not aware of research on learning styles and individual styles of teaching, he/she would naturally select methods of
instruction that fit one's own preferred learning style. These researchers stated that subconsciously, teachers believe that the way they learn most efficiently was also the way their students will learn best. As previously stated there is almost no empirical evidence that a relationship exists yet, Hunt (1983) believes that "one's learning style was closely related to one's preferred teaching style" (p. 2).

Summary

Due to reported effectiveness and cost efficiency for learners and instructors, inservice distance education has been viewed as an alternative to face to face instruction. Moreover, advances in technology have constantly improved and expanded opportunities to offer instruction through distance education methods. Researchers have established that each media possesses unique attributes that have a significant influence upon an individual's learning process. For teachers who are at a distance from the university, video may be the instructional media that best assists teachers in learning new methods of instruction due to various video attributes.

As each media possesses its own attributes, each individual has unique learner characteristics that affect
the learning process. These attributes, such as learning style, stage of concern for an innovation, and career development stage are a product of many complex forces from past and present experiences. Thus, when trying to teach instructors new methods through technology, the researcher needs to be concerned with interactions between various media and learner attributes.

Once teachers have shown that they understand the principles behind the method, how do they transfer the knowledge to use in their teaching repertoire? Research states that one's learning style and style of teaching are both a product of one's past and present experiences. Due to this similarity, it is possible that there is a relationship between the way one learns and teaches.
This research investigated how teachers who were at a distance from campus learned new methods of teaching through self-instructional video packages. This study was part of a larger research project whereby Kelly (1985) looked at teacher learning via video, computer, and correspondence media packages. This thesis focuses on five case studies that comprised the video group.

This chapter is organized into seven parts. They are: research design, sample selection and description, instrumentation, treatment, assumptions and limitations, data collection procedures, and data analysis.

Research Design

The qualitative approach using descriptive case studies was chosen for a number of reasons. Qualitative research allows investigators to look in-depth at a small number of cases (Isaac and Michael, 1985). Due to the complexity of the research project and available funds, the project could incorporate only a small number of volunteer teachers into three media groups. This small number allowed researchers to: conduct interviews in a natural setting; consider the research participants'
feelings, ideas, and perspectives; and observe participants as they interacted with the environment (Jacob, 1988). This approach allowed the researchers to examine the experiences of these teachers from a holistic perspective utilizing first-hand, face to face data (Rist, 1977).

A second reason for selecting the qualitative approach was the lack of existing theory or research studies that could be used to design a more focused study (Fielding and Fielding, 1986). Research has not yet established the effectiveness of using media to teach individuals new methods of teaching. Also, it has not been concluded if teacher's learning style affects their ability to learn new methods or implement them in their classroom.

Researchers select to employ the case study approach when they have a large number of variables that they wish to collect data for with a small number of research participants (Fehrenbacher, Owens, & Haenn, 1976). The data is then organized into narratives for each individual.

Fehrenbacher et al. (1976) characterize a case study in terms of the following advantages. First, the use of a case study approach allows researchers to focus on the individual as the unit of analysis. As a result,
the individual and the program become the basis for evaluation. Secondly, the case study approach allows researcher to look at data collected from a relatively small number of individuals in a holistic way, which is an important characteristics of qualitative research. The researcher is not narrowly focused on a few variables, but collects descriptive information. As in this study data included participant's background, tests scores, self-reports, staff reports, student products, and evaluator observations were collected for analysis. Strength to each case is established as cross-validation of data is integrated into the descriptions. Thirdly, data is usually gathered as a result of predetermined questions, but an additional characteristic of the case study approach is the ability to be flexible when needed (Fehrenbacher et al., 1976).

Sample Selection and Description

In November, 1985, all southern Arizona junior and senior high home economics teachers (n=148), were invited to participate in the Inservice Distance Education Project (InDEP) project (Kelly, 1985; Paris, 1986). The purpose of this project was to experiment with delivering home economics inservice education to teachers at a distance from campus. Delivery of this
instruction took three different forms: correspondence, computer, and video. Thirty-one teachers expressed an interest in receiving additional information about the project. Due to limited funding, 24 of 31 volunteer teachers were purposely chosen to provide a representative sample of southern Arizona home economics teachers. Due to the complexity of the project, no alternates were selected. The original 24 were selection based on the following criteria. (1) The location of the school. Arizona population statistics were used to categorize rural versus urban schools. If the school was in a city of 10,000 people or more it was categorized as urban. If the school was in a city or town of less than 10,000 people it was categorized as rural. (2) Teacher stage of development. Research by Christensen, Burke, Fessler, and Hagstrom (1983) and Burden (1982) concluded that the stage teachers were in at the time of the inservice training would affect their learning. Due to this theory, research participants were selected for the project partially on the basis of their years of teaching experience. (3) Availability of media. Since it was essential for the participants to have access to media, information was collected on school or home availability of a half-inch video-cassette player (VCR) and/or an Apple computer. 4) Comfort with the media. Hall et al.
(1979) concluded that an individual's ability to adopt a new innovation was related to his/her comfort with how the new idea or practice was delivered to them. The Stages of Concern questionnaire measures an individual's concern for specific innovation into different stages of concern.

Using these four criteria, the 24 participants were placed randomly into the three media groups. Each media group began the research project with a representative sample of different selection criteria characteristics.

The attributes of project participants are described in Table 1. Since the computer and correspondence groups were part of the inservice distance education project but not directly part of this study, they will not be explained in-depth, only compared to when necessary. The characteristics of eight original members of the video group are presented in Table 2.

Assumptions and Limitations

The following assumptions were made by the researcher in this study. First, teachers who volunteered to take part in this research project were a representative sample of southern Arizona home economics teachers. Second, it was also assumed that the four
<table>
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<th>Stage of Development</th>
<th>Available Media</th>
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* S = School
** NA = Not applicable
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</table>
weeks of teaching methods reported by teachers were representative of their teaching style. Third, teachers recorded their use of teaching methods on the Daily Logs of Teaching Strategies. Therefore, the researcher assumed that teachers understood the names of the methods and marked only the methods they actually used.

There are limitations to case studies. The findings can only be generalized to the group studied. Theories can not be generated from these limited number of case studies, but these findings can generate trends and suggest ideas for future research studies.

Instrumentation

The SoC questionnaire, containing 35 items, measures an individual's concern for a specific innovation into seven different stages of concern. There are high and low divisions for each score that mean almost opposite concerns for innovation. This questionnaire was developed and validated by Hall, Loucks, Rutherford, and Newlove (1977). Extensive reliability tests have been conducted. Hall, George, and Rutherford (1979) reported that internal reliability of the instrument ranged from .64 to .83. Cunningham, Hillison, and Horne (1985) also used this questionnaire in their research concerning vocational educators use of competency-based instruction
and reported the internal reliability to range from .57 to .82.

The Teacher Career Stages (TCS) inventory was developed by Burden (1980). Through extensive interviewing of 15 career teachers, the author validated the existence of three teacher development stages - Stage 1: first year; Stage 2: second through fourth years; and Stage 3: fifth year and beyond.

The Kolb Learning Style Inventory is "one of the most well-developed approaches to learning styles, from both the theoretical and empirical perspectives" (Kendall and Sproles, 1986, p. 2). It has established reliability having been normed on over 1,446 adults between the ages of 18 and 60 (Learning Style Inventory, 1985). Reliability of the Learning Styles Inventory was established using the Cronbach standard alpha technique (n = 268). The reported the internal reliability ranged from .73 to .88 (Learning Style Inventory, 1985).

The 1985 revised Learning Style Inventory (LSI) is a 12 item, rank-ordered test designed to measure the degree to which individuals display the learning styles derived from experiential learning theory.

The Daily Log of Teaching Strategies (Appendix A) that teachers used to record the methods they employed for a cumulative total of two weeks in both 1986 and
The Daily Log of Teaching Strategies was researcher developed by Dr. Maureen Kelly and other University of Arizona faculty. Following the Weil and Joyce (1978) models of teaching typologies, the researchers divided the methods in this instrument into four groups.

Module pretest and post tests (Appendix B) consisted of multiple choice questions highlighting information presented in the module sections. Many of the questions were drawn from Weil and Joyce's (1978) original materials. Post test reliability scores for the three modules were computed using a split-half method. As shown in Table 3, the video score reliability ranged from .68 to .95.

Treatment

University researchers were very interested in finding out what information southern Arizona home economics teachers needed in terms of inservice education. In a 1985 study, they reported wanting a content update and methods of teaching update (Doiron, Kendall, and Kelly, 1985). Thus, researchers decided to focus on a methods of teaching update to help teachers teach a variety of content to a greater range of students.
<table>
<thead>
<tr>
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<td>5</td>
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<tr>
<td>Correspondence</td>
<td>3</td>
<td>.85</td>
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</table>
Before the treatment phase could begin, university researchers developed the self instructional learning packets from a concept called models of teaching. These models were developed by Marsha Weil and Bruce Joyce in a series of books called *Models of Teaching* (1978). *Models of Teaching* are thought of as families of models about teaching. The methods chosen from the models were: Module 1 -- Concept Attainment (Information Processing Model); Module 2 -- Simulation (Social Model); and Module 3 -- Synectics (Personal Model).

The three media groups (video, computer and correspondence) received the same content on three different teaching techniques. The information was delivered to participants in different ways according to the various media delivery groups. Study participants in the video group watched the instructor teaching the lesson to a group of classroom students. Viewers were in control of their learning environment with the ability to stop, start, and replay any portion of the instructional tape they desired. Computer learners read the information on the screen and replayed the disk when desired. The computer program allowed the student to branch and review the information if a question was answered incorrectly or proceed to the next section. The
correspondence materials were entirely in written format, also allowing the reader to reread when necessary.

Each module consisted of information broken into mini-sections presented through the appropriate media, supplemental written exercises, and review questions. Pretests and post tests accompanied each module, so gain scores could be calculated.

Data Collection Procedures
Spring 1986

University researchers visited each of the 24 project participants for approximately two hours. During the visit, the teacher was first observed teaching one class period, while the researcher followed an observation guide and then interviewed (Appendix C). In order to confirm teacher career stage selection criteria, the teacher was interviewed using the Burden interview instrument and asked selected questions related to the project. Each interview was tape recorded. Each participant completed a Kolb Learning Style Inventory. Following the interview each teacher kept a Daily Log of Teaching Strategies for the two weeks following the interview. Participants were not informed of the proposed relationship between the methods of instruction and individual learning styles.
Originally, each media group consisted of a representative sample of teachers by career stage, stage of concern about the innovation and locale. Prior to the delivery of the first treatment in September, 1986, seven teachers withdrew for the following reasons: illness (1), transfer (4), and lack of time to complete project requirements (2). Three of the teachers who withdrew were in the video group, thus, five remained, all of whom completed the project.

Fall 1986 - Spring 1987

Two group meetings were held during the treatment year of the research project. The first meeting was held September 20, 1986, in Tucson, Arizona. Sixteen project participants, including the entire video group (5), attended the all day inservice meeting. The agenda items for the inservice meeting were as follows:

Meeting Agenda

10:00 - 10:30 a.m.  - Registration
                     - Get acquainted
10:30 - noon a.m.   - Introduction to the Weil & Joyce models through video-tape presentation
                     - Overview of research project
                     - Explanation and results of Learning Style Inventory
1:00 - 3:30 p.m.    - Media groups meet separately and receive copies of Module 1
                     - Register for class credit
While participants were aware of their individual learning styles, no relationship was specified between it and any of the instructional modules.

The participants left the meeting with a copy of Module 1 (see Appendix D for Module 1 Table of Contents) and were instructed to complete the module by November 3, 1986. As research participants completed each module, they returned the required lesson plan and supporting instructional media package. The project director and research assistant critiqued the completed sample lesson plan and returned it with written comments. At least two exceptional lesson plans per module were selected from the total group and shared with each research participant when the critiqued lesson was returned. If the completed lesson plan did not satisfy the essential phases listed on the analysis guide, the research participant was asked to resubmit the assignment.

As researchers received the completed modules, the following module was sent out (see Appendix E for Module 2 -- Table of Contents and Appendix F for Module 3 -- Table of Contents). After participants successfully finished Module 3, they were asked to complete the final project evaluation form (Appendix G). Including, ranking the three modules in terms of their ease of learning and
comfort using. Throughout the project, written and ver-
bal correspondence were frequently sent to the partici-
pants in regard to feedback on submitted sample lessons,
new deadline dates, words of encouragement, and other
project business.

Deadline dates were established for the three
modules. Those project participants who had not finished
the work were sent a letter or called and encouraged to
complete the work over the summer.

Fall 1987

The second group meeting was held September 12,
1987, also in Tucson, Arizona. Ten project participants,
including four of the five video group participants,
attended the all day workshop. The agenda for the second
meeting was as follows:

Meeting Agenda

10:00 - 10:30 a.m.  - Registration
10:30 - 11:30 a.m.  - Review of Modules (short
teaching presentation by
module developers)
11:30 - Noon a.m.  - Project Update
1:00 - 1:40 p.m.    - Rotate between the three module
1:45 - 2:25 p.m.    stations: Concept Attainment,
2:30 - 3:10 p.m.    Simulation, and Synectics to
                   meet with developers and discuss
                   media group concerns
3:15 - 3:30 p.m.    - Group Closure

In order to test for stability of learning styles, the
Kolb Learning Style Inventory was re-administered before the participants reviewed the modules.

At the conclusion of the meeting, research participants, who had completed all three modules were encouraged to collect sample lesson plans submitted by various teachers. Also, participants were told to prepare for the final videotaped teaching assignment.

To complete the research project, project staff visited the participant in her classroom and videotaped her teaching one lesson using the model of her choice during the 1987-88 school year. The Weil and Joyce (1978) evaluation sheet appropriate for the method was used to evaluate and give feedback to each teacher. A final taped interview was also conducted either before and/or after the videotaped lesson, to obtain personal reflection about the learning process (Appendix H).

Data Analysis

The data collected over the past two years was drawn from numerous sources. What follows is a description of the data used to obtain profile information for each case study and answer each research question.

To develop each participant's profile, (1) teaching observations, (2) Arizona population statistics, and (3) information from the initial and final inter-
views, were used. In the latter case, the content analysis (Berelson, 1954) technique was used to obtain this data from the taped interviews and self-report written questionnaire.

Two major units of analysis were used: words and themes. Therefore, when specific words or themes repeatedly appeared, patterns were recognized and categorized accordingly.

The first research question was: How effective are video-assisted self-instructional packets for teaching instructors new teaching techniques? This question was answered by calculating changes in participant Stage of Concern scores, pretest and post test gain scores, content analysis of interview responses, evaluation of submitted sample lesson plans, and videotaped lesson.

The second research question was: How do teachers transfer knowledge of a particular method to use in their classroom? This question has two data sources (1) the final project evaluation sheet that was sent out upon completion of the three modules and (2) the final interview. From the Final Project Evaluation sheet, participants were to rank their responses to: (1) Which of the three models would you be most comfortable using?
And (2) Which of the three models was easiest for you to learn?

The final interview questions included: (1) Why did you choose the model to teach that you did? (2) How did you feel about this model before you taught it today? (3) Tell us about how you went from thinking about the model to using it in the classroom? (4) How do you feel about the other models? And (5) Having seen the videotape version of the module, has this affected or influenced your comfort with the model?

The final research question was: Are there possible relationships between learning and teaching style? This question also has two data sources -- Kolb's Learning Style Inventory, that was administered in 1986 and again in 1987, and the Teaching Strategies Log that teachers kept for two weeks during both 1986 and 1987. Using the factor analysis typology developed by Kelly (1988), each strategy that the teachers reported using and the number of times it was employed was categorized into one of four families of teaching models (Weil and Joyce, 1978). Participants use of strategies were totaled by families for each year and per-centages calculated.
Chapter 4

PRESENTATION AND INTERPRETATION OF DATA

This chapter focuses on the learning experiences of five home economics teachers placed in the video treatment group. Throughout this primarily qualitative study, data associated with each case will be presented and interpreted utilizing the case study format.

The purpose of this research study was to: (1) evaluate the effectiveness of video assisted self-instructional packets for teaching individuals new methods of instruction; (2) observe how teachers transfer concrete knowledge of a particular method to actual classroom use; and (3) explore the relationship between one's learning style and style of teaching.

Data collection over the past two years consisted of various sources. The following outline describes the data collected and the information source.

<table>
<thead>
<tr>
<th>Data</th>
<th>Information source</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Profile</td>
<td></td>
</tr>
<tr>
<td>A. Years and type of teaching experience</td>
<td>Initial interview</td>
</tr>
<tr>
<td>B. School and department description</td>
<td>AZ population statistics and interview</td>
</tr>
</tbody>
</table>
C. Personal reflection over career  
D. Family life  
E. Teaching observation  
F. Reasons for InDEP participation  

II. How effective are video-assisted self-instructional packets for teaching instructors new teaching techniques?  
A. Level of concern for video SoC scores  
B. Module gain scores Pretest and post test scores  
C. Evaluation of lesson plans Module assignment  

III. How do teachers transfer knowledge of a particular method to actual classroom use?  
A. Teacher stage of development Burden's stages of development  
B. Observation of videotaped lesson On-site visit  
C. Why did you choose the model you did? Interview  
D. How did you feel about this model before you taught it today? Interview
E. Tell us about how you went from thinking about the model to using it in the classroom? Interview

F. How do you feel about the other models? Interview

G. Having seen the videotaped version of the module, has this affected or influenced your comfort with it? Interview

IV. Does teacher learning style influence teaching style?

A. Participant learning style Kolb's learning style

B. Daily use of teaching methods Daily Log of Teaching Strategies

C. Which of the three models would you be most comfortable using? Evaluation questionnaire

D. Which of the three models was easiest for you to learn? Evaluation questionnaire

The five case studies are separately presented in numerical order. A brief personal profile provides a descriptive introduction each case study. This information is then followed by data relevant to each of the three research questions. To conclude each case study, an interpretative summary is given.
Case study - 111

Participant Profile

Participant 111 received her masters degree in 1983. Since that time she has taken additional course work at various universities. When our data collection began, 111 had just completed her twelfth year of teaching. During her career in the mid-west and southwest, she taught home economics at various junior and senior high schools.

111 has been employed in her current position for three years. While the school itself is located in a rural, agricultural area, the school district joins a rapidly growing urban area. Like others, she commutes to work each day from the urban area. Since 111 is the only home economics teacher in the junior high school, she was interested in this inservice opportunity for two reasons. She said, "... I've always had other teachers to work with, and that was a little difficult for me [adjusting to a one teacher department]. I felt like I needed some ideas as to what had gone on, what didn't work, and what worked well." Secondly, "I feel like I need some fresh ideas or some new ways of doing things."

When asked to reflect over her past teaching experiences, she said, "I think I'm a lot more comfortable with teaching." She described her style of
teaching as having changed to being less formal, less structured, and more flexible.

She was asked if things in her personal life influenced her career in any way, she said, "I'm sure they have, it's just hard to identify what. ... becoming a parent [of children junior high age and younger] has certainly improved my teaching."

At the time of the first school visit, we observed Ill's teaching and classroom management style. Ill was clearly focused, well organized and spent a high percentage of time on task. She gave clear directions and constantly obtained feedback from students.

During the final interview she said that she was "burned out". In addition to her home economics classes, the principal gave her at least one English class to teach this year. Ill found this new assignment demanded too much time in addition to her home economics class preparations. She stated that it took a great deal of extra time to plan the lessons and correct papers. Comparing Ill's 1986 presence to 1987's, she did seem tired and worn out.

When asked if she would like any further inservice information or training she said,

I'm going to go in some different direction, I think. I don't know if it's going to be
counseling or (pause). This has just been a really rough year for me and I don't even know if I really want to stay in teaching. So I'm kind of looking at other things, trying to see what else I can do besides this.

Ill completed all of the module assignments except for the videotaped lesson. The researchers received a letter explaining that she was going to quit the project due to lack of time. Through the efforts of this researcher, she was later convinced to stay in the project and finish the last assignment.

It was the interviewer's judgment that she looked and sounded tired during the final interview and videotaping. She later called the researchers and informed them that she and her husband were expecting a baby, much to their surprise. While this could have accounted for her tiredness, she did exhibit other signs of teacher burnout, such as low motivation to complete the project and little desire to develop new lessons.

The first research question to be answered in regard to Ill is: (1) How effective are video assisted self-instructional packets for teaching instructors new teaching techniques?

Both of Ill's SoC scores were a consistent Level 1. Referring to the Guidelines for Interpretation of the
SoC Questionnaire Data (1979), her highest score indicated she wanted more information about the innovation. Her second highest score also indicated she had personal concerns about videotape, but was not resistant to the innovation. This was evident by her household's purchase of a video recorder. Thus it could be concluded that she was comfortable with the media for entertainment purposes, but not totally comfortable with the media for educational purposes.

Looking at III's gain scores (Table 4) it was evident that she achieved her highest gain scores in the Simulation module. In the Synectics module, III scored 9 out of 10 on the post test. However the one question she answered incorrectly was missed by everyone. Moreover, she only missed one question on the Simulation (10 out of 11) and Concept Attainment (7 out of 8) post tests.

Judging by her scores on the post tests, it could be concluded that III knew the theory and rationale for each of the three teaching techniques, having to resubmit only the first of three final lesson plans. III originally submitted the Concept Attainment (Module 1) lesson plan in outline form. As a result, she was asked to expand her thoughts and write out a complete lesson plan. Although the researchers required participants to submit a complete lesson plan to verify that the student
Table 4
Video Group's Pretest and Post Test
Gain Scores

<table>
<thead>
<tr>
<th>I. D. #</th>
<th>Module 1 -- Concept Attainment</th>
<th>Module 2 -- Simulation</th>
<th>Module 3 -- Synectics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre Post Gain</td>
<td>Pre Post Gain</td>
<td>Pre Post Gain</td>
</tr>
<tr>
<td>111</td>
<td>5/8 7/8 +2</td>
<td>7/11 10/11 +3</td>
<td>8/10 9/10 +1</td>
</tr>
<tr>
<td>114</td>
<td>1/8 4/8 +3</td>
<td>7/11 6/11 -1</td>
<td>6/10 6/10 +0</td>
</tr>
<tr>
<td>132</td>
<td>3/8 8/8 +5</td>
<td>7/11 7/11 +0</td>
<td>8/10 9/10 +1</td>
</tr>
<tr>
<td>138</td>
<td>0/8 7/8 +7</td>
<td>7/11 6/11 -1</td>
<td>7/10 8/10 +1</td>
</tr>
<tr>
<td>301</td>
<td>3/8 5/8 +2</td>
<td>5/11 8/11 +3</td>
<td>8/10 9/10 +1</td>
</tr>
</tbody>
</table>
fully understood the method's essential steps and phases, it may have been that the format was not clear to participants. Specifically, Ill was very concerned that she did not submit a correct lesson plan the first time. With her resubmitted Concept Attainment lesson, Ill explained that what she originally submitted was her interpretation of the requirements. Her resubmitted lesson was written out and approved. Thus, the researchers concluded that Ill had acquired the key elements of the Concept Attainment method.

Ill was asked about her feelings towards learning through video. She said,

Video was probably the best group. It was really easy to do on your own time. To me that seems like probably the best way to teach, at a distance, because you can see it. ... I've said that I wanted some lesson plans [referring to what the university researchers could have done to make the project easier for her], but if I had to just read, I don't think I would have gotten as much out of it as seeing the demonstrations or seeing the lessons taught. I think that wouldn't be quite the same [reading it or doing the work on the computer]. ... just that visual contact, you know, it sounds corny but seeing you [university researchers] do it, was
almost like you were in there. It was like being a part of the real thing.

lll identified many of the advantages of video instruction, such as the ability to do the work at a convenient time and place, cited by Kelly, Paris, Sweedler, and Doiron (1985).

Torrence (1985) referred to the advantage of learning the information through more than one sense. This enables the instructors to motivate the learner. Moreover, video gave lll the feeling that the instructors were there with her.

In summary, it seems that lll successfully learned new methods of teaching through self-instructional video packets. She was able to learn at a time and place that was convenient to her. Also, she reported that the visual source motivated her to proceed through these modules.

Question: (2) How do teachers transfer knowledge of a teaching technique to using it in their classroom?

Since lll was in Burden's third stage of career development (1982), she is considered to be confident, mature and secure. This type of teacher recognizes student needs and desires and wishes to fulfill them. Burden noted that third stage teachers are confident in
their teaching, so they continually try new teaching methods. Since 111 was a third stage teacher, this could explain the reason that she expressed an interest in the project.

To refresh her method of teaching nutritious snacks, 111 chose to utilize the Concept Attainment model. For the videotaped class assignment, she used her resubmitted Concept Attainment lesson plan. Due to a communication error concerning the class period to be videotaped, the observation did not take place for the intended sixth grade class. Instead, 111 taught the lesson to her eighth grade class during the last class period of the day.

Using Weil and Joyce's (1978) analysis guide for Concept Attainment (Appendix I) it was observed that 111 exhibited the following behaviors during the videotaped lesson. (1) 111 referred to the lesson's concept in her introduction [which she should not have done]. As a result, few of the students grasped the concept at the beginning of the lesson. In her resubmitted lesson plan she had a correct introduction, meaning she did not state the concept in the introduction as she did during the videotaped lesson. (2) During the videotaped lesson, 111 missed an important step. She never had students fully state the lesson's concept. As a result, at least one
student orally stated that he was still confused at the end of the lesson. (3) As she taught, Ill did not present the information or proceed through the method's phases in order. This could have been due to the scheduling mix up, as in fact she had not planned on teaching this lesson to the eight grade class. Or, perhaps she taught the planned lesson in the same order as the previous one.

After the videotaped assignment, Ill was asked, "Why did you choose to utilize the Concept Attainment method?" She said, "It seemed the easiest. It was the easiest for me to understand and it just seemed like a graphic way to present information to students; especially younger kids. Besides, it [Concept Attainment] would probably be the method out of the three that I would most likely use again."

Ill's explanation of her experience with Concept Attainment did not align perfectly with her post test score. She did score higher on the Synectics module, which would lead one to believe that she found Synectics easier to learn.

When Ill was asked how she transferred the newly learned information to action she said,

Gosh, I don't know. I just kind of thought, what am I doing in my class? I just remember that I wanted
it [the submitted lesson plan] to be something that I could use. I didn't want it to be something that wouldn't be useful.

111 said the lesson plan needed to be one that she would use in the future. This may interpreted as demonstrating either her low motivation to implement this material into her teaching situation or the lack of available time for the project.

She was then asked if she used the analysis guide in planning or teaching the lesson and she said,

Yes, I'm sure I did. Because, I was looking at it again last night, I thought, well yes, this covers this, and this takes care of that. So, yes, I'm sure I did when I was writing the lesson plan up.

111 felt comfortable enough with her working knowledge of the method that she could proceed through the analysis guide and check her steps.

While 111 said that she would most likely use Concept Attainment again in her classroom, her feelings about Synectics and Simulation were not as favorable. Concerning the other two modules, 111 said,

Simulations I would use with upper level kids, high school, maybe eighth grade. But, it [Simulation] didn't really seem to apply as well to the younger kids. I don't know why, maybe it's because most of
them deal with handling money and budgeting and I don't think those kids do ....

Ill's response seems to indicate confusion and limited understanding of the Simulation method. This possibly could have been due to limited access to games, or her low motivation level to seek out possible learning activities. Similarly, Ill was not enthusiastic about Synectics fearing that the students would take the teacher or lesson seriously. Because of her personal situation, one might speculate that she had difficulty transferring the working knowledge of Concept Attainment to actual classroom use, as she was suffering from burnout and entering a stage of transition. Brundage and MacKeracher (1980) believed that a person's life stage could influence how and what they learned. She was anticipating a career change away from teaching, thus she did not see an immediate use for the information.

In summary, Ill's sample lesson plan indicated that she had a working knowledge of the method, but analysis of her videotaped lesson showed that when transferring the method into action she did not follow the exact progression of steps necessary to demonstrate mastery. Perhaps she did not understand how an effective Concept Attainment lesson depended upon progressing through the phases in an exact order or the transitional
state she was in influenced the time and attention she could devote to the project.

(3) Does teacher learning style influence one's style of teaching?

Ill's learning style in 1986 was an accommodator (Appendix J). In 1987 she extended her learning style in "doing" and "thinking" quadrants, thus creating a equal division between the accommodator and converger learning styles. This can occur since the scales are not perfectly negatively correlated. Over years these individuals have developed a learning style that relies on the second and third-order levels of learning. Kolb (1976) described these individuals as "mixed" types of people.

Ill's Daily Log of Teaching Strategies employed during the total of four weeks, two during 1986 and two during 1987 are listed in Table 5 and 6. The methods are divided into Weil and Joyce's four families of methods.

Data drawn from the Daily Log of Teaching Strategies shows that Ill clearly employed more Behavior Modification methods in both 1986 (60.6%) and in 1987 (44.0%) than any other family. She relied heavily upon demonstrations, question and answer methods, lectures, and supervised study all of which are Behavior Modifi-
<table>
<thead>
<tr>
<th>Week</th>
<th>Teaching Strategies</th>
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<tbody>
<tr>
<td></td>
<td>Social</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Wk-1</td>
<td>Laboratory (4)</td>
</tr>
<tr>
<td></td>
<td>Discussion class (4)</td>
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<td></td>
<td>Group work (2)</td>
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<tr>
<td></td>
<td>Discussion-class (5)</td>
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<tr>
<td></td>
<td>Laboratory (5)</td>
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<th></th>
<th>TOTALS</th>
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<tbody>
<tr>
<td></td>
<td>20</td>
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<tr>
<td></td>
<td>28.1%</td>
</tr>
<tr>
<td>Week</td>
<td>Social</td>
</tr>
<tr>
<td>-------------</td>
<td>--------</td>
</tr>
<tr>
<td>WK-1</td>
<td>Community-experience, research(1)</td>
</tr>
<tr>
<td></td>
<td>Discussion class(3)</td>
</tr>
<tr>
<td></td>
<td>Group work(5)</td>
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<td></td>
<td>Laboratory(4)</td>
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<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>WK-2</td>
<td>Community-research(1)</td>
</tr>
<tr>
<td></td>
<td>Discussion class(3)</td>
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<td></td>
<td>Group work(5)</td>
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<tr>
<td></td>
<td>Interview(1)</td>
</tr>
<tr>
<td></td>
<td>Laboratory(2)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>TOTALS</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>33.3%</td>
</tr>
</tbody>
</table>
cation methods. She also relied upon methods from the Social model (28.0% in 1986, 33.0% in 1987). Methods from the Social model that III reported mainly using were laboratory experiences, group work, and class discussion.

Both of these models provided students with the opportunity to learn from active, hands-on participation and individual or group processing situations. These methods did not require students to deal with abstract thoughts or reflective learning, methods characteristic of the Personal and Information Processing families.

From III's reported use of methods, one could conclude that her learning style influenced her teaching style for the following reasons. In 1986, III's responses on the Learning Style Inventory led her to be classified as an accommodator. Kolb (1976) described accommodators as being actively involved in leading and influencing others, committed to their work, and actively searching out opportunities.

In 1987, III's learning style changed, now classifying her as a converger. Kolb (1976) characterized this type of learner as one who works to find the best solution to problems, sets goals, and excels in decision making skills. Also, these methods require the instructor to plan and guide the learning situation.
This would coincide with 111'a observed learning pattern. She was concerned about submitting correct lesson plans and post tests on time. Concept Attainment allows for students to generate ideas about how specific the concept is structured and there definitely are right and wrong answers. On the opposite end, Synectics encourages more than one answer or way of thinking about something. Since Synectics utilizes ways of learning that are quite apart from her learning style, perhaps she could learn the method, but did not see it fitting into her teaching situation. This theory is supported by the fact that she did not report employing any Personal model methods during either of the two week data collection periods. Furthermore, when the researcher asked 111 about Synectics she replied,

Oh man! I think that they would just laugh me out of the room. Maybe with an extremely bright class or a real intelligent class.... Or, maybe high school level, perhaps, they would get into the creativity part of it and not be embarrassed. But, to me it just didn't seem like it would fit well with junior high at all.

Again, her response to using the Synectics method was in line with her teaching. She was viewed as a very organized and careful person. When she submitted her
first lesson plan from Module 1, she wanted to know specifically what to do to get the assignment "right". This way of thinking is opposite from the goals of Synectics, which are for the students to reach beyond the ordinary for creative responses. They are encouraged to keep generating new alternatives instead of settling on one answer.

Upon completion of the three modules, the research participants responded to a final project evaluation sheet. Ill ranked her feelings toward the module that she felt the most comfortable using and which was the easiest for her to learn (Table 7). Ill reported that she would feel the most comfortable using the Simulation module and was least comfortable with Concept Attainment. Yet for the videotaped assignment, she chose to use the Concept Attainment model.

Initially, Ill indicated that the Synectics module was the easiest to learn and that Concept Attainment was the hardest. Yet in her interview eight months later, Ill reported that Concept Attainment was easiest to understand. Her post test scores and her final interview agree that Synectics was the easiest for her to learn, but now she reported understanding Concept Attainment better. So it seems that Ill recognized the difference between the ease of learning something and the
Table 7
Participant's Ranking of Modules

<table>
<thead>
<tr>
<th>Module</th>
<th>Participant Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>111</td>
</tr>
</tbody>
</table>

**Easiest to Learn**

<table>
<thead>
<tr>
<th>Concept</th>
<th>Participant Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attainment</td>
<td>3</td>
</tr>
<tr>
<td>Simulation</td>
<td>2</td>
</tr>
<tr>
<td>Synectics</td>
<td>1</td>
</tr>
</tbody>
</table>

**Most Comfort Using**

<table>
<thead>
<tr>
<th>Concept</th>
<th>Participant Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attainment</td>
<td>3</td>
</tr>
<tr>
<td>Simulation</td>
<td>1</td>
</tr>
<tr>
<td>Synectics</td>
<td>2</td>
</tr>
</tbody>
</table>

Note. 1 = Easiest to learn or greatest comfort
2 = Middle
3 = Hardest to learn or least comfort
ability to transform the concepts and use them in a different context. Whereas she could see how Concept Attainment would apply to her teaching situation, she could not see how Synectics or Simulations would fit. Thus, she reported this method as the easiest for her to understand. On the other hand Synectics was the easiest model for her to learn, but she did not feel that it would be usable in her current situation, thus she did not choose to exert the mental effort to apply the method to her teaching situation.

Christensen, Burke, Fessler, and Hagstrom (1983) indicated an adult experiences the need to learn quickly and get on with their daily activities. Since 111 felt Concept Attainment was the only method that would fit into her current teaching situation, she did not seek to process the new information to the point where she could deliberately apply the method to a new situation. Although she had a working knowledge of the theory behind the method, 111 lacked the depth of understanding to apply this to her teaching. Similarly, since she felt that the other two methods did not fit into her style of teaching, she did not exert the effort to internalize these methods.

Apps (1985) concluded that an adult's learning process was influenced by many important forces. Bearing
this theory in mind, it is possible that 111's interest in acquiring new methods of instruction was affected by the psychological, biological, and sociological changes that were occurring in her life. Responsive to these forces, 111 was not in a position to exert the amount of effort needed to incorporate these methods into her repertoire.

Case Study - 114

Participant Profile

Participant 114 is the only home economics teacher at this small, rural junior and senior high school. She car pools with other teachers from a larger, yet rural city, 43 miles one way.

Participant 114 had taught junior and senior high home economics for over twelve years in the mid-west and in Arizona before taking a lengthy break. Two years before our project began, she had re-entered the teaching profession.

Researcher asked 114 to reflect on her re-entry into the profession, she said,

Last year was similar as I recall to my first year of teaching. And I had to do a lot of planning. I had to keep ahead of the students. I had a lot of struggling with the grades because as my husband
[who is in education] says, I expect too much from my students.

114 continued to explain how she has changed over the years,

As a person gets older they usually get more rigid. They're less apt to change. They can change more when they're younger. They're more flexible when they're younger than when they get older. ... as a teacher gets older they tend to be, ... less flexible ....

114 is very busy with her teaching career but she also has a very busy personal life. As she said, "I also have more obligations with my husband's position, and I haven't really had the time to do a lot of things that I would like to do." This was exemplified by her husband's call to the project director half way through the project. He explained to the director that his wife had too many things going on with his career, her teaching, and their home life. He said that she would not have the time to finish the last module. In the end, with the support and encouragement of staff, 114 finished the project but it may have influenced her learning.

She volunteered to take part in the InDEP project, "because I thought it would help me in my teaching," said 114. In her last interview she said,
"When you've taught for a while you need to go back to school and have things like this project because information on how to teach changes over the years."

The first research question to be answered in regard to 114 is: (1) How effective are video assisted self-instructional packets for teaching instructors new teaching techniques?

SoC scores for 114 moved from Level 0 in 1986 to Level 1 in 1987. Referring to the SoC manual (1979), one could assume she was a non-user who was just becoming aware of video and the innovation's capabilities. During the research project, she had to use videotape for instructional purposes. 114's SoC score in 1987 indicated she now wants to know more information about the innovation. The SoC's explanation for Level 1 individuals would seem logical due to her interaction with the instructional video materials. On the other hand the low level of comfort and knowledge of the media could have inhibited her from learning through videotape. Her post test scores were low (Table 4) for all of the modules and she had to resubmit two of the three sample lesson plans. At the end of the final interview she was asked what additional training she might like to receive from the university. She said she wanted content updates, but not
through distance education. She said, "actually being in class and doing it would be the best."

114’s made her most substantial gain (4 out of 8) in the Concept Attainment module. Concerning the other two modules, she either showed no gain (Synectics) or a negative score (Simulation) indicating no increase in recall knowledge. Her achievement was 6 out of 11 with the Simulation module and 6 out of 10 in the Synectics module. In addition, she was required to resubmit her Concept Attainment and Simulation lesson plans. After 114 received feedback from the university and sample lesson plans from other project members, she returned completed lesson plans for both modules. In terms of post test scores, researchers concluded that she did not learn any of the three methods.

"Did she feel video influenced her learning?"

She replied,

Yes, I deal better with seeing something and then doing it, than if you were just verbally telling me how to do it. I like demonstration teaching. I think the students here learn better through demonstration, seeing someone do something and then doing it.

114 demonstrated her preference to seeing something done and then modeling it. At the second InDEP workshop, a
Simulation game was played to refresh everyone's memory. 114 took the game back and played it with her class a couple of weeks after the workshop. She also modeled the idea behind the Synectics warm-up exercise presented at the Tucson workshop and used it in the observed lesson.

(2) How do teachers transfer knowledge of a teaching technique to actual classroom use?

Over her entire teaching career, 114 had accumulated enough years to be classified as a stage three teacher (Burden, 1982). Yet in many ways she was experiencing feelings of a stage two teacher, due to her long break in her teaching career. Burden (1982) describes a stage two teacher as in an adjustment phase. Stage two teachers spent a great deal of time planning and organizing. Since they have identified the variety of needs that exist in the classroom, they are busy trying to meet these needs. Teachers at this stage were reported to continually gain confidence as they gain experience in the classroom.

114 chose to use Synectics, "because I thought that I could cover the information that needed to be presented today for the lesson." Yet her objectives for the lesson did not seem to fit any of the three methods taught in this research project.
Using Weil and Joyce's (1978) analysis guide for Synectics (Appendix I), it was observed that 114 exhibited the following behaviors during the videotaped lesson. (1) From the beginning of the class period, researchers observed that she read the introduction and explanation of Synectics from her lesson plan. It was concluded that she was possibly nervous about being videotaped and having someone from the university in her room or she was uncomfortable with her new lesson. (2) During the videotaped lesson, 111 treated the method's first two phases (in opposite order than what the analysis guide requires) as separate exercises and did not connect the ideas generated in the first phase (Direct Analogies) to the second phase (Personal Analogies). (3) After she finished exploring direct analogies, 114 led the students into an exercise from an entirely different model. Students were to think of food examples that would be characteristic of a region in the United States and try to describe the structure of the idea of regional foods.

Upon reviewing her videotaped lesson, the researchers determined that she had used a combination of Synectics and Concept Attainment strategies. However, the high school students were observed as being unacquainted with either technique, as they were unsure
of terminology and procedures used in both methods. On the analysis guide for Synectics model, she thoroughly explored only one third of the procedures. When she was asked to identify which of the two Synectics model approaches she had used, "Making the Strange Familiar" or "Creating Something New," she was not sure.

Both approaches use metaphors and analogies. From her responses to the interview and written module summary sheets one could deduce that she understood the parts of the Synectics lesson, but could not see how the phases fit together into a distinguishable strategy. During the interview she described using personal and direct analogies separately as planned warm-up activities or spontaneously during a lesson. On her summary Synectics sheet she also wrote,

Most good, current teachers already incorporate its major aspects in their regular teaching. I do. The biggest benefit I see is that Synectics provides a more formal, organized, directed approach.

114 seems to realize that Synectics is a formal and organized approach, but she may not have wanted to put forth the effort to include the method's essential steps and phases or she may not have had the time to do so.

When she was asked how she transferred the concrete knowledge of the Synectics method to use in her
I connected it [Synectics approach] with the lesson they were discussing. I started with the stretching exercises. I thought I would have them start thinking about their feelings. For example, if they were a pitcher of ice water, slow cooker, ...

Thinking about the lesson, which dealt with food, I selected some props that would be related to cooking or food section, except for one. ... from that I thought how could I get them to think about the lesson which is regional foods of the U. S.. I thought of foods characteristic of the south, mid-west, southwest, ... .

She did not comment about use of the analysis guide or written materials, which might have explained why she did not know which Synectics approach she used or that she did not follow the correct progression of phases.

When the researchers asked her about her feelings toward the other two modules, 114 said,

Probably the ones that I would use the most would be this type of thing [Synectics]. I use Synectics spontaneously -- like how would you feel if you were in the place? The Synectics module and then I would probably use, and have used several times, different types of Simulations.
When 114 was asked about Concept Attainment, she hesitated for awhile and said, "I really didn't use that as I should".

A precious commodity that 114 desired to have more of was time. She explained,

... When you are teaching in a small school like this, I seem to be involved in everything. I really need to take more time to put something together, to actually do a good job with them. I think I probably spread myself too thin. With my job, and then have some other things that I do, it's just too much actually.

It seemed that 114 was under extreme pressure of trying to be the "ideal" wife that she was accustomed to being and was coping with the pressures of a beginning teacher.

Drawing upon the data from the videotaped lesson, it seemed evident that 114 only achieved low road transfer with the use of Synectics or Concept Attainment. 114 knew parts of each method, but could not see how the all of the different phases needed to be covered in order to put the method into effective action.

(3) Does teacher learning style influence one's style of teaching?

In 1986, 114's Learning Style was an
accommodator. In 1987, she extended her learning style in the "feeling" and "watching" quadrant, and reported relying less on "doing" and "thinking". 114's responses to the Learning Style Inventory indicated that she had changed to a Diverger in 1987 (Appendix J). Kolb (1976) described a Diverger as one who is sensitive to people's feelings and values, is open minded, listens well and is skilled at gathering information.

Data on 114's Daily Log of Teaching Strategies was collected for only one week in 1986 and two weeks in 1987. Tables 8 and 9 lists the methods 114 used into Weil and Joyce's four families of models of teaching (1978). 114's reported using an extensive number of teaching strategies on her daily logs.

Drawing upon data from the Daily Log of Teaching Strategies, 114 reported that she employed methods from the Social (33.3%), Information Processing (29.6%), and Behavior Modification (37.0%) in 1986. Methods in these families included field trips, laboratory, individual work, demonstrations, lectures, and teacher directed question and answer situations. In 1987, 114 reported using a high number of methods during the two week collection period. Percentages revealed that she drew more heavily upon Social (36.4%) and Information Processing (35.6%) methods, such as group discussions, solving
social/political and moral dilemmas, student reports and advanced organizers. In 1987, she did report using methods from all four families. Due to the high number of reported methods and her explanation of spontaneously using the Synectics method, researchers question that all of the reported methods were used correctly or to their fullest.

From the project's final self-report evaluation sheet, 114 ranked their feelings toward the three modules, in terms of comfort using and easiest to learn (Table 7). 114 reported that she would be most comfortable using the Simulation module and then Synectics. This would coincide with her interview, when she repeatedly said she wished we could have videotaped her class a couple days before or even last year when she used Simulation games in her classroom.

114 reported that Synectics was the easiest for her to learn followed by Simulation. She did not have her largest gain score in either module, but did achieve over 50% with each. She also did not have to resubmit the Synectics lesson plan, whereas she did with the other two modules.
Table 8
114's 1986 Self-report of used Teaching Strategies

<table>
<thead>
<tr>
<th>Week</th>
<th>Teaching Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Social Information Processing Personal Behavior Modification</td>
</tr>
<tr>
<td>Wk-1</td>
<td>Discussion class(2) Discovery(1) Individual</td>
</tr>
<tr>
<td></td>
<td>Discussion small group(1) reading(2) Individual</td>
</tr>
<tr>
<td></td>
<td>Field trip(1) writing(3)</td>
</tr>
<tr>
<td></td>
<td>Laboratory(5) Student reports(2)</td>
</tr>
<tr>
<td></td>
<td>Demonstration(2) Lecture or explanation(5) Question answer, oral-teacher directed(2) Supervised study(1)</td>
</tr>
<tr>
<td>Wk-2</td>
<td>No data</td>
</tr>
<tr>
<td>TOTAL</td>
<td>9 8 0 10</td>
</tr>
<tr>
<td></td>
<td>33.3% 29.6% 0% 37.0%</td>
</tr>
</tbody>
</table>

Note. Percentages do not equal 100 due to rounding.
### Table 9

**114's 1967 Self-report of used Teaching Strategies**

<table>
<thead>
<tr>
<th>Week</th>
<th>Social</th>
<th>Teaching Strategies</th>
<th>Information Processing</th>
<th>Personal</th>
<th>Behavior</th>
<th>Modification</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Community experience or research(1)</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(2)</td>
<td>(3)</td>
</tr>
<tr>
<td></td>
<td>Brainstorming(2)</td>
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<td>(2)</td>
<td>(2)</td>
<td>(2)</td>
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<tr>
<td></td>
<td>Concept At-tainment(3)</td>
<td>(3)</td>
<td>(3)</td>
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<tr>
<td></td>
<td>Debate(2)</td>
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<td></td>
<td>small Disavory(3)</td>
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<td></td>
<td>group(3) Formulating</td>
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<td>(3)</td>
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<td></td>
<td>Discussion symposium(2)</td>
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<tr>
<td></td>
<td>group(4) Formulating</td>
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<td></td>
<td>Discussion symposium(3)</td>
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<td></td>
<td>Games for problem solving(3)</td>
<td>(3)</td>
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<td></td>
<td>Group work(4)</td>
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<td></td>
<td>Individual Individual Individual Individual Individual</td>
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<td></td>
<td>Role playing(3) Inquiry Library Simulation(2) Work(2) Skills(2) Student Solving social/political dilemmas(3)</td>
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<tr>
<td></td>
<td>TOTAL 68 67 16 34</td>
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<tr>
<td></td>
<td>36.4% 35.8% 9.6% 6.2%</td>
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</table>
Contrasting 114's learning style to her style of teaching researchers have concluded that her teaching style was partially related to her learning style for the following reasons.

114's 1986 responses to the Learning Style Inventory led to her classification as an accommodator. Kolb (1984) described accommodators as individuals who preferred learning from doing things, carrying out tasks, and adapting oneself to changing circumstances. She partially demonstrated these learning preferences through her use of laboratories, but she relied more heavily upon individual work and sedentary, teacher directed methods. This might explain her learning style classification change in 1987 to a converger. Kolb (1976) describes convergers as individuals who practically apply ideas to real situations, working best when there is a single correct answer or solution, and preferring to deal with technical tasks rather than social or interpersonal issues. In some ways 114's choice of methods coincides with this learning style, yet in 1987 she reported using methods from the Personal family and discussing moral and social dilemmas.

In summary, given the data from 114's pretest and post tests as well as her lack of success in understanding and demonstrating Synectics, the researchers
concluded that she did not learn the methods. An alternate explanation may have been that she was just too busy to take on another project. Her personal life and career responsibilities may have interfered with her ability to learn or implement the methods in her teaching repertoire. 114 wrote at the bottom of her final project evaluation form, "It [the InDEP project] is very lengthy and time consuming. It is difficult for the practitioner to find the time to do full justice to the project."

114 supports Apps (1985) adult learning theory that there are many forces that influence how or what an adult learns. Psychological, historical and sociological forces influenced 114's orientation to her career role and her family position.

Case Study - 132

Participant profile

132 is the only home economics teacher in her rural, public school. The junior and senior high schools are located next to one another, enabling her to teach high school home economics courses in the morning and two junior high school courses in the afternoon.

When the project began in 1986, 132 had just finished thirteen years of teaching in Arizona home economics programs. While she does not have a master's
degree, she has accumulated over 30 graduate credit hours throughout the years.

Reflecting over her past teaching career, 132 said she now understands the student's feelings and concerns more. She feels she has grown more patient. 132 reported that she is continuing to restructure the content of each home economics course to include the growing number of male students. During the final interview, researchers observed that students felt very comfortable talking with and confiding in her. She is a personable, mature teacher who enjoys teaching.

132 is extremely busy with her family, friends, and volunteer responsibilities in her community. Moreover, her involvement in community activities creates opportunities for interaction between she and her students in a different context. These out of school contacts may be the reason for the respectful atmosphere that was evident in her classroom.

During both school visits, researchers observed 132's teaching and classroom management style as relaxed yet controlled. Students knew what was required of them, so they were all busy with their lessons. This style was also exhibited in her home where the researcher observed that things ran smoothly with everyone carrying out their chores or duties without direction.
132 reported that it was difficult to access new materials and lesson plans due to her rural locale. Thus, she enrolled in this project to gain new teaching methods, new ideas, and motivational techniques.

The first research question to be answered in regard to 132 is: (1) How effective are video assisted self-instructional packets for teaching instructors new teaching techniques?

In 1986, 132 scored a Level 1 on the Stage of Concern (SoC) questionnaire. Using Hall, George and Rutherford's (1979) Guidelines for Interpretation, her SoC score of 1 indicated that in 1986 she wanted more information about the videotape. In 1987, her SoC score was a Level 0. The interpretation guide described that this score meant she now felt comfortable with the media and was more concerned about other things than the media (Hall et al., 1979). In other words, one could say that she wanted more information about inservice education via videotape in 1986, but in 1987 she was a comfortable, experienced user. Thus, it can be assumed that the videotape media was not a factor in her learning process.

After reviewing 132's gain scores (Table 4) it is evident that she achieved her highest gain score in the Concept Attainment module. The Simulation module gain
score stayed the same with 7 out of 11 correct. She scored 8 out of 8 in the Concept Attainment module and 9 out of 10 in Synectics. The one Synectics post test question she incorrectly answered was missed by everyone. Judging from the post test scores, one could conclude that 132 successfully learned three models of teaching from video assisted, self-instructional packets.

132 had to resubmit only the Concept Attainment lesson plan. When she turned in the original lesson plan 132 wrote,

I felt this Concept Attainment model was a little confusing. Part of the problem might have been that I didn't have the time to spend on it that I would have liked. .... the whole concept was interesting and was a new way of relating to things.

In her original lesson plan she merely wrote ideas and student objectives. Researchers asked that she complete her thoughts and return the lesson plan with evidence of achieving each stated phase of the model. As a result, 132 expanded her thoughts and successfully demonstrated the use of Concept Attainment in a written lesson.

132's lesson plans indicated that she was able to learn the methods through video instruction. When 132 was asked if she felt seeing the videotape presentation
for each model influenced her actions or thinking in any way, she responded,

Well, I think that the instruction was much easier to understand. Seeing it .... That's one reason why I chose it, because it is really hard for me to read reams of papers and really concentrate on learning. It's something that is real easy to put off ....

The use of video was also important in her process of learning the Concept Attainment model. 132 explains,

I had a hard time relating Concept Attainment to what I was doing .... The presentation was just cut short so much for me to grasp it real well, I guess. So, I played that one about three or four times. I took notes. I stopped that video every two seconds, it seemed like and wrote down everything, because, you know, then when you went back to the post test, I had no idea of what was going on.

She reported using the analysis guides in the written, supplementary materials and the videotape. Hilliard (1985) claimed that most effective media courses included written and visual sources of information.

Thus, it can be concluded that 132 successfully acquired a working knowledge of the Concept Attainment,
Simulation, and Synectics models through the use of self-instructional video packages. Even though 132 felt she had no idea what was going on, her post test scores indicated that she knew the material. 132 claimed that in order to finish the Concept Attainment module she had to review portions of the videotape. The ability for the learner to control his or her learning situation is an important advantage of videotape (Schumacher, 1967).

(2) How do teachers transfer knowledge of a teaching technique to using it in their classroom?

Since 132 had a great deal of teaching experience, she was classified in Burden's third stage of career development as a mature teacher. According to Burden (1982), a stage three teacher is confident, mature and secure. They are reported to be perceptive to student's needs and seek to fulfill those needs. Burden reported that stage three teachers have an ongoing desire to learn new teaching methods. 132 said that was the reason she volunteered for the project.

132 selected to use the Synectics "Making the Strange Familiar" approach for the videotaped assignment. She used the method to introduce the serger sewing machine to her high school home economics class. When 132 was asked why she selected this method she said,
It was a strange piece of equipment to the students that I wanted to make familiar. Besides, I felt like I did the best job as far as a lesson plan was concerned. I knew that I was getting a new serger this year and the kids are not really familiar with it. Many of them I'm sure have never seen one. Since this is a new item in the department, it just hit me that this might be a good way to introduce it and kind of a fun way.

Thus, she taught the lesson she submitted for the class assignment.

On the day of the videotaping, 132 taught the same lesson in her second hour class and was videotaped third hour. Using Weil and Joyce's analysis guide for Synectics (Appendix I), 132 was noted in the classroom observation to have successfully covered all of the model's steps. Consistent with the steps outlined by Weil and Joyce (1978), it seemed to the observer that her students were at ease as they conceptually separated themselves from the topic of conversation and eventually made analogies of a tree and an air conditioner to the serger.

In the interview that followed the videotaped assignment, 132 said that this ease was due to her prior use of the recommended stretching exercises. For several
days before the videotaped lesson, she led her students through various short stretching exercises to introduce them to the direct, personal, and compressed conflict analogies. Once they were familiar with this creative approach, 132 used the method in its entirety.

When queried on how she went from learning the model to using it in the classroom, 132 responded,

I felt like the presentation of Synectics was fantastic .... It was a lot easier for me to understand what you were talking about .... I was trying to decide, now do I want to use the Creating Something New Strategy or learning something new [Make the Strange Familiar]? It just hit on me with the serger ..., so I have to familiarize them to it. So, then I just went down each step [on the planning guide] and I looked at the evaluation sheet [analysis guide] to see what was expected for the students to learn .... I tried to follow the steps and look at the evaluation to be sure I included what I should be including in it. Then the brochures on the serger gave me some real informative information to present in the beginning .... You know, once I got started on it [the lesson] I just really went to town on it. I don't know if you realized it or not, but I just felt like I had
a better lesson plan on it, than I did the other
two [Simulation or Concept Attainment] because it
just kind of was easier for me to do.

When asked how she felt about Simulation or Concept
Attainment, 132 said,

I wasn't really thrilled with my Simulation and I
really had a hard time understanding Concept
Attainment. It [Concept Attainment] never was real
clear to me, although I think, especially since we
did our little workshop up there [the 1987 Tucson
workshop] it was real clear to me .... I understood
it better when she [the Concept Attainment instruc-
tor] did it than when I saw her on video. For some
reason, that was not a clear lesson. I had a real
hard time with it. But, now I can see where the
Concept Attainment can be used. I especially think
with littler kids - the junior high kids for some
reason. I think that they would like it, it might
be a fun guessing game type thing.

132 needed to see the method presented again and take
part in it as a student, before it became clear enough
for her to think about implementing the method in her
classroom.

Concerning the 132's feelings toward the Simula-
tion model she said,
I didn't feel like the Simulation I used was all that great. I think that it would be fun to use, but I haven't found any Simulations yet that I would like. I think that it would be more fun for the middle school ....

Therefore, 132's limited access to Simulation games inhibited her use of the method.

To summarize the data from question 2, it seemed that 132 effectively processed the concepts embodied in achieving what Salomon and Perkins (1987) call high road transfer. Specifically, she demonstrated the ability to apply the newly acquired knowledge of a method to use in a different situation. The research project did not require participants to teach all three methods, thus it can not be concluded that she achieved this level of transfer with Concept Attainment or Simulation. However, her post test scores indicated that she possessed a working knowledge of the methods, so it may be that since she effectively integrate Synectics into her repertoire, she may be able to do the same with the other two methods.

(3) Does learning style influence one's style of teaching?

Both administrations of the Learning Style Inven-
tory led the researcher to conclude that 132 was a consistent accommodator. She said she preferred learning through "doing" and "feeling" (Appendix J). Table 10 and 11 lists the methods 132 reported using in 1986 and 1987. As discussed in Chapter 3, the methods listed on the Daily Log of Teaching Strategies were divided into Weil and Joyce's four families of teaching models.

Data drawn from the Daily Log of Teaching Strategies shows that 132 repeatedly used more Social teaching methods in 1986 (60%) and 1987 (42%) than from any other family. Based these on self-reported weekly logs, 132's 1986 teaching style could be described as one frequently drawing from Social methods (60%), while drawing occasionally from Information Processing (19%) and Behavior Modification (21%) methods. In 1987, 132 drew more frequently from Social (42%) and Behavior Modification (31%) methods, while occasionally drawing on Information Processing (19%) methods.

Contrasting her learning style to her style of teaching, one could conclude that 132's latter was influenced by the former for the following reasons. Her responses to the Learning Style Inventory led to her classification as a accommodator. Kolb (1984) describes accommodators as individuals who prefer learning from active experimentation and concrete experience.
Table 10
132's Self-reported of Teaching Strategies used in 1986

<table>
<thead>
<tr>
<th>Week</th>
<th>Teaching Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Social</td>
</tr>
<tr>
<td>Wk-1</td>
<td>Community experience or research (3)</td>
</tr>
<tr>
<td></td>
<td>Discussion class(1)</td>
</tr>
<tr>
<td>Wk-2</td>
<td>Discussion class(4)</td>
</tr>
<tr>
<td></td>
<td>Group work(2)</td>
</tr>
<tr>
<td></td>
<td>Role playing(1)</td>
</tr>
<tr>
<td>TOTALS</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>60%</td>
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Table 11
132's Self-reported of Teaching Strategies used in 1987

<table>
<thead>
<tr>
<th>Week</th>
<th>Teaching Strategies</th>
<th>Social</th>
<th>Information Processing</th>
<th>Personal</th>
<th>Behavior Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wk-1</td>
<td>Community-experience, research (1)</td>
<td>Individual reading (2)</td>
<td>Individual writing (2)</td>
<td>Demonstration (1)</td>
<td>Lecture or explanation (1)</td>
</tr>
<tr>
<td></td>
<td>Discussion class (1)</td>
<td></td>
<td></td>
<td></td>
<td>Supervised-study (5)</td>
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<tr>
<td></td>
<td>Discussion small group (2)</td>
<td></td>
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<td></td>
<td>Guest speaker (1)</td>
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<td>Field trip (1)</td>
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<td></td>
<td>Group work (2)</td>
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<td></td>
<td>Laboratory (3)</td>
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<tr>
<td></td>
<td>Simulation (1)</td>
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<td>Wk-2</td>
<td>Group work (2)</td>
<td>Individual writing (3)</td>
<td></td>
<td>Demonstration (4)</td>
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<tr>
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<td>Laboratory (2)</td>
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</tbody>
</table>

TOTALS  15    7   0   14

42%   19%  0%  39%
Their greatest strength lies in doing things, carrying out tasks, accomplishing things and adapting oneself to changing circumstances. Methods 132 used to accomplish these goals from the Social model included: laboratories, various types of discussions and group work opportunities. Methods from the Behavior Modification family that 132 relied heavily upon were lecture or explanation and supervised study.

Kolb (1984) described accommodators as people who relied upon other individuals for information. Thus, it is not surprising that 132 drew upon social methods including interviews, community experiences or research, field trips, and computer-assisted instruction activities as teaching strategies. These strategies involve sharing the expertise of others with the class.

Weil and Joyce (1978, p. 3) described the social models of teaching as those that emphasized how individuals relate and interact with society or other people. These methods focus on how students can improve the way they relate to others, and often use the democratic process to resolve issues. Other social teaching strategies include: solving social/political or moral dilemmas.

Remembering that 132 drew more frequently upon Social methods of teaching, one might find it interesting that 132
chose to use a strategy from the Personal model for the final videotape assignment. One characteristic of an accommodator is the desire to take risks and try new experiences (Kolb, 1984). However, she did not report using any methods from the Personal model in her daily log of teaching strategies. Possibly, 132 decided to take a risk and try using the Synectics method.

On the final project evaluation sheet, 132 ranked how comfortable she felt with the modules and which module was the easiest to learn (Table 7). 132 felt that she was the most comfortable with the Synectics model and had the easiest time learning the Simulation model. Concept Attainment was the hardest to learn and she still felt the least comfortable with it at the end. Her comfort with the method only increased after she participated in a lesson that used the method and spent some time discussing it with the instructor.

While she had high scores on the Concept Attainment and Synectics models, she ranked Concept Attainment as the hardest to learn and the one with which she was least comfortable with. This would indicate that knowledge level test scores such as the post tests in this study may not be a reliable indication for 132's feelings toward using or understanding the model.
In summary, there is a relationship between 132's learning style and style of teaching. Her learning style indicated that she was an accommodator, who prefers learning things through active involvement, yet adapting herself to changing circumstances. Having purchased new equipment, she saw an opportunity to use a new method, demonstrating her adaptability.

Case Study - 138

Participant Profile

At the beginning of this study, 138 was just starting her second year of teaching. After she and her husband raised their children, they both changed professions and pursued degrees in vocational education. Having already started his program, he encouraged her to pursue teaching as well. Their hopes were to someday teach in the same school. When she finished her degree, she was hired at the junior high where he was a teacher. Since she graduated, she has begun working on her master's degree.

Her current position is in a small, rural junior high that is located on an Indian reservation where she is the only home economics teacher in the department. While the school is over 30 miles one way from a large, metropolitan area, she and her husband commute each day.
As Burden's (1982) research documents, 138's main concern during her first year was discipline. She said, "In fact I worried so much about it that sometimes it overpowered other things and it shouldn't [have]. As I have come to realize during my second year of teaching, my discipline was better than what I thought it was."

From the first to the second year, 138 said she has experienced many changes in her teaching. "I've just learned to relax and as my husband always says, 'rely on your own expertise, quit trying to get up there and tell them everything. Learn from them.' I think that's important," said 138.

As she thought about personal changes that have occurred since she has grown older, she said,

I think and observe more than I've ever done before .... I've also learned to really listen. That's one skill that I've tried to develop, is to listen. I used to be the one who always had to do the talking.

After observing one of 138's classes, her teaching could be described as organized and focused. At the beginning of class, she wrote the day's procedures and objective(s) on the blackboard. 138 was very encouraging and positive with the students. It was observed that she has a very quiet and confident manner
with the students.

She volunteered to take part in the study because she wanted to learn new methods of teaching and in turn feel more confident about her performance.

How effective were video assisted self-instructional packets for teaching 138 new teaching techniques?

138's scored a Level 2 on the Stage of Concern questionnaire. In 1987, this score changed to Level 5. Referring to the manual for interpretation of the SoC questionnaire, Hall, George, and Rutherford (1979) claimed that a Level 2 individual possessed intense, personal concerns about the innovation. Yet this score does not mean that the individual was resistant to using the video, but rather that she may have had some anxiety about learning through videotape. After completing the three videotape modules, she scored a Level 5. Therefore, her score was interpreted as indicating that she was a positive user of the innovation. At the same time, the score also suggests that she may have concerns either about using it with students or other logistical issues about the innovation.

138's scores (Table 4) on the pretest and post test led the researcher to conclude that she made the most substantial gain with the Concept Attainment module,
as her recall knowledge increased to score 7 out of 8.
138's post test scores for Simulation showed a slight
decrease of one in total gain score of 6 of 11 correct.
Her Synectics gain score increased to 8 out of 10. While
the Simulation post test score might be interpreted as
indicating that she had some difficulty with the module,
her original lesson plan was accepted, indicating that
she was able to apply the principles to an actual lesson.
The Concept Attainment method was the only lesson plan
that she was instructed to resubmit. This may have been
due to unclear assignment directions. However, after
expanding her thoughts and viewing other participant's
examples, she resubmitted an excellent lesson plan using
the Concept Attainment method.

Concerning the use of video for learning new
methods of instruction, 138 said she enjoyed learning
through videotape because, "if you can do it, I can do
it! I mean I might not do as well, but at least I did
try it," said 138.

In summary, 138's post test scores were inter-
preted as indicating that she may have only had diffi-
culty with the Simulation module. Yet her submitted
lesson plans indicated that she had a working knowledge
of all three methods. In addition, the interpretation of
her SoC scores indicates that she is a positive user of video.

(2) How do teachers transfer knowledge of a teaching technique to using it in their classroom?

Since 138 was in Burden's second stage of career development (1982), she is described as one who is continually growing more confident and comfortable with teaching. However, stage two teachers are still not confident that they can handle any situation that might occur. Their major concerns lie in meeting the varied needs of their students. Accordingly, the second stage teacher begins seeking out new methods to meet students' perceived needs.

The day before we visited 138, she informed us that she would be using the Concept Attainment method in her lesson. Upon arriving at her school, she announced that her lesson plan had changed and we would now be taping a Simulation game. When asked why she switched at the last minute, she explained that the students had taken a big test yesterday and she wanted them to enjoy the day. But more importantly, she felt "you [university researchers] need to have more exposure of how students react [to new methods]." 138 continued to explain that she had this game in the back of her mind. While she
thought it would be easy for her to go through a Concept Attainment lesson, but chose not to use that method.

In 138's videotaped birthday party simulation researchers noted that she covered all of the steps on the Weil and Joyce (1978) Simulation Analysis Guide (Appendix I). To begin the class, she wrote the day's objectives on the board. She later stated in the interview that this is a standard procedure in her class and students expect to see daily objectives. Throughout the lesson, she acted as a coach, encouraging the youth to continue working in their committees preparing and organizing the decorations, games, refreshments and the gift presentation.

During the beginning of the debriefing phase, 138 had a difficult time getting students to talk specifically about their roles. Recognizing the students' hesitation, she started calling on them individually. While this step made the lesson more teacher directed than Weil and Joyce (1978) recommended, the students did open up and share important information concerning what they had learned.

After the class, 138 expressed extreme surprise and pleasure that her students had so much fun playing a simple birthday game. The students eagerly volunteered to take on responsibility, which 138 said was not their
typical action. She was also surprised at their responses in the debriefing phase.

When 138 was asked how she went from learning the method to actually using it, she said,

You mean actually writing it to actually inputting it into the classroom? Well, you have to recognize, ... they really make things harder than it really is. You have to simplify it. I've done Simulation games before. There's just something that all of a sudden it just rings a bell.

She continued to explain her feelings for the model:

I liked Simulation because, I know that we had it here at our inservice [the 1987 Tucson workshop]. It was just a neat experience because everybody was working together and that's the kind of Simulation that I like. Where everybody is actually doing something.

Concerning the Concept Attainment and Synectics, 138 said that she had prior contact "but not a lot of it," with Simulation and Concept Attainment methods in her undergraduate program. This could have aided in her desire to incorporate the methods into her teaching repertoire. However, she still described her hesitation in actually using them. "I think I worry too much about it [using the new Synectics method]. I found that it is
112
easier for me to include it and quit worrying about it."
138's interest and ability to try new methods of instruction to meet her student's needs is consistent with profiles of a teacher in Burden's second stage of career development.

To summarize, it seemed that 138 was able to successfully demonstrate use of the Simulation teaching method by simplifying the elements of method before developing the lesson. This is what Salomon and Perkins (1987) call high road transfer. Concerning Concept Attainment, her post test scores provided some documentation that she understood the method. She did report employing the model in her 1986 Daily Log of Teaching Strategies, but because researchers did not view the method in use, it can not be established if she successfully used the method and achieved high road transfer. At the time of the interview, she had not employed the Synectics method in her classroom though she did say that she planned to in the future.

(3) Does teacher learning style influence one's style of teaching?

In both years, 138's learning style was classified consistently as an assimilator. She preferred learning through "thinking" and "watching" situations.
In 1987, her scores indicated that her learning through watching increased dramatically. During the final interview, 138 even said that, "I'm watching a lot and listening to my students more than I did before. Which is better!"

Data drawn from the Daily Log of Teaching Strategies (Tables 12 and 13) show that 138 was one of the few teachers who consistently used methods from all four families. In 1986, she reported using the exact same percentage of Social and Information Processing methods. She most frequently relied upon laboratories, group work, discovery learning, concept attainment, and individual writing and reading. In 1987, she had a fairly even division between methods from the Social, Information Processing, and Behavior Modification groups. 138's ability and desire to use methods from three of the four families provided students with opportunity to learn from a variety of learning situations.

Contrasting her learning style to her style of teaching, one could conclude that 138's learning style only partially influenced her style of teaching for the following reasons.

Kolb (1976) described assimilators as individuals who are best at thinking competences that include:
Table 12

138's Self-report of Teaching Strategies used in 1986

<table>
<thead>
<tr>
<th>Week</th>
<th>Social</th>
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<th>Personal</th>
<th>Behavior Modification</th>
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<td></td>
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</tr>
<tr>
<td>Wk-1</td>
<td>Discussion class(1)</td>
<td>Advanced organizer(2)</td>
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<td>Demonstration(5)</td>
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<tr>
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<td>Group work(5)</td>
<td>Individual reading(1)</td>
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<td>Labora-</td>
<td>Inquiry- training(1)</td>
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</tr>
<tr>
<td>Wk-2</td>
<td>Discussion class(1)</td>
<td>Concept Attainment(5)</td>
<td>Values clarification(5)</td>
<td>Demonstration(1)</td>
</tr>
<tr>
<td></td>
<td>Group work(5)</td>
<td>Discovery(5) Individual writing(3)</td>
<td></td>
<td>Lecture or explanation(1)</td>
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<tr>
<td>TOTALS</td>
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<td>41.1%</td>
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<td>14.3%</td>
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Note. Percentages do not equal 100 due to rounding.
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<th>Week</th>
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<th>Personal</th>
<th>Behavior Modification</th>
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<tbody>
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<td>Discussion class(1)</td>
<td>Brainstorming(1)</td>
<td>Values clarification(4)</td>
<td>Demonstration(1)</td>
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<td>Games for drill, review(1)</td>
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<tr>
<td>Laboratory(1)</td>
<td>Individual reading(1)</td>
<td></td>
<td></td>
<td>Lecture or explanation(1)</td>
</tr>
<tr>
<td></td>
<td>Individual writing(1)</td>
<td></td>
<td></td>
<td>Question answer, oral-teacher directed(2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Question answer, written teacher directed(1)</td>
</tr>
<tr>
<td><strong>Wk-2</strong></td>
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<td>Discovery(1)</td>
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<td>Demonstration(2)</td>
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<td>Individual reading(1)</td>
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<td></td>
<td>Games for drill, review(1)</td>
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<td>Individual writing(3)</td>
<td></td>
<td></td>
<td>Lecture or explanation(1)</td>
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<tr>
<td>Skits(1)</td>
<td></td>
<td></td>
<td></td>
<td>Question answer, oral-teacher directed(2)</td>
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<td></td>
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<td></td>
<td>Question answer, written teacher directed(1)</td>
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<td></td>
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<td>Supervised study(2)</td>
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<th>4</th>
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<td></td>
<td>28.2%</td>
<td>23.1%</td>
<td>10.3%</td>
<td>38.5%</td>
</tr>
</tbody>
</table>

**Note.** Percentage does not equal 100 due to rounding.
inductive reasoning, organizing information, and designing experiments. Assimilators are described as being more concerned with abstraction than reality, hence they tend to be less people centered. In many ways this described 138, especially when she described breaking the methods down to simpler terms before planning her lessons. 138 most differs from assimilators in that she is very people centered. She really listens and watches what people do and say.

138 ranked her feelings toward the comfort and the ease of learning she experienced with the three modules (Table 7). She responded that she felt the most comfortable using the Simulation module, followed by Concept Attainment. Her responses are in accordance with her choice of methods for the videotaped lesson. She chose to use the Simulation method at the last minute, but had originally chosen a Concept Attainment lesson. The Concept Attainment method clearly requires the learner to use thinking strategies. This use of thinking competences in the learning situation describes how assimilators prefer to learn. In this regard, 138's learning style could have influenced her style of teaching.

138 reported that Simulation was the easiest module for her to learn. However, looking at her final
post test scores, she did least well on this method. On the other hand, she indicated that Concept Attainment was the hardest for her to learn. Considering 138's prior exposure to the method and her learning style, this was surprising. Concept Attainment requires one to think about their learning process, which is one characteristic that describes how assimilators prefer to learn. An explanation of her learning difficulty could be attributed to her comfort with the medium. While her SoC score described in question 1 seemed to indicate that video did not affect her post test scores, it could have influenced her learning process on the first module when she was getting used to the medium.

In summary, researchers concluded that there was a relationship between 138's learning style and her style of teaching. 138 reported liking the method, however the media may have influenced her process of learning the first module (Concept Attainment).

Case Study - 301

Participant Profile

301 ran her own business, worked in various other jobs, started a family and then decided to pursue a home economics education degree at the university.

At the beginning of our study, she was starting
her second semester of teaching in a urban school dis-

301 had taught her first semester in a different
school with previously established lesson plans and
activities. As a result of this move, she reported
teaching new content areas. 301 was the
only home economics teacher in her urban, junior high
school. A high percentage (about 95%) of the students
were Hispanic. When 301 was asked to reflect over her
past few months she said,

At times I'm feeling I'm not as well organized as
I'd like to be but I'm still living on systems of
management. I see progress so I keep my chin up
about all that. I see discipline as an area that
I need to work on with students.... At times I do
feel that students are at a disadvantage having me
my first year, but I plan to be much better by the
time I've taught for a couple of years.

She continued to describe personal changes that occurred,

Over the past few years, going back to college and
getting this degree, it seems like I had more
patience with myself, [am] kinder to myself, [and]
less critical, realizing the growth that I'm making,
that I'm not perfect.

During the observation period, 301's teaching
could be described as very organized and well timed. She
was keenly aware of classroom activities, gave clear directions, and calmly controlled over the class.

When 301 was asked if any activities outside of school influenced her teaching she said,

I've worked as a parent volunteer [in her child's classroom] in elementary school. That's influenced my teaching. ... I guess as a parent, being able to watch within a close relationship what positive reinforcement can do for a relationship and for behavioral changes. I've seen that happen a lot with my [child] now, and I'm thinking I've got to use a lot more of that in my classroom too. Positive reinforcement rather than all this negative consequences of your actions. So that's important.

301 reported she undertook this project because she wanted to find different sources of inservice education. She said,

I think that I will learn from other people I will interact with as far as teaching experiences go. I think I might be able to learn some new methods of teaching through this.

(1) How effective are video assisted self-instructional packets for teaching instructors new teaching techniques?
In 1986, 301's Stage of Concern score was a Level 5. Hall, George, and Rutherford (1979) described that Level 5 individuals do not necessarily have concerns about the innovation, rather they have concerns about looking for ideas from others. 301's low concern about video was evident by her recent purchase of a VCR and her reported excitement about being placed in the video group. As previously stated, her SoC score indicated a concern and desire to learn what other teachers were doing in their classroom. She referred to this desire during the initial interview for the project. In addition, Burden's (1982) explanation of a first year teacher concerns coincides with her SoC score. At the end of the project, her experience and confidence as a teacher and user of video for instructional purposes increased. These experiences could explain why her SoC score changed to a Level 0 in 1987. The interpretation of this SoC score is that of an experienced user who is more concerned about things other than the innovation.

301's module gain scores indicated that she increased her recall knowledge in all three modules (Table 4). 301 was the only participant in the video group to have all three modules accepted the first time. This could have been due to the fact that she had recently graduated from the university and had a clearer
idea of what the researchers expected in a lesson plan. Her greatest increase of 3 points resulting in a post test score of 8 out of 11 was in the Simulation module and her lowest gain score was 5 out of 8 in Concept Attainment. Even though her gain scores were modest, she demonstrated that she could create a lesson plan applying each of the three methods to her teaching.

When 301 was asked about her feelings toward learning the information through videotape she said,

I think the video helped. There's nothing like seeing it (the methods) as examples. I don't know how people felt about reading it.

301 stated that her preferred manner of learning new methods of instruction was to view the methods in use before employing them in the classroom.

In conclusion, 301's post test scores and sample lesson plans provided documentation that she was successful in learning three new teaching methods from self-instructional video packets. Her SoC scores lent support that she had little or no concern about learning from the media. She reported that she preferred viewing the methods in use before employing them in her classroom.

(2) How do teachers transfer knowledge of a teaching technique to using it in their classroom?
During 1986, 301 completed her first year of teaching at a urban junior high school. Burden (1982) describes that a first year teacher exists in a survival stage. Beginning teachers are concerned with maintaining classroom control, daily record keeping and mastering content. They are limited in their knowledge and exposure to various teaching methods and learning environments. From Burden's characteristic description, researchers concluded that 301 was different from the "typical" first year teacher. She enrolled in this project to learn and implement new methods of teaching into her classroom. Her maturity, prior experiences in the education field and genuine ability could have been the factors that resulted in her not fitting perfectly into Burden's first stage of teacher career development.

The second year of the project 301 entered Burden's (1982) Stage 2. This stage is characterized as an adjustment stage. Teachers are more self-confident. They gain insight into the complex needs of students and usually are more willing to try new teaching methods.

301 selected the Concept Attainment method for her videotaped lesson. Students formed their ideas around the concept of food safety.

Although she thoroughly covered each step of the Weil and Joyce (1978) Concept Attainment Analysis Guide
(Appendix I), 301 may have been spent too much time trying to get the students to form the concept. This left little time for students to test their concept against the the new examples. Also, students had little time to generate new examples that fit the concept. This phase helps students to identify and affirm their individual thinking process. During the last phase (Analysis of Thinking Strategies), 301 asked students some very thought provoking questions. They were asked to think about their learning process and describe how they developed the concept in their mind.

Since this was the first time her students were exposed to this teaching method, the whole idea of "forming a concept" appeared to be somewhat difficult for this junior high school group.

For example, when one student was asked about his feelings towards this approach of learning, he said, "I don't like it, because I don't get it." The Concept Attainment method requires students to think about their learning process and in their own mind test the different thoughts to the new concept. Other students remarked that they liked it because they could talk more than usual.

When 301 was asked why she choose the Concept Attainment model she responded,
Because I was scared of it. It was so different from the way I would normally teach. A professor that I had said, "You never know your true sorrow unless you take a risk. You have to risk things to find out what they are all about."

One of 301's educational philosophies that she shared with us during the initial interview was that education needs to teach people how to learn. With this in mind, it is not surprising that she chose to use the Concept Attainment method in her classroom. In addition, her philosophy on trying new methods and teaching exemplifies 301's confidence and maturity as an individual.

When 301 was asked how she felt about the model before teaching it she said,

From the beginning, I thought that it [Concept Attainment] was the hardest method to grasp, because it made my mind work backwards from the way my mind likes to work. I saw potential for the method because that whole idea that people learn in different ways [came through to me]. I thought maybe this was a better way for some of those people [students] that I don't usually hit. I thought this might help them.

Through Concept Attainment, 301 was able to further identify her learning style and the idea that her students
may learn through a different style than she does.

To further investigate how 301 learns, researchers asked her to describe the process she went through to transfer knowledge of a method into action. She said,

I had to take it apart in pieces. If you had not given us the analysis guide sheet, I don't think I could have put together a lesson plan from this. I pieced together a lesson.

Having used Concept Attainment with her class, 301 was asked to describe her feelings towards Simulation and Synectics?

I love Synectics! I don't have the Synectics method developed to the point where I'm a pro at it by any means. But, pieces of it are wonderful. In fact I will be teaching creativity in Social Studies, so I want to do a Synectics lesson with that. Concerning Simulations, I like Simulations. I feel like I used pieces of Simulation all of the time. But I don't have a full blown Simulation going on in anything.

In summary, 301 thoroughly demonstrated that she knew and could use the Concept Attainment method. Her lesson plan and choice of teaching method was appropriate for the day's objectives. She transferred the knowledge to classroom use through the aid of the step-by-step
analysis guide and the information on the videotape. Her stage of career development (Burden, 1982) did not prohibit her ability to acquire knowledge of Simulation or Synectics; nor her ability to implement Concept Attainment method in her classroom. However, it is speculated that the new challenges, timely job-related demands, and personal pressures of a first year teacher may have influenced her post test scores.

(3) Does learning style influence one's style of teaching?

With respect to learning style, 132 is a consistent accommodator. As she said, "When you are fresh out of the university and start teaching you rely more heavily on doing." Her 1986 Learning Style Inventory reflects this orientation to learning. In 1987 she extended her learning style in the feeling and thinking quadrants. As a result of teaching for a year, she may be more inclined to think about what she's done and learn from her feelings.

Data drawn from the Daily Log of Teaching Strategies (Tables 14 and 15) shows that 301 clearly employed more Social methods of teaching in 1986 (57.1%) than from any other family. In 1987, she drew a majority of methods from three of the four models - Social (40%),
Behavior Modification (24%), and Information Processing (32%). She also reported adding the Concept Attainment and Synectics methods to her teaching repertoire in 1987.

During the observations, researchers noted that she was an effective teacher. She used a variety of learning opportunities in each class period. She is an instructor for junior high age youth which encourages one to use a variety of methods. With this in mind, the researcher questions if 301 reported all of the methods that she used.

From 301's reported use of methods and learning style, the researcher concluded that during her first year of teaching her developmental stage was the influential factor in her learning. Her responses to the SoC questionnaire would imply that she had concerns about learning ideas from others (Hall et al., 1979). She reported being concerned with discipline and the time commitment to record keeping, which Burden (1983) described are are primary concerns for Stage 1 teachers. After analyzing of her lesson plans, researcher would have predicted that she would have scored higher on the post tests. This also could have been due to
**Table 14**

301's Self-report of Teaching Strategies used in 1986

<table>
<thead>
<tr>
<th>Week</th>
<th>Teaching Strategies</th>
<th>Social</th>
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<th>Personal</th>
<th>Behavior Modification</th>
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<td>2</td>
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<tr>
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<td>Brainstorming (1)</td>
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<td>Group work (1)</td>
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<td></td>
<td>Solving social/political dilemmas (1)</td>
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TOTALS 57.1% 14.3% 0% 28.6%
### Table 15

301's Self-report of Teaching Strategies used in 1987

<table>
<thead>
<tr>
<th>Week</th>
<th>Social</th>
<th>Information Processing</th>
<th>Personal</th>
<th>Behavior Modification</th>
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<td>Discussion class(1)</td>
<td>Brainstorming(1)</td>
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<td>Demonstration(1)</td>
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<td></td>
<td>Group work(1)</td>
<td>Discover(1)</td>
<td></td>
<td>Lecture or explanation(1)</td>
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<td></td>
<td>Laboratory(2)</td>
<td>Games for problem solving(1)</td>
<td></td>
<td>Question answer, oral teacher directed(1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Library work(1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wk-2</td>
<td>Discussion class(1)</td>
<td>Advance organizer(2)</td>
<td>Synectics(1)</td>
<td>Demonstration(1)</td>
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<td></td>
<td>Group work(2)</td>
<td>Brainstorming(1)</td>
<td></td>
<td>Question answer, oral teacher directed(1)</td>
</tr>
<tr>
<td></td>
<td>Laboratory(1)</td>
<td>Concept</td>
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<tr>
<td></td>
<td>Role Playing(1)</td>
<td>Attainment(1)</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>TOTAL</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>40.0%</td>
<td>32.0%</td>
<td>4.0%</td>
<td>24.0%</td>
</tr>
</tbody>
</table>
time available to answer specific questions. Having survived her first year of teaching and progressed to Stage 2, it seems that her learning style influenced her style of teaching.

Burden (1982) described a Stage 2 teacher as more relaxed and confident about trying new methods. 301's responses to the Learning Style Inventory indicated that she was a consistent accommodator. Kolb (1976) describes accommodators as being actively involved in leading and influencing others, committed to their work, and actively searching out new opportunities. Also, she recognized that students have different learning styles and thus incorporated methods from different families. During the final interview, 301 commented that she kept a copy of the Daily Log of Teaching Strategies to remind herself of the different teaching strategies that she could use in her classroom.

Accommodators (Kolb, 1976) are also risk takers and easily adapt to changing circumstances. 301 demonstrated that she takes risks and employs new methods and learning activities in her classroom.

In the project's final evaluation sheet, 301 ranked being the most comfortable and having the easiest experience learning the Synectics module (Table 7). However, she did have her highest gain score on this
module. Since she felt most comfortable with Synectics, it is not surprising that she reported including this method in her 1987 teaching repertoire in 1987. 301 reported that Concept Attainment method was the hardest to learn, yet she felt more comfortable with Concept Attainment than Simulation.

In summary, researchers speculate there is a relationship between 301's learning and her style of teaching. As an accommodator, who prefers learning things through active experimentation, yet she adapts well to changing circumstances. She adapted her style of teaching to a new method because it scared her and she wanted to personally stretch her abilities to incorporate Concept Attainment into her teaching repertoire. In a sense, 301 conveyed her learning style to the class when she introduced the Concept Attainment lesson. She said, "Today we're going to play a game -- What is the idea? You will be going backwards from the way you usually think."

301's stage of career development was not a influencing factor in her perceived ability to learn and implement new methods into her classroom, as Burden (1982) had suggested that it would be. Her experience life experiences and maturity could have been most power-
ful forces for this participant. This also supports the Apps (1985) theory that says adults have many influential forces that affect how and what they learn.
Chapter 5

SUMMARY, CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

The purpose of this research study was to investigate how teachers who were at a distance from campus learned new methods of teaching through self-instructional video packages. The three research questions explored in this study were:

1. How effective were video assisted self-instructional packets for teaching individual learners new methods of instruction?
2. How do teachers transfer knowledge of a particular method to actual classroom use?
3. Is there a relationship between one's learning style and style of teaching?

Summary and Conclusion

A summary and conclusion of findings is presented according to the three research questions.

1. How effective were video assisted self-instructional packets for teaching individual learners new methods of instruction?

At the end of 1987 Spring semester, the video group was the only media group that had completely finished all three instructional modules by the deadline
date. When the five teachers were asked why they finished on time, they all indicated that it was because they had made a commitment to finish the project and they thought they it had be complete by the end of the semester. Review of instructional videotape literature suggests that this medium allows the instructor to present only the essential information, thus reducing the learner's and instructor's time (Cartwright, 1986). One teacher reported that she felt like the instructor was there with her, supporting her through the learning process. This is another important advantage with instructional videotape that might have contributed to the video's timely completion of the InDEP project (Torrence, 1985).

Four of the five participants' post test scores for the three modules indicated that they attained the theory and terminology undergirding the methods. The teacher whose scores indicated that she was not successful in learning through videotape reported a shortage of available time to devote to the project. In addition, her SoC scores led the researchers to believe that she was apprehensive about learning from the media, which may have blocked the learning process (Hall, George, and Rutherford, 1979). Three of the teachers reported that seeing the university instructor
describe and demonstrate the method usually aided in their ability to use the method.

(2) How do teachers transfer knowledge of a particular method to actual classroom use?

Three of the five teachers were successful in demonstrating the use of a new method of instruction. There are several possible explanations why the two remaining teachers were not able to employ one of the three methods into their teaching.

One is the lack of time. Both of the teachers who did not demonstrate the proper use of the method reported a deep concern for time as a result of powerful forces from their personal life or new added career responsibilities that demanded so much of their available time. This supports Christensen, Burke, Fessler and Hagstrom's theory (1983), that adults have a limited amount of time to devote to learning, thus they must learn efficiently.

The second is the use of support materials. Data from three of the five interviews indicated that before implementing the new method in their classroom, teachers relied upon the visual and written information sources to create a lesson plan and review their steps. In contrast, the teachers who did not make reference to the
analysis guide did not demonstrate that they knew or understood the method. This supports Hilliard's (1985) claim that effective adult education courses should include written and visual sources of information.

The third is the issue of comfort in using a new method. Interview data distinguishes that there is a difference between ease at which someone learned a new method or one's comfort with the method. Just because something may be easy to learn, does not necessarily mean that one is comfortable using the new material.

Fourth, it was concluded that there is a difference between one's ability to learn a new teaching method and the ability to understand it. One teacher reported that Synectics was easiest to learn, but Concept Attainment was the easiest to understand. She later noted that she did not see herself using the Synectics method in her current teaching position, thus she did not internalize the method to the point that she truly understood it.

(3) Is there a relationship between one's learning style and style of teaching?

Data drawn from the five case studies indicated that for three of the five teachers their learning style did affect their style of teaching. There are several
possible explanations and observations in support of this conclusion.

In this study an attempt was made to teach instructors three new methods of instruction, each from a different model (Weil and Joyce, 1978). Only the three teachers with consistent learning styles were able to demonstrate high road transfer of a new method in their teaching. It could be assumed that as long as one understands how they learn they can implement new methods into their style of teaching. For example, each of the three teachers were able to describe in detail how they broke the new method down and referred to the analysis guide, enabling them to transfer the knowledge to actual use in their classroom. In contrast, the other two teachers whose learning style was not consistent, could not verbalize exactly how they went about applying the information, resulting in low road transfer (Salomon and Perkins, 1987).

After reviewing the Daily Log of Teaching Strategies and the Kolb's Learning Style Inventory results, researchers noticed that two of the three individuals with consistent learning styles were accommodators. In 1986 while the teachers were receiving instruction, these two individuals reported using a majority (almost 60%) of their methods from the Social
model of teaching (Weil and Joyce, 1978). After completing the module work in 1987, they reported drawing upon methods from three of the four families of models. Possible explanations for this could be that: (1) the 1987 two week report was more reflective of their style of teaching, or (2) the teachers are now more aware of the concept of learning styles and have worked to incorporate methods that hopefully will reach a greater percentage of their students.

Without knowing which method was characteristic of their preferred learning style, three teachers stated specific reasons for selection of a particular method for the videotaped assignment. They reported either employing a method that was different from their learning style because it scared them or because they wanted the observation to be focused on the student interaction. Therefore, it was concluded that teachers who have consistent learning styles may be secure enough in how they learn that they are able to incorporate methods that are apart from their own preferred style of teaching when the situation warrants.

Since the remaining teachers did not demonstrate a working knowledge of a method in the classroom due to conflicting forces in their personal lives, it was concluded that their learning style did not influence
their style of teaching. Apps (1985) adult learning theory explains how these powerful forces can influence one's learning process.

People approach change in many different way. For those whose who do not welcome it, it can be a time of added stress and anxiety. Possibly with the stresses in their lives it was impossible for these two teachers to employ methods that were different from their comfortable style of teaching.

Implications

Based on the findings of this study, the investigator was able to formulate the following implications. The findings of this research study lend support for:

1. using video when trying to teach individuals who are at a distance from the university new methods of instruction.

2. providing supplementary written materials to support teachers learning via videotape.

3. supports the findings of Showers, Joyce, and Bennett (1987) that requiring teachers to practice and receive feedback on the new teaching method to increases their comfort with the method and the ability to incorporate it into their teaching repertoire.
(4) supporting Hall, Loucks, Rutherford, and Newlove (1977) idea that an individual's apprehension toward an innovation can inhibit the ability to learn new information.

(5) supporting Burden's theory (1982) that teacher's stage of development changes as they attain more experience and confidence in the classroom.

(6) supporting the idea that teachers often confuse or do not realize that methods are designed to be used in their entirety. This results in teachers reporting the use of a method, but in reality they have only employed parts or phases of the method.

Recommendations

This section will discuss suggestions for replication of this study and areas for further research.

Should this study be replicated, the following recommendations are made.

(1) The importance of video modeling was established as the study progressed. If this study were to be replicated, investigator should review literature on the affects of video modeling.

(2) Teachers were required to record their use of methods on the Daily Log of Teaching Strategies. If the inventory sheet is to be used again, it is recommended
that the participants be given a list of working definitions for each method to clarify the meaning of each teaching strategy.

(3) This study could be replicated with a larger sample of teachers in home economics and/or other subject matter areas.

(4) This study could also be replicated in another geographical area. The data could then be compared to the information collected in this study.

Areas for Further Study

Areas for further study include:

(1) All participants in the research project could receive information on new teaching methods through each medium instead of being placed in one media group for the entire project. This would allow researchers to investigate in two areas. (a) As a result of each media possessing unique attributes, one could explore how each media delivered the information. (b) As a result of individuals possessing unique learning styles and comfort or concern for the media, one could explore how each individual received the information.

(2) The instructional packages could be designed for each of the four learning styles. This could allow the researcher to either match the individual's learning
style or provide information different from the preferred learning style.

(3) Teachers often do not realize that methods are designed to be used in their entirety and when they use only a part of a method, they are not correctly employing the method in their classroom. One area of research might be to investigate why teachers only use parts of methods, instead of using them in their entirety.

(4) Due to the enormous demand of researcher time and money, investigators should look for pre-developed materials and use them if they are available.
APPENDIX A: DAILY LOG OF TEACHING STRATEGIES
DAILY LOG OF TEACHING STRATEGIES

At the end of each day, mark (X) the teaching strategies *you* used in the classes you taught.

<table>
<thead>
<tr>
<th>Teaching Strategy</th>
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<th>Th</th>
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<tr>
<td>Advance organizer</td>
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<tr>
<td>Brainstorming</td>
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<tr>
<td>Community experience or research</td>
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<td>Computer-assisted instruction</td>
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<td>Concept attainment</td>
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<td>Debate</td>
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<td>Demonstration</td>
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<td>Discovery</td>
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<tr>
<td>Discussion, class</td>
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<td>Field trip</td>
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<td>Formulating and testing theories</td>
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<td>Games for drill, review</td>
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<td>Games for problem solving</td>
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<td>Group work</td>
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<tr>
<td>Individual writing</td>
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Other (what?)

Inservice Distance Education Project
University of Arizona
MODULE 1 - POST-TEST

1. According to the assumption upon which the Concept Attainment Model was developed, people engage in the process of categorizing because:
   a. this decreases the complexity of the environment
   b. it simplifies the teaching concepts to individuals
   c. our social system mandates this behavior
   d. two of the above

2. Which is not an element of a concept?
   a. attribute value
   b. positive exemplar
   c. criterial attribute
   d. theory

3. According to Bruner, an ideal strategy is one that
   a. is the most efficient in attaining the concept
   b. has the least amount of cognitive strain
   c. is one which students can comprehend easily
   d. a & b
   e. b & c
   f. a, b & c

4. If you walked into a classroom and saw the teacher presenting objects and asking students to say whether they were "yeses" or "nos," you would be observing what phase of the Concept Attainment Module?
   a. Phase One: Presentation of data and identification of concepts
   b. Phase Two: Testing concept attainment
   c. Phase Three: Analysis of thinking

5. Learning concepts involves which of the following:
   a. Knowing the criterial attributes of the concepts
   b. Distinguishing criterial from nonessential attributes
   c. Recognizing attributes
   d. Two of the above
   e. All of the above

6. The common features or characteristics that cause us to place dissimilar items in the same category is the aspect of a concept called the:
   a. Name
   b. Essential attributes
   c. Nonessential attributes
   d. Role
   e. Positive exemplar
   f. None of the above
7. A rule for the concept being discussed should be stated:
   a. At the beginning of the lesson
   b. After preventing two positive exemplars
   c. Toward the end of the exercise

8. Identifying the type of concept you are teaching is important because:
   a. It affects the nature of exemplars you will use
   b. Students need to be able to classify concepts
   c. The type will be stated in the concept rule
MODULE 2 - Post-test

1. At the end of the International Simulation game, Ms. Jones asks the students to take out a piece of paper so that she can test them on their knowledge of eating habits in the different countries involved in the simulation. Instead of doing this, she should have:
   a. explained the rules of the game.
   b. conducted an open-ended debriefing interview.
   c. asked them if they enjoyed the game.
   d. asked them to choose new teams.

2. Which of the following is not an essential component of simulation?
   a. role playing
   b. resources
   c. goals or objectives
   d. players

3. A workbook in which students practice figuring quantity food proportions or nutritional content lacks:
   a. positive reinforcement.
   b. direction to the learner.
   c. feedback control.
   d. careful sequencing.

4. The game of Monopoly lacks which of the components of simulation?
   a. chance
   b. role playing
   c. model of the system or process
   d. score card

5. When students discuss their actions following a simulation, in what ways are they likely to benefit?
   a. They have an opportunity to draw from their own actions that illustrate the point being discussed.
   b. They learned values.
   c. They can give specific examples of their own actions that illustrate the point being discussed.
   d. They learn new behaviors in a simulated setting.

6. In a simulation of a fast food hamburger operation when John, at the drive-in window station, was unable to serve his customers in their order, because of a mix-up in the kitchen production line. The crew learned what skill?
   a. Cooperation.
   b. Social Systems.
   c. Efficacy.
   d. Empathy.
7. During Consumer Studies field-trip to an electronic store, students were given $500.00 in play money. They were evaluated on who could be the most discerning shopper when it comes down to purchasing stereo equipment. What skill would they learn from the simulation activity?
   a. Competition.
   b. Thinking Critically.
   c. Concepts.
   d. The Role of Chance.

8. What is one advantage of simulation?
   a. It's fun.
   b. It's easy for the teacher to set up.
   c. Students learn from self-generated feedback.
   d. It's easy to test the students' progress.

9. Which answer illustrates the other advantage of a simulation?
   a. Students learn as a result of dynamic interaction with their environment.
   b. Students learn basic skills in a comfortable environment.
   c. There are many resources for students to draw on.
   d. It tricks students into learning.

10. Which of the following is NOT a phase in the simulation model of teaching?
    a. Training.
    b. Debriefing.
    c. Indoctrination.
    d. Orientation.

11. In the simulation model, what roles does the teacher generally play?
    a. A mentor or guru.
    b. A coach or referee.
    c. An authority figure.
    d. A time keeper.
1. Which of the following statements agree with Gordon's view of creativity?
   a. Creativity cannot be described.
   b. Individual and group creativity have similar characteristics.
   c. Creativity in the arts is different from invention or hypothesis formation.
   d. All creativity is characterized by a similar process.
   e. Creativity can be fostered in students.

2. Circle the phrase that best defines a direct analogy.
   a. Subjective identification with an object.
   b. Two-word descriptions that fight each other.
   c. A noun.
   d. A simple comparison of two objects or concepts.

3. Gordon describes three types of activity - direct analogy, personal analogy, and compressed conflict. A term that refers to all three types is:
   a. creativity.
   b. emotional conflict.
   c. metaphoric activity.
   d. problem solving.

4. Circle the phrase that best defines a personal analogy.
   a. emotional identification with an object.
   b. two-word definitions that contrast with one another.
   c. a verb.
   d. a simple comparison of two objects or concepts.

5. The Synectics Model would NOT be directly appropriate to which of the following educational objectives?
   a. social problem solving
   b. acquiring factual information
   c. empathy
   d. creativity

6. Stretching exercises are intended to:
   a. narrow options of participants.
   b. increase creative potential.
   c. summarize Synectics activity.
   d. promote compressed conflict.

7. The Senior Class of P.S. 109 is trying to decide what to give the school as a class gift. Would Synectics be applicable to their dilemma?
   a. Yes.
   b. No.
8. Gordon makes several assumptions about the nature of creativity, some of which are shared by other students of creativity. Which one of the following is NOT one of his beliefs?

a. Creativity is enhanced by consciousness of the creative process. Also, creativity can be described and trained directly.
b. To be creative you must only be rational and deal with the intellectual component.
c. The creative process is similar in all fields. It is not content-specific, although expectations enhance it.
d. The process of creating individually is the same as in a group. In fact, the group can enhance creativity by generating many ideas and supporting the play of fancy.

9. The criterion for assessing the creativity in a metaphor is

a. compressed conflict.
b. conceptual distance.
c. stretching exercises.
d. kinetic energy.

10. Before going through a Synectics lesson, Joyce believed that people who bullied other people were arrogant and conceited. After working with metaphoric activity, Joyce saw bullies as frightened, lonely people who really wanted to be liked by others. Which of the following best describes the type of experience?

a. personal growth
b. tolerance
c. compressed conflict
d. stretching exercises.
APPENDIX C: OBSERVATION AND INTERVIEW GUIDE
In order for us to work with you via distance education, we need to know more about you. Therefore, we would like to talk to you about your teaching experience. May we have your permission to tape this interview?  ____YES  ____NO

1. When did you decide to enter teaching?

2. What was it like your first year of teaching?

3. Was your second year any different? If yes, how?
4. Did your problems in teaching change over the years? How did your teaching change in relation to them?

5. Have you changed any of your philosophies or beliefs since you began teaching? When? How? Why?

6. What are you trying to achieve as a teacher?
7. Do you feel like a "mature" teacher? How do you know?

What is it like?

How is it different than earlier in your career?

8. Have you noticed any changes in yourself as you have grown older?

How have you changed as a person over the years?

Have these changes affected you as a person?

9. Have any activities outside of school influenced your teaching? Or vice-versa?
10. We have reached the conclusion of the interview. Is there anything that you feel should be said that hasn't been mentioned so far?
1) What would you like to gain from the project?

2) How much time are you willing to devote to the project?

3) How willing are you to share information with other teachers?

4) What kinds of changes in your program do you foresee?
APPENDIX D: TABLE OF CONTENTS FOR CONCEPT ATTAINMENT MODULE
TABLE OF CONTENTS FOR CONCEPT ATTAINMENT MODULE

PRETEST

INTRODUCTION: Overview

SECTION 1: History and Assumptions of Theory
Supplementary Materials
Review Questions
Exercises

SECTION 2: Categorizing, Concept formation and Concept Attainment
Supplementary Materials
Review Questions
Exercises
Diagramming a Concept

SECTION 3: Process of Categorizing - The Thought Process
Supplementary Materials
Review Questions

SECTION 4: Concept Attainment Model of Teaching
Supplementary Materials
Exercises
Review Questions

SECTION 5: Theory Into Practice
Supplementary Materials
Exercises

SECTION 6: Concepts Versus Symbols
Supplementary Materials
Review Questions
Exercises

SECTION 7: Elements of a Concept, Part I
Supplementary Materials
Review Questions
Exercises

SECTION 8: Elements of a Concepts, Part II
Supplementary Materials
Exercises
Review Questions
Exercises
SECTION 9: Types of Concepts
Supplementary Materials
Exercises
Review Questions
Exercises

SECTION 10: Summary
Supplementary Materials
Exercises
Teaching Analysis Guide
Review Exercises

REVIEW QUESTION KEY

POST TEST
APPENDIX E: TABLE OF CONTENTS FOR SIMULATION MODULE
OUTLINE FOR SIMULATION MODULE

PRETEST

INTRODUCTION: Overview

SECTION 1: Theoretical Framework and Examples
Supplementary Materials
Reading
Review Questions
Exercise

SECTION 2: The Phases of Simulation
Supplementary Materials
Review Questions
Exercise

SECTION 3: The Value of Simulation Games
Supplementary Materials
Exercise
Review Questions

SECTION 4: Practice in Identifying the Phases of Simulation
Supplementary Materials
Overview of GOAL
Actor/Position Cards
Characteristic Cards
Talent Cards
Weekly Schedule Sheets
Family Situations
Satisfaction Sheets
Exercise using GOAL transcript
Review Questions

SECTION 5: Viewing the Model
Background Information
Alpha Culture
Beta Culture
Bafa Game Transcript
Teaching Analysis Guide

SECTION 6: Gathering Resources
Reading—Overview of Games and Simulations
Exercise
A Sample Simulation Game

SECTION 7: Planning
Reading—A Sample Guide for the Simulation Model
Exercise—Planning Your Own Lesson Using the Model

SECTION 8: Teaching and Analysis of Own Lesson
Teaching Analysis Guide

POST TEST
ANSWER KEY TO REVIEW QUESTIONS
OUTLINE FOR SYNECTICS MODULE

PRETEST

InDEP Introduction: Overview to Synectics

Section 1: Theoretical framework and Example definition of terms
Supplementary materials
Exercise and Review Questions

Section 2: Direct Analogies
Supplementary materials
Diagram of Gordon's 5 Interrelated States of Mind
Exercises 1 & 2
Review Questions

Section 3: Personal Analogies
Supplementary Materials
Exercises 1-4
Review Questions

Section 4: Compressed Conflict & Review Materials
Supplementary Materials
Exercise
Review Questions

Section 5: Two Strategies for Enhancing Creativity
Dialogue -- Creating Something New
Making the Strange Familiar
Review Questions

Section 6: Theory into Practice
Example -- Theory into Practice
Supplementary Materials
Review Questions

Section 7: Warm-up and Stretching Exercises
Exercises
Supplementary Materials
Review Questions

Section 8: Synectics Example -- "Making the Strange Familiar"
Dialogue

Section 9: Planning and Peer Teaching
Supplementary Materials
Planning Guides
Teaching Analysis Guide

POST-TEST
Final Project Evaluation

For question 1 & 2 please rank the responses in order (1 being the highest, to 3 the lowest).

1. Which of the three modules would you be comfortable using?
   - __ Concept Attainment
   - __ Simulation
   - __ Synectics

2. Which of the three modules was the easiest for you to learn?
   - __ Concept Attainment
   - __ Simulation
   - __ Synectics

Using the following scale please circle the number which best represents your feelings toward the OVERALL project. The 10 questions deal with specific portions of the modules (your response represents all three modules).

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<th>Very Helpful</th>
<th>O.K.</th>
<th>Not Helpful</th>
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<tbody>
<tr>
<td>1. Pretest</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<td>Comments:</td>
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<tr>
<td>2. Outlines</td>
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<td>2</td>
<td>3</td>
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<tr>
<td>Comments:</td>
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<tr>
<td>3. Section Review Questions</td>
<td>1</td>
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<td>Comments:</td>
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<tr>
<td>4. Section Exercises</td>
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<td>Comments:</td>
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<tr>
<td>5. Post tests</td>
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<td>2</td>
<td>3</td>
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<tr>
<td>Comments:</td>
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</tbody>
</table>
6. Planning Guides for each technique
Comments:

7. Analysis guides for each technique
Comments:

8. Feedback on your final submitted example
Comments:

9. If applicable, feedback on submitted examples
Comments:

10. Selected examples by teacher
Comments:

COMPUTER PROJECT MEMBERS ONLY
11. Computer branching exercises
Comments:

12. Quality of written materials
Comments:

VIDEO PROJECT MEMBERS ONLY
13. Quantity of written materials
Comments:

Overall, please comment on anything that you think would help to improve the Inservice Distance Education Project materials or the total program.

Thank-you for taking time to complete the final evaluation form. Your comments and responses are essential to our program.
INTERVIEW GUIDE SHEET

To do:

- Set-up videotape
- Pick-up teacher's planning guide for the lesson
- Discover what model they will be using and what phase they will begin at
- Take out teaching analysis guide with carbon paper extra paper for field notes

VIDEOTAPE TEACHERS TEACHING THEIR LESSON

Discuss:

1) How do you feel about your lesson today?

2) The model they chose has ____ number of phases. Starting at phase 1, let's look at each step. Acknowledge and give feedback about steps that were accomplished (as in analysis guide).

   (Taking notes as we proceed through the questions - if they missed a step while teaching):

   * Why did you not cover the step?

   * When will you cover this?

3) What will you do tomorrow?

4) Will you use this model again?
5) Give back pre and post test data. Only discuss feedback from
the model they chose. They can look at the other 2 modules
on their own.

6) Give learning style feedback.
   Review their 2 assessments on the grids.

7) Why did you choose the model that you did?

8) How did you feel about this model, before you taught it
today?

9) Tell us about how you went from thinking about the model to
using it in your classroom?

10) How do you feel about the other models?

11) What could we have done to make you feel more comfortable or
    confident about using these new teaching methods?
- Did you feel we were supporting you throughout the modules?
  
  If yes, through what?

  If no, should this be improved?

  How?

- What was your reinforcement to keep going?

(For those in the video tape group)
- Having seen the use of the model through the video tape, how has that affected or influenced your comfort with the model?

(For those NOT in the video group)
- If you have seen the model used through the video tape, has that increased your confidence and familiarity with the model?

- If you have not seen the video tape, would you like to see it for the different models? Why?

Where should we (meaning from the university) go from here?

With respect to your use of the three models of teaching, where are you going from here?
APPENDIX I: ANALYSIS GUIDES
This Guide is designed to help you analyze the process of teaching as you practice the Reception Model of Concept Attainment. The analysis focuses on aspects of teaching that are important to the syntax of the model, the teacher’s role, and specific teaching skills.

The Guide consists of a series of questions and phrases. As you observe a practice session (whether peer teaching or microteaching), analyze the teaching using the rating scale that appears opposite each question and statement. This scale uses the following items:

Thoroughly. This item signifies that the teacher engaged in the behavior to the point where students were responding comfortably and fluently. Appropriateness varies from situation to situation. For example, young children may need more assistance in describing the exemplars than older ones.

Partially. This item signifies that the teacher engaged in appropriate behavior, but not as thoroughly as possible. There is some doubt about whether the students are responding fully.

Missing. The teacher did not engage in the behavior; there appears to be a loss in student response or probably will be one.

Not Needed. The teacher did not explicitly manifest the behavior, but there is no loss. Either the behavior was included in others or the students began to respond appropriately without being led to.

For each question or statement in the Guide, circle the term that best describes the teacher’s behavior.

PHASE ONE: Presentation of Data and Identification of the Concept
1. Did the teacher state the purpose of the game? Thoroughly Partially Missing Not Needed
2. Did the teacher explain the procedures of the game (how the “yeses” and “nos” function)? Thoroughly Partially Missing Not Needed
3. Did the initial “yes” clearly contain the essential attributes? Thoroughly Partially Missing Not Needed
4. If teaching a conjunctive concept, did the teacher begin with a “yes” exemplar? Thoroughly Partially Missing Not Needed
   or
   If teaching a disjunctive concept, did the teacher begin with a “no” exemplar followed by a “yes”? Thoroughly Partially Missing Not Needed
5. Did the teacher ask questions that focused students’ thinking on the essential attributes? Thoroughly Partially Missing Not Needed
6. Did the teacher ask the students to compare the “yes” exemplars? Thoroughly Partially Missing Not Needed
7. Did the teacher ask the students to contrast the attributes of the “yes” exemplars with those of the “no” exemplars? Thoroughly Partially Missing Not Needed
8. Did the teacher present labeled exemplars?

9. Did the teacher ask the students to generate and test hypotheses about the identity of the concept?

10. Did the teacher ask the students to name the concept?

11. Did the teacher ask the students to state the essential attributes of the concept?

PHASE TWO: Testing Attainment of the Concept

12. After the concept was agreed upon, did the teacher present additional exemplars and ask whether they contained the concept?

13. Did the teacher ask the students to justify their answers?

14. Were the students able to supply their own exemplars to fit the concept?

15. Did the teacher ask the students to justify their exemplars by identifying the essential attributes?

PHASE THREE: Analysis of Thinking Strategies

16. Did the teacher ask the students to describe the thinking processes they used in attaining the concept?

17. Did the teacher ask the students to reflect on the roles of attributes and concepts in their thinking strategies?

18. Did the teacher ask the students to evaluate the effectiveness of their strategies?
TEACHING ANALYSIS GUIDE FOR THE SIMULATION MODEL

Pre-Run Operations

1. Were all necessary decisions made and planned for?
   A. number of participants
   B. physical logistics
   C. timing and sequence of events

2. Were all support materials developed/available?
   A. players’ support materials
   B. supplementary instructional materials
   C. scenario presentation

Phase One: Orientation

3. Was orientation provided:
   A. for the broad topic of simulation?
   B. for concepts?
   C. for simulation gaming?

Phase Two: Participant Training

4. Did the simulation manager set up the scenario (explain the game—the rules, roles, procedures, scoring, goals, and types of decisions to be made)?

5. Were role assignments made?

6. Was there an abbreviated practice session?

Phase Three: Simulation Operations

7. Did the gaming activity occur?

8. Were the players provided with feedback and evaluation of their performance and the effect of their decisions?

9. Did the simulation manager clarify misconceptions when necessary?
### Phase Four: Participant Debriefing

#### 10. Which of the following focuses were introduced in the debriefing?

<table>
<thead>
<tr>
<th>Focus</th>
<th>Thoroughly</th>
<th>Partially</th>
<th>Missing</th>
<th>Not Needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Summary of events and participants</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>B. Difficulties and insights</td>
<td></td>
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<tr>
<td>C. Projection of future events</td>
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<tr>
<td>D. Comparison of simulation to the real world</td>
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<td>E. Relationship of simulation to course content</td>
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<tr>
<td>F. Appraising and redesigning the simulation</td>
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</table>

#### 11. Was the teacher’s role in the debriefing one of an interviewer?

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<tr>
<th>Focus</th>
<th>Thoroughly</th>
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### Principles of Reaction

#### 12. Was the simulation manager non-evaluative of players’ decisions and moves?

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<tr>
<th>Focus</th>
<th>Thoroughly</th>
<th>Partially</th>
<th>Missing</th>
<th>Not Needed</th>
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#### 13. Did the simulation manager facilitate the players’ understanding and interpretation of the rules?

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<tr>
<th>Focus</th>
<th>Thoroughly</th>
<th>Partially</th>
<th>Missing</th>
<th>Not Needed</th>
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</table>

#### 14. Did the simulation manager encourage participation and help players cope with uncertainty, where necessary?

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<tr>
<th>Focus</th>
<th>Thoroughly</th>
<th>Partially</th>
<th>Missing</th>
<th>Not Needed</th>
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#### 15. Did the simulation manager keep the game going (“get on with the game”) when players digressed or became bogged down?

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<thead>
<tr>
<th>Focus</th>
<th>Thoroughly</th>
<th>Partially</th>
<th>Missing</th>
<th>Not Needed</th>
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</table>

#### 16. Did the simulation manager maintain the rules (referee the game) when necessary?

<table>
<thead>
<tr>
<th>Focus</th>
<th>Thoroughly</th>
<th>Partially</th>
<th>Missing</th>
<th>Not Needed</th>
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</table>
TEACHING ANALYSIS GUIDE FOR THE SYNECTICS MODEL (CREATING SOMETHING NEW)

This Guide is designed to help you analyze the process of teaching as you practice Synectics. The analysis focuses on aspects of teaching that are important to the syntax of the model, the teacher's role, and specific teaching skills.

The Guide consists of a series of questions and phrases. As you observe a practice session, analyze the teaching using the rating scale that appears opposite each question and statement. The scale uses the following items:

Thoroughly. This item signifies that the teacher engaged in the behavior to the point where students were responding comfortably andfluently. Appropriateness varies from situation to situation.

Partially. This item signifies that the teacher engaged in appropriate behavior, but not as thoroughly as possible. There is some doubt about whether the students are responding fully.

Missing. The teacher did not engage in the behavior; there appears to be a loss in student responses or probably will be one.

Not Needed. The teacher did not explicitly manifest the behavior, but there is no loss. Either the behavior was included in others or the students began to respond appropriately without being led to.

For each question or statement in the Guide, circle the term that best describes the teacher's behavior.

Phase One: Description

1. Did the teacher elicit ideas Thoroughly Partially Missing Not Needed from students about the topic?

Phase Two Direct Analogy

2. Did the teacher define a direct Thoroughly Partially Missing Not Needed analogy?

3. Did the teacher specify the type of analogy, such as nonliving or machine? Thoroughly Partially Missing Not Needed

4. Did the teacher elicit analogies? Thoroughly Partially Missing Not Needed

5. Did the category of analogy appropriately contrast the topic? (For example, if the topic was a living thing, such as a shy child, was the category of analogies nonliving things, such as a machine?) Thoroughly Partially Missing Not Needed
6. Did the teacher ask students to clarify their suggested analogies?  | Thoroughly | Partially | Missing | Not Needed
---|---|---|---|---
7. If necessary, did the teacher ask students to clarify their analogies?  | Thoroughly | Partially | Missing | Not Needed
8. Did the students select one analogy to work with?  | Thoroughly | Partially | Missing | Not Needed
9. Was the analogy familiar to all the students?  | Thoroughly | Partially | Missing | Not Needed
10. Did the teacher elicit descriptions of the analogy?  | Thoroughly | Partially | Missing | Not Needed
11. Did the teacher record these descriptions?  | Thoroughly | Partially | Missing | Not Needed

**Phase Three: Personal Analogy**

12. Did the teacher explain a personal analogy?  | Thoroughly | Partially | Missing | Not Needed
13. Did the teacher ask students to become the "object?"  | Thoroughly | Partially | Missing | Not Needed
14. Was the teacher able to get the students to state from a personal frame of reference:
   A. How they felt as the "object?"  | Thoroughly | Partially | Missing | Not Needed
   B. How they looked as the "object?"  | Thoroughly | Partially | Missing | Not Needed
   C. How they acted (kinesthetic involvement)?  | Thoroughly | Partially | Missing | Not Needed
15. How they acted (kinesthetic involvement)?  | Thoroughly | Partially | Missing | Not Needed

**Phase Four: Compressed Conflict**

16. Did the teacher define compressed conflict?  | Thoroughly | Partially | Missing | Not Needed
17. Did the teacher summarize the direct and personal analogies or ask the students to summarize them?  | Thoroughly | Partially | Missing | Not Needed
18. Did the teacher elicit several compressed conflicts based on the materials from the direct and personal analogies? Thoroughly Partially Missing Not Needed

19. Were the students involved in the selection of one compressed conflict that was familiar to all of them? Thoroughly Partially Missing Not Needed

Phase Five: New Direct Analogy

20. Did the teacher elicit several ideas containing the compressed conflict? Thoroughly Partially Missing Not Needed

21. Were the students involved in the selection of one idea that was familiar to everyone? Thoroughly Partially Missing Not Needed

22. Did the teacher elicit discussion of the direct analogy in terms of compressed conflict? Thoroughly Partially Missing Not Needed

Phase Six: Reexamination of the Original Task

23. Did the teacher have the students describe the original task (idea) in terms of the last direct analogy? Thoroughly Partially Missing Not Needed

24. Did the students' descriptions indicate new dimensions or perceptions of the original task? Thoroughly Partially Missing Not Needed
TEACHING ANALYSIS GUIDE FOR THE SYNECTICS MODEL (MAKING THE STRANGE FAMILIAR)

This guide is designed to help you analyze the process of teaching as you practice the Synectics Teaching Technique of "Making the Strange Familiar." The analysis focuses on aspects of teaching that are important to the syntax of the model, the teacher's role, and specific teaching skills.

The guide consists of a series of questions and phrases. As you observe a practice session analyze the teaching using the rating scale that appears opposite each question and statement. The scale uses the following terms:

Thoroughly. This item signifies that the teacher engaged in the behavior to the point where students were responding comfortably and fluently. Appropriateness varies from situation to situation.

Partially. This item signifies that the teacher engaged in appropriate behavior, but not as thoroughly as possible. There is some doubt about whether the students are responding fully.

Missing. The teacher did not engage in the behavior; there appears to be a loss in student response or probably will be one.

Not Needed. The teacher did not explicitly manifest the behavior, but there is no loss. Either the behavior was included in others or the students began to respond appropriately without being led to.

For each question or statement in the guide, circle the term that best describes the teacher's behavior.

Phase One: Description

1. Did the teacher provide students information about the topic? Thoroughly Partially Missing Not Needed

Phase Two: Direct Analogy

2. Did the teacher define a direct analogy? Thoroughly Partially Missing Not Needed

3. Did the teacher specify the type of analogy, such as nonliving or machine? Thoroughly Partially Missing Not Needed

4. Did the teacher provide analogies? Thoroughly Partially Missing Not Needed
5. Did the category of analogy appropriately constrain the topic? (For example, if the topic was a living thing, such as a shy child, was the category of analogies non-living things, such as a machine?)

6. Did the teacher provide several analogies?

7. Did the students select one analogy to work with?

8. Was the analogy familiar to all the students?

9. Did the teacher record these descriptions?

10. Did the teacher explain a personal analogy?

11. Did the teacher ask students to become the "object?"

12. Was the teacher able to get students to state from a personal frame of reference:
   A. How they felt as the "object?"
   B. How they looked as the "object?"
   C. How they acted (kinesthetic involvement?)

13. Did the teacher record the personal analogy description?

Phase Four: Comparing Analogies

14. Did the teacher elicit similarities?

15. Did the teacher elicit several similarities from the students?

16. Did the teacher record the similarities?
### Phase Five: Explaining Differences

17. Did the teacher elicit differences between the new material and the direct analogy?  
   - Thoroughly Partially Missing Not Needed

18. Did the teacher elicit several differences from the students?  
   - Thoroughly Partially Missing Not Needed

19. Did the teacher record the differences?  
   - Thoroughly Partially Missing Not Needed

### Phase Six: Exploration

20. Did the teacher allow the opportunity for student to re-explore the topic on their own terms?  
   - Thoroughly Partially Missing Not Needed

21. If necessary, did the teacher students to clarify/describe their thoughts on the original "strange" topic?  
   - Thoroughly Partially Missing Not Needed

### Phase Seven: Generating

22. Did the teacher elicit analogies?  
   - Thoroughly Partially Missing Not Needed

23. Did the category of analogy appropriately contrast the topic?  
   - Thoroughly Partially Missing Not Needed

24. Did the teacher elicit several analogies?  
   - Thoroughly Partially Missing Not Needed

25. If necessary, did the teacher ask student to clarify/describe their suggested analogies?  
   - Thoroughly Partially Missing Not Needed

26. Did the teacher record these descriptions?  
   - Thoroughly Partially Missing Not Needed
The Cycle of Learning

Participant 111

CONCRETE EXPERIENCE (CE) (''Feeling'')

ACCOMMODATOR

ACTIVE EXPERIMENTATION (AE) (''Doing'')

DIVERGER

REFLECTIVE OBSERVATION (RO) (''Watching'')

CONVERGER

ABSTRACT CONCEPTUALIZATION (AC) (''Thinking'')

Note: 1986–1987

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Published by McBer and Company
The Cycle of Learning

Participant 114

CONCRETE EXPERIENCE (CE) ("Feeling")

ACCOMMODATOR

DIVERGER

ACTIVE EXPERIMENTATION (AE) ("Doing")

60% 20% 40% 60% 80%

REFLECTIVE OBSERVATION (RO) ("Watching")

CONVERGER

0% 20% 40% 60% 80% 100%

ASSIMILATOR

ABSTRACT CONCEPTUALIZATION (AC) ("Thinking")

Note. ----1986

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Note: ----1986

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Participant 138

CONCRETE EXPERIENCE (CE)
("Feeling")

ACTIVE EXPERIMENTATION (AE)
("Doing")

ACCOMMODATOR

60%

DIVERGER

20%

60%

ABSTRACT CONCEPTUALIZATION (AC)
("Thinking")

CONVERGER

40%

100%

ASSIMILATOR

40%

100%

Note. 1986

1987

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Revised 1985
Published by McBer and Company
LIST OF REFERENCES


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LIST OF REFERENCES—Continued


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