

INDIVIDUALIZED INSTRUCTION AS A MEANS OF IMPROVING,
THE TEACHING/LEARNING PROCESS IN VENEZUELA

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ABSTRACT

INDIVIDUALIZED INSTRUCTION AS A MEANS OF IMPROVING
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A slide-tape show on individualized instruction was produced in order to foster a positive change in attitude by means of information dissemination. The target population was high-school Venezuelan teachers, chosen because of their misunderstanding of the concepts and functions of individualized instruction, and their direct influence on the attitudes of the general Venezuelan student population. The effectiveness of the media produced was tested at three different levels, cognitive, affective and production variables, with a different set of materials for each. The sample consisted of thirty individuals, five being professors and the rest student-teacher volunteers from the Instituto Pedagógico de Caracas. The subjects were randomly distributed into control and experimental groups. Two types of designs were employed: a production design which dealt with the actual production to meet the research question, and an evaluation design, which included an experimental segment. The results obtained from the evaluation strongly suggested that the slide-tape show positively affected both teachers' level of knowledge regarding individualized instruction, and their attitude. Additional teaching experience was observed to contribute favorably to their disposition toward the approach. As a part of the thesis equivalent, a copy of the slide-tape is available in the non-print section of the library.

fff

Dedicated to Conchita, Pastora, Evaristo and Pedro
who have not only seasoned but also have made my
life worthwhile.

M.N.B.

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NOTE

Discussion regarding the past and present educational situation in Venezuela carries political overtones. Although the critical situation is seen and felt by everybody, there is a diversity of opinions which depend generally on each one's political view. In many cases citations are not available and/or not easy to supply, please excuse their omission.

CHAPTER I

STATEMENT OF THE PROBLEM

Widespread misunderstanding of the purpose and function of individualized instruction presently exists among Venezuelan teachers. They prefer to work with the traditional approach to teaching even though the quality of the educational system seems to be decreasing (Sosa Hernandez, 1977). Their instruction is aimed at the average student, and they cite lack of time, resources and flexibility as the excuses for not changing. Yet it is obvious that each individual student learns at his/her own rate, has a unique style for learning, and requires different sources of motivation. The only way to meet the individual needs and abilities of each learner is to personalize the instructional system. This can be done by using individualized instruction.

As the demand for qualified individuals to play different roles in Venezuelan society increases, so the need for educating and training them becomes greater. In recent years, numerous attempts have been made to develop methods, techniques and materials which will meet this need. But each attempt has been incorporated into existing educational and training systems and, because the systems themselves are inadequate, this incorporation has not been successful. The major problem has not necessarily been due to the inappropriateness

of any particular method or technique, or to the poor quality of any particular materials. Rather, difficulty has often been with the failure of the existing systems to deal with the differing abilities and requirements of the students. Of course, there are many factors that cannot be overlooked in this problem such as socio-economic factors (individuals come from different strata of society with different backgrounds and different economic positions); individual differences (some individuals are slower than others, health problems, etc.); environmental influences (probably the individual has the capability of learning but the environment in which he/she interacts is not rich enough to develop all his/her potential). All these problems have resulted in low achievement by Venezuelan students and the main intention of this study is to show some of the aspects of how to improve their achievement and increase the quality of the teaching/learning process. If in fact individualized instruction might help Venezuela solve some of its educational ills, clearly the first step in introducing it will have to be in changing the attitude of educators toward it. As stated above, teachers, as well as the general populace, tend to hold tenaciously to traditional methods of instruction. The school, by using old techniques, teach students to prefer it. In addition, traditional methods are seen as the direct means to economic success. Doctors, lawyers and businessman did not attain their status via "correspondence courses". Attempts to introduce such accepted

individualized instruction systems as that of the Open University failed because no one believed they could achieve the desired status that way.

In order to foster a positive change in attitude toward individualized instruction among Venezuelan high school teachers, a slide-tape show on the subject was produced. The high school level was chosen because solutions to our educational problems are usually handed from the university level down to the elementary level, treating each part as a different system with no coordination or relation among them. It was thought that it was necessary to attack the problem as close to its roots as possible. The earlier a new concept is introduced, the more likely its acceptance, and the easier it is to implement. Apart from this, high school teachers are more resistant to the idea of change. Slide-tape was chosen as the media to present the information because of practical and instructional reasons, but also because the equipment necessary for the presentation (a slide projector and a tape recorder) are usually found in every school in Venezuela.

The following section discusses in greater detail the problem as perceived by the author and the rationale for the solution.

RATIONALE

In Venezuela, as in many other countries, education has become

a major component of its citizens' lives. It is easy to see how its society moves toward a common goal, to obtain education in the formal sense. As western societies are now consumer-oriented, education has become a big business, as a means to an end.

Venezuelan society is characterized by a strongly marked class stratification, and the only way people from lower strata can enjoy some of the benefits of richer people is through education (Marta Sosa, 1978). Thus, education is a means for those who previously had no means; it functions as an equalizer in this type of free enterprise system.

If the average Venezuelan were asked about his aspirations and desires, his answer would be related to money. Money is the key that will open the doors of the world, he will obtain more status, will enjoy the pleasures of life. The primary "socially acceptable" way of obtaining these goals is to become a professional, a technician, or a skilled person. On the other hand, a degree certifying your qualifications does not come in detergent boxes, nor do you become a doctor via osmosis. It is necessary to attend school to obtain a degree, and, then... you are ready to cope with life, and to enjoy your success. Education and success (money) have become inseparable. Though a somewhat simplistic view of the situation, such is the predominant attitude.

Authors such as Illich (1973) and Fuller (1962) have written much on the so-called "hidden curriculum". Illich says that the

degree of success of the individual in society is directly proportional to the amount of learning he consumes. Learning passes from an activity to a commodity. The more knowledge an individual has, the higher he can rise in the hierarchy of power, prestige, and income. He also mentions that the existence of technology has created a society of experts on which we have become extremely dependent. The system is highly specialized and people are no longer self-sufficient, so those who have access to the skills have also access to power and money. As a result, most young Venezuelans want to enter a university and obtain degrees in careers that imply status, such as medicine, law, or engineering. Parents would not like their children to suffer from the lack of the things they have done without, and as education is free, everyone has the right to acquire the much-needed knowledge.

The combined attitudes and opportunity for education have presented serious problems. Marta Sosa (1978) has identified five major obstacles to improved education stemming from the problems mentioned above. The first one is a high demand for registration in the universities. There are more students asking for places in the post-secondary educational institutes than places available. Second, many students suffer from poor or inadequate preparation in secondary school, and carry the legacy of low grades. This, of course, affects subsequent achievement in the universities. The individual has not been prepared to face the different task demands

and methodologies unique to higher education. Third, education generally lacks any curricular structure, plan or goals. Instead of being connected, each level of the educational system works on its own with very little relation among them. Fourth, there is not enough concern for the social demands of the country. As was stated earlier, so many people want to study to become a doctor, a lawyer or an engineer that these fields have become crowded. On the other hand, fields that are necessary for the development of the country have not been pursued.

In the mid 1970's the government began considering the high demand for registration and the lack of relation between careers and the needs of the country. Their "semi-solution" was the creation of the Institutos Universitarios (a sort of college) and the U.N.A. (National Open University, hereafter referred to as the Open University). The Open University was designed to solve many problems, and as it worked in many other countries, it was thought it was the right solution to the Venezuelan problem. However, the magazine RESUMEN (April 8, 1979) published an anonymous paper which summarized some of the aspects of how this institute purportedly works. First listed are the characteristics of how the Open University is presently functioning according to the article.

1. It is a classic (non-flexible) model which is not functional in the country.

2. It does not take into account the reality of an underdeveloped country which lacks human resources and infrastructure.
3. There are no adequate laboratories or workshops in the learning centres (which are too few in number).
4. It is very expensive to support economically.
5. The selection of the instructors is not based on necessary competencies.
6. There is no planning in the acquisition of resources.
7. The promotion of faculty members is not made according to one's merit but because of friendship.
8. It is a good example of administrative corruption.
9. It promotes "political party grants" and political leaders.
10. The model employed is for highly developed countries.
11. The individualized instructional process is not properly followed, and does not account for creativity and all the other features that normally characterize this approach.
12. It has no link with the "original" higher education system.
13. Its main characteristics include:
 - a) It is autocratic (there is no participation of the faculty in the decision-making process).

- b) The bureaucracy creates functional deformation.
- c) There is no appropriate selection of the instructors. Friendship influences the job.
- d) Most of the materials are produced out of the country under a very rigid scheme which has little relation with the reality of the country.
- e) The cooperation treaties with foreign universities are not prepared or/and planned. They are used to provide tourism for the instructors.
- f) Its courses are very expensive for the student (Bs 400 or 100 dollars).
- g) There is an excess of foreign personnel.

The article carried an obviously negative tone, and likely has overstated the actual problems. Nevertheless, the Open University does not appear to be functioning in terms of content or enrollment like its English counterpart, irrespective of the specific causes.

Among these considerations, it is clear that the average individual does not believe that a career can be obtained via correspondence. As a consequence, this type of instruction does not imply status, and has no acceptance among Venezuelans (apart from the internal problems of the O.U. that influence a potential student's decision).

When the Keller Plan was utilized for its first time in 1974 in the Instituto Pedagógico de Caracas, its purpose was to introduce

the concept of mastery, and offer achievement for anyone who perseveres. Unfortunately, many students thought of it as a means to obtain high marks and as a competition (who finishes first), not as a means of improving each one's self-achievement. In general, it was concluded that students and teachers suffered, and still do suffer from a lack of belief in individualized instruction.

In 1974, the average mark of pre-registered students in higher education was 13 points (out of 20). It decreased every year, and by 1977 it had dropped to 11.9; and only 15 students in 100,000 had marks over 19 points (Heydra, 1977). This average was the same for public and private-education. A U.D.O. study (1976, Universidad de Oriente) suggested that these problems are due to a failure of lower educational levels to serve as functional stepping stones to higher education. The student who enters university lacks preparation and analytical bases which are necessary to perform at his/her best in this sector of education. The relation of this achievement is proportional to the type of instruction that is planned for the student. It is not a matter of the instructor or the subject, it is a matter of individual differences. The normal planning of the instruction is made having in mind the average student, although in real life we find a diversity of individuals.

Up till now three things have been identified:

1. There is low achievement in general among Venezuelan students due to the lack of preparation in content

and process (analytical thinking).

- 2) Due to a diversity of factors, among them lack of status, Venezuelans are hard to convince about the advantages of an individualized instructional system.
- 3) It is believed that if you have education, you may have the key to progress in different aspects of life.

Thus, if education does indeed provide the individual with a more hopeful future, and if that individual is being deprived of that opportunity in part due to low achievement, then a possible solution may be the introduction of individualized instruction which offers equality of opportunity to all who are willing to work for it. This is a claim which traditional instruction cannot make. Traditional instruction does not reward the learner for hard work and persistence in kind or degree to the extent that individualized instruction does. Probably the fact that examples of individualized instruction are not working properly in the Venezuelan context promotes a lack of confidence in the method. Hopefully, with additional information about it, some doubts can be dispelled.

Research has shown that this approach could be utilized in secondary education so that the academic performance of the student would increase, and at the same time he would obtain the necessary tools for working on the acquisition of knowledge (Nawaz & Tanveer, 1977). Individualized instruction assists the learner both in present learning and fosters the development of study skills which will prove

useful in future educational environments.

In order to provide necessary information about individualized instruction, and to correct prejudices regarding its functions and characteristics, a slide-tape show was produced. The target audience was high-school teachers. They were chosen because, as mentioned above, while solutions are sought from the higher education system, many of the problems come from the elementary and secondary levels. Solutions will also need to come from these sectors. High school teachers are generally more resistant to changes. They have been using the traditional approach for some time, and feel "comfortable" with it, even though there is not a lot of progress in the teaching-learning process. The behavioral problems unique to the high school environment add to their hesitancy about academic achievement. Most of the time, fear for change is a product of lack of information (Loucks & Hall, 1977; Dwyer, 1977). For this reason, the audio-visual media prepared also served as a motivational device which tried to introduce them to some aspects of individualized instruction.

The first goal in introducing the approach was to explain why individualized instruction should be chosen over alternative methods, including those presently used. Individualized instruction was stated as a matter of increasing the individual's learning with the resources available. Instead of planning for the average student, it takes into account individual differences. This approach presents

advantages for both student and teacher, changes the role of the teacher, and seems to be superior to the traditional approach to teaching. Individualized instruction not only provides the student with the necessary tools for mastery learning, but also increases the learner's self-achievement. It promotes knowledge enrichment, a variety of learning techniques and allows self-pacing. This approach to instruction directs its attention to individual differences and provides feedback (Goforth, 1975). Regarding the teacher, he/she will have new roles; he/she will be a diagnostician, a social engineer, a facilitator of learning, a consultant, and a program designer. But what is most important is that this type of approach can take place in any structure. One does not need an open classroom or an open space school, but rather an open philosophy about an individualized program of continuous progress.

In addition to the production and presentation of a slide-tape program on individualized instruction, extensive evaluative data were collected from three domains: cognitive, affective, and production variables. The achievement tests and questionnaires designed to tap this information provided both a description of the present state of individual instruction in Venezuela, and a prescriptive analysis of how the detected problems might be rectified via instructional technology.

CHAPTER II

LITERATURE REVIEW

Teachers in Venezuela have long nursed a deep misunderstanding of the nature and function of individualized instruction (Sosa Hernandez, 1978). An educational system is as responsible for instructing its teachers as it is for informing its students. Thus, it is often necessary to provide information about a particular approach to instruction; and to correct prejudices regarding its functions and characteristics.

This chapter first attacks the problem by citing the relevant content and research regarding individualized instruction, treating it as both a methodological approach and as an attitude toward education. The second section addresses how instructional technology has been used to propagate individual instruction.

Individualized Instruction as a Methodological Approach

The first task in understanding individualized instruction requires a knowledge of its concepts, characteristics, functions and importance as a means of improving the teaching/learning process in any stage of the educational system. Individualized instruction means "personalizing" the instructional process so as to meet the individual needs and abilities of each learner. Tanveer

(1977) said that this approach represents a synthesis of philosophical and psychological thought and a meeting ground for instructional theory and practice. Being supported by technology and research, this type of instruction supplies the student with systematic patterns of learning alternatives. Due to its success around the world, many teachers think of it as a means of, first, meeting current demands of accountability, and second, improving the quality of classroom instruction. Frazier (1968), when talking about the ways of meeting the individual needs of the learner, explained that an individualized learning system is a highly flexible system of multiple materials and procedures, in which the student is given substantial responsibility for planning and carrying out his own organized program of studies, with the assistance of his teachers, and in which his progress is determined solely in terms of those plans. In a review of individualized instruction, Nawaz and Tanveer (1977) cited seven more specific justifications for its use.

1. Individuals learn through various perceptual structures. They assimilate varying amounts of content at different rates of speed and vary in their relative abilities (Dunn, 1973).
2. Learners need to develop a wide variety of learning styles for effective learning outcomes (Joyce, 1975).

3. The complexity of society necessitates that children should learn on their own. The emphasis should be on the structure of knowledge and the modes of acquiring information rather than on the content itself (Glaser and Cooley, 1973).
4. Factors such as cost-effectiveness of education, accountability, negative effects of ability grouping and teacher turn-over (especially at the elementary level) provide incentives for multiple routes and alternative characteristics of individualized instruction (Glaser and Cooley, 1973).
5. Learning takes place on an individual basis, and therefore school experiences should be organized around each child. Thus the educational program must be flexible, adaptable and capable of meeting the demands of the individual and those of a complex, dynamic society (Bishop, 1971).
6. Learning is an active, not a passive process. It must involve participation in a task rather than mere absorption of information (Stahl and Anzalone, 1970).
7. Each individual needs to develop qualities of individuality in order to cope with the complexities, contradictions and uncertainties of mass society (Heathers, 1974).

In each of the above mentioned premises, the emphasis has been made on the uniqueness of each individual. This type of instructional approach is characterized by its humanity, flexibility, openness and adaptability; and may be considered as an alternative to the traditional approach to teaching and learning.

Research in, and the acceptance of learning theory has also influenced the growing recognition of a philosophy of individualized instruction. Educators took a careful look at the lecture format system and found it lacking in many areas. They began to question if the conditions provided could really foster the effective acquisition of knowledge and prepare students for constructive roles in society. Many of the concepts underlying individualized instruction have grown out of the ideas of B.F. Skinner (1954), who introduced the teaching machine. The use of such a method was based on the belief that the environment in which the learner interacts could be arranged to maximize learning in a non-aversive way, with the student an active participant. Some other characteristics of this method were mastery of content and skills, constant monitoring, self-pacing, and evaluation. In the early sixties, an offspring of the teaching machine was extensively used and was called Programmed Instruction. It had all the characteristics of its predecessor but emphasized more active responding and self-pacing by the student. From then on an inquisitive restless seed was planted and educators' attention was drawn to novel ways of

increasing student performance. Programmed instruction implied the use of all the fundamentals of behaviorally based instruction which are: (1) specifying objectives of the course; (2) student's active involvement in the process of learning; (3) managing contingencies to insure a positive environment; (4) assessment and immediate student knowledge of performance; (5) sequential material presentation; (6) mastery before further advance; (7) written materials; and (8) student self-pacing (Johnson and Ruskin, 1976). Teachers who use this approach make the assumption that all students are able to acquire the content of a course, and that individual differences are logically expressed in the time necessary to attain mastery.

Individualized instruction is not a single, uniform procedure; and, although the general orientation is the same (i.e., toward the individual instead of the group) the implementation of that orientation takes many forms in actual practice. Each instructor is free to modify the original technique by using some or all the features mentioned above, or by combining the techniques of more than one method. Individualized instruction programs do not need to establish either a common learning objective or the means to attain either common or unique learning objectives; but many programs do establish them. Among many examples of individualized instruction the following are especially worthy of mention:

- Computer-Assisted Instruction (CAI). A computer assisted

instruction system is one which aids learners by performing the following operations: (a) presentation of problems or statements to the learner, (b) acceptance of statements and queries from the learner, (c) analysis of data received from the student, and other students in order to choose the next presentation, and (d) recording and analysis of each student's progress to provide feedback for both students and CAI system, and data to faculty for use in counselling and grading (Note 1). To work with this approach it is necessary to have access to facilities, and some students feel this method is too mechanized.

- Individually Prescribed Instruction (IPI). It shares also the theoretical features of programmed instruction (Hess and Lehman, 1976); but, there is emphasis on the assessment of initial level of knowledge for each student and the construction of a learning sequence appropriate to the status of the individual.
- Contingency Management (CM). It deals with a wide range of behaviors and is not limited to academic purposes (Snelbecker, 1974). It was first used in classes where learning, social and behavioral problems were equal in importance, and instructors began applying behavioral techniques to the students' behaviors, without resorting to punitive measures. This method involves "contracts" between the teacher and the

student.

- Audio-Tutorial (A-T). It has features of programmed instruction but (according to Hess and Lehman, 1976) does not attempt to implement CM techniques. There is use of media for the presentation of material, and it is the student who selects according to his preference. Mastery is included as a component of its strategy (Postelthwait et al., 1972)
- Precision Teaching (PT). It uses the principles of the other methods (which are based upon learning theory) but stresses the development of a curriculum for each student, and actively involves the teacher and the student. There is emphasis on monitoring the degree of improvement in rate of desired behaviors as compared to the student's entering status. A daily behavior chart is utilized as a motivational monitoring device (Lindsley, 1971).
- Learning Activity Package (LAP). The primary function of this method is to guide the student through a highly structured program of learning materials. Each contains a brief rationale as well as a statement of the performance objectives; there are pre and post tests to evaluate student progress. As an important feature, the objectives can be attained using several paths. These paths are determined by the individual's abilities, needs and interests (Arena, 1970).

According to Hess et al. (1976) individualized instruction implies an alternative philosophy of education because it incorporates the following beliefs:

1. Education should focus upon instruction rather than selection as its primary function.
2. Instruction should be evaluated on the basis of change in student performance rather than on the basis of statements of an instructor's good intentions.
3. Differences in student performance are more closely related to the speed of acquisition than to absolute differences in the level of difficulty or complexity of outcomes which a student can master.
4. Learning is facilitated by a close match between instructional activities and students' abilities, interests and prior experience.
5. Effective instruction is built upon a social interaction between students and learning facilitators who monitor, prompt and assess consequent changes in student behavior.
6. An instructor's primary role is not that of a content expert but that of a manager of educational resources.

To summarize, it could be said that individualized instruction is characterized by providing the student with the necessary tools

for mastery learning. Unlike most systems presently in use, the author emphasizes that I.I. must be personalized, adjusting the procedures for individual learner characteristics. It increases the learner's self-achievement, promotes enrichment and a variety of learning techniques, is self-paced, directs its attention to individual differences, and, provides feed-back.

Empirical studies show that this kind of approach works. In fact, there are innumerable research studies from which just a few will be briefly mentioned here. For instance, in a study by Kulik and Jaksa (1977) comparing conventional college teaching and alternative approaches, the results showed that PSI (or Keller Plan) and other behavioral systems of college teaching are effective in promoting student achievement. These methods led to better student final performance and longer retention than conventional approaches to college teaching. Computer-assisted instruction, programmed instruction, and the Audio-Tutorial System also appeared to be somewhat more effective than conventional college instruction, but their effects were less reliable and smaller than those of the behavioral systems. They also stated that effectiveness of PSI and other behavioral systems of instruction seemed to be based on three emphases of these teaching approaches: frequent quizzing, immediate feedback and mastery requirements.

Dawn (1970) described an individualized instruction program which the Pontiac (located in Michigan) school system designed

especially for potential dropouts. The assessment showed that it was effective in changing student behavior and in improving academic achievement. There were positive relationships between participation in the individualized instruction program and a change of behavior by the participants. School attendance, student achievement, dropout potential, dropout rate, student opinions, and a graduate follow-up study all attested to the merits of the program. Student self-concept showed no significant gains. Although personal characteristics related to teacher adequacy showed no significant differences, it appeared to be one of the most insightful items of this research.

Hoberock, Koen, Roth & Wagner (1972) evaluated (from experimental data and observation) five theoretical features of Personalized-Proctorial System of Instruction for engineering education. This system was tested in courses in nuclear, mechanical, electrical, and operations research engineering at the university of Texas at Austin. The authors found that students easily took advantage of the features of the approach and adapted it to their own needs, that they enjoyed learning by the method, and that they learned more than in conventional courses. The results indicated that self-pacing and mastery learning were extremely appropriate for engineering education; that the emphasis on written-word learning and the use of proctors were definite assets; and that the motivational lecture feature was of lesser value.

A critical counter example of the effectiveness of individualized instruction was the attempt on the part of the Venezuelan government to institute an Open University system throughout Venezuela. Unlike most individualized instructional systems which have been competently initiated, the Venezuelan Open University has been reviewed extremely negatively.

Escotet (1978) cited four major reasons for the poor functioning of the Open University not only in the Venezuelan Case, but also in other Latin American Countries. Educational projects labelled as "open" or/and "at distance" have appeared without considering the objectives, goals and resources which generated them. He based his reasons on one main topic, the inappropriate transfer of technology from other cultural milieu. Following are the points where this transfer has failed:

1. Course and material design. Courses and materials which contain high culturally based content are extremely difficult to translate directly into Spanish, and are usually produced without taking into account socio-cultural variables.
2. Distribution of material. The communication services available in the country should be taken into account. As the mail service is so ineffective, this kind of university should use some other methods of distribution.
3. Academic evaluation. It should be carried out according to the learning and testing patterns of Venezuela.

Of course, if the materials are not very well produced, the process of evaluation will be more difficult.

4. Degrees of certification. The types of degrees given by the Venezuelan Open University are completely different from the ones given elsewhere; it gives degrees in Economics, Finance, Psychology, etc.

Escotet believes that this university should either transform and reduce its expectations in order to avoid a collapse in the programs offered, or redefine the principles upon which it was originated, especially those of finance and instructional methodology. According to the same author there are also external factors such as: monetary considerations, political influences, resistance to innovation, learning styles, time constraints within the student population, institutional organization and structures, human resources and communication systems.

On the other hand, Marrero (1977) and Mendoza (1977) contend that the Venezuelan Open University (U.N.A.) works from the instructional standpoint, suggesting that the problem is political rather than instructional. Clearly, the matter remains unresolved, a contributing factor for the present study.

Individualized Instruction as an Attitude

The question to be addressed in this section is the attitudinal aspect of individualized instruction as an approach.

Many educators when faced with a change from a traditional to an individualized approach think that by utilizing the latter programs, their role will eventually become unnecessary. Another reaction is that prepared materials dehumanize learning. But, it is interesting to remember that teachers in the fifteenth century felt the same fears when the printing press was invented. Individualized instruction wisely used will eventually enhance the role of the teacher in the same respect as the printing press. This approach gives the teacher a different status and role in the classroom. Studies made by Loucks and Hall (1977), Dwyer (1977a), Rutherford (1978), and Dwyer (1977b) show that the primary reason for these negative reactions is lack of information. Whenever a new idea is implemented in the schools, teachers show increased concern about what the use of the innovation will mean to their professional status, rewards and roles. Generally, with more information, time and experience, thus feeling more comfortable and secure, teachers turn their attention toward what effects the approach will have upon learners. It becomes apparent that an individualized instructional program benefits not only the learner but also the instructor.

According to Ruskin (1977), Davis (1977), Hess (1977), Thiagarajan (1977) and Frazier (1968), the use of such an approach to instruction changes the role of the instructor in the following ways:

1. Frees the teacher from teaching many of the routine basic skills of a subject.
2. Enables the teacher to meet more accurately the instructional needs of each learner.
3. Furnishes the teacher with diagnostic devices.
4. Allows him/her to spend more time with the students who need the most help.
5. Enables the teacher to bring a structured, carefully thought out program to the students.
6. Brings about a higher degree of job satisfaction.
7. Helps the teacher to serve not only as a lecturer but also as a guide to the students in their efforts to increase their knowledge of a given subject.

Teachers generally accept that such a change will improve not only the achievement of the students, but also the whole educational system. What is hard for them to see is the importance of their role as agents of change. That is why it is so important to make them understand that change in the educational process can help them upgrade their professional and personal qualities. Individualized instruction offers new roles for the classroom teacher including those of diagnostician, social engineer, consultant, media specialist, facilitator of learning, and program designer. The teacher's principal competence is placed in the utilization and refinement of the instructional skills needed for achieving a variety of educational

objectives, and reaching a wide range of learners (Nawaz & Tanveer, 1977).

Another type of attitude found toward individualized instruction among educational administrators is that such a system will not work well for some students and some teachers. They may be correct; but the traditional system does not work well for some students and teachers either. This type of attitude is common in communities which react negatively against change. There are some studies on the reactions of schools which have made even a partial transition to individualized educational programs, and the results are very positive. Flynn and Chadwick (1970) and Steward and Love (1970) found that these favorable reasons may be attributed to factors such as: the generally positive response of the students; the satisfaction of the teachers (even though they have to work a little harder) with respect to discipline, student achievement, attendance, student interest in academic activities; the enthusiasm of parents, communities and school boards. It was also found that some administrators discovered that this approach could be a partial solution to or provide a means for slowing down school costs, as it provides for the more efficient utilization of teachers and support personnel.

Instructional Technology in Individualized Instruction

The effective growth of individualized instruction will become increasingly dependent upon the recognition and utilization of media and technology. One of the weaknesses of Programmed Instruction was its excessive use of print in a repetitive, and therefore, boring format (Kozma, Belle & Williams, 1978). While programmed instruction and traditional classroom approaches are limited in instructional options, the individualized program must offer a variety and richness of learning choices. The main assumption is that there is a wide variety of methods, techniques, styles and structures which can be utilized to help the student to learn. The factors that determine the nature of such choices are the student's developmental level, the quality of background learning experiences, intellectual status, his interests and emotional maturity (Torkeison, 1972). The learner's freedom of choice permeates all considerations regarding the selection of these alternatives. It is important to clarify that media is understood, as used in this study, to include any form of communication that the instructor uses, either directly or indirectly, so that learners may be affected and acquire knowledge (Kozma, Belle & Williams, 1978).

As was mentioned above, the roles media play in an individualized instruction program are considerably different from their roles in traditional group oriented instruction. In an individualized instruction program media are handled by the learner (directly or

indirectly) and are integral parts of the curriculum. Media become vehicles used to compensate and to provide alternative means to achieve objectives. The diversity and richness of individualized instruction as an approach is made possible by a sensitive use of media (Hooper, 1971).

Generally, media use is linked with instructional technology, and many educators expect this "new technology" to be the panacea for solving educational problems. The potentials of the new technology for individualization are realizable only from an adequate perception of what is really meant by the new technology and upon a system of instruction which organizes consciously to determine the uniqueness of all means of media of instruction for a variety of learners and for a variety of educational objectives. All forms of media are capable of helping students to acquire skills, to understand concepts and to shape feelings (Kemp, 1971). In this context instructional technology should be understood as the systematic treatment or process of analyzing a problem and then deriving a system of logistics and support (personnel and materials) to solve that problem. So media is only a part of the array of available resources for solving instructional problems, and should not be confined to new hardware and/or the software they require.

Given well-prepared materials (independent of continuous teacher direction), the potential for the instructor to act as counselor, guide, evaluator, and creator of unique materials grows with increased instruction-

al effectiveness and efficiency (North, 1969). This does not mean that the teacher will be replaced by machines, or that the individualized instruction process is dehumanizing. Humanity will be present when personal or particular attention is given to each learner; it will be present when teachers adjust their abilities and assist in the decision-making process (Weisgerber, 1971).

Individualized instruction requires a fresh look at media and mediation processes, even to the point where part of the teacher's responsibility is to supply alternatives among mediation forms from which the learner chooses to suit his/her learning style, abilities and goals.

The era of instructional technology has produced numerous learning resources. Some are commercially produced, others conceived, designed, and produced locally. As a result of collaborative efforts on the part of universities, school systems and research agencies, carefully tested instructional materials have been generated.

Examples of programs discussed earlier which incorporate the individualized instruction concept and educational technology are IPI (Individually-Prescribed Instruction), PLAN (Program of Learning According with Needs), CAI (Computer Assisted Instruction). With an effective use of hardware and software, modern technology can be adapted to accomplish specified instructional objectives.

Educators may use community resources and classroom projects to suit individual patterns of abilities and interests.

The second aspect to be addressed in the discussion of media is the consideration of technical features which influence the type of media most appropriate for a given learning environment. Unfortunately, despite the widespread use of media for instructional purposes, little is known relative to the effectiveness of different types of media. According to Mielke (1968), technology of transmission simply does not make any difference in learning. On the other hand, there are "obvious" findings that show that some media reach large populations and are therefore considered more effective. This advantage is not unique if one considers that the printed book was the first medium to reach large audiences. Some media permit the students to control their own learning pace, while others provide the instructor with more control over students' learning abilities (Kemp, 1975; Minor & Frye, 1977). Looking at the question of media from another viewpoint, suppose some children have difficulties with reading; they will not read better or worse if the material is printed instead of projected. Changing the media through which the material is transmitted to them makes little difference. That is, a television program will not be more effective than a live production because it is televised. Neither research nor theory has shown that media per se makes a difference (Chu & Schramm, 1967; Dwyer, 1978). According to Salomon (1972) some assertions about media can be made:

1. Media differ in terms of their technologies of transmission, contents and symbolic codes.

2. Technologies of transmission make hardly any difference in learning; contents make a difference but are not part and parcel with the media; "it is the symbolic code into which a message is dressed that affects learning".
3. Codes (i.e., message formats) affect learning as much as they call upon different modes of information processing, that is, mental skills, which in turn govern and produce learning.
4. Learners differ as to their mastery of relevant mental skills, and hence, cognitive effects of media attributes interact with individual differences.
5. The effectiveness of a presentation depends on the match between mental skills activated by the presentation's code, or format, and the requirements of the learning task.

Points two and five appear to contradict one another unless one recognizes the distinction between what has been empirically demonstrated and what is suspected to be the actual nature of events. Inspection of existing studies would suggest that their experimental validity is suspect. Specific variables such as the effect of color are tested, while consideration of the match between task and medium are left as "obvious assumptions". A Gagné or Bloom-type hierarchy is usually used and accepted as empirically sound, or in

many cases, misused.

Leaving this matter aside, a variety of other factors have, however, been researched in conjunction with media selection. Fleming and Levie (1978) maintained that when a learner encounters an instructional message, three kinds of responses may occur: perception, learning and acceptance. In order to obtain those responses from the Venezuelan audience, factors such as one way or presentational media, redundancy or multiple channel communication, external pacing, cueing, and use of colors must be taken into account. The instructional requirements of the present study led the author to select slide-tape as the medium of presentation. The selection was based on the appropriateness of the media for the stated objectives, the accessibility of raw information, the availability of the materials, and the attractiveness of the finished product.

The following discussion is on all the above factors, and the attempts to justify the choice of slide-tape. It is important to realize that while the intent of this study was to provide information to large groups of learners simultaneously, the principles enumerated are no less applicable to the generation of individualized instruction materials.

One-way media.

Taking into consideration the classification made by Ronald

Havelock (1969), the slide-tape show which was produced belongs to the one-way media (in terms of reciprocity of flow in communication). According to Havelock, there is probably no more efficient way to transmit large quantities of information to large numbers of people in the shortest possible time. This kind of presentation can be highly motivational and stimulating in some situations. In the Venezuelan-directed situation it was very important to present the information in a motivational and pleasant manner in order to achieve the objectives of the research through the use of media.

Multiple channel communication

Research on multiple channel communication indicates that "information which is redundant, simultaneously presented by the audio and print channels is more effective in producing learning than is the same information in either channel alone" (Hartman, 1961, p. 42). Multiple channel use has been found to improve the individual's acquisition of information. For example, Hoban (1949) said that the power of a medium can be perceived when it produces a reaction in the audience, and that reaction is determined by the richness, or perceptual and conceptual cues used in the medium; he said "... the more cues to meaning that are included, i.e., the greater the variety of relatedness of the symbols used, the greater the response of the audience to the medium, other things being equal..." (p. 9). The meaning of this is that using redundancy or repetition in the content of a

message influences the improvement of communications. Hsia (1977), in a study about redundancy as the key to better communication, says that one of the crucial problems in communication is how to achieve the maximum communication efficiency and dependability, and how to reduce error in communication redundancy. Hartman (1961), in researching single and multiple channel communication, concluded that the meaning of a visual message is often ambiguous and subject to personal interpretations; that is why the use of words to direct attention is essential. Gropper (1966), studying the relation of visuals and words, found that while concepts and principles can be acquired on the basis of visual presentation, relying only on visual lessons is inefficient. He concluded that words serve an important cueing role and should be incorporated into a visual presentation (this study was made for developing programmed audio-visual materials).

To sum up, combinations of audio-visual experiences which reinforce one another provide for a more effective mastery of understanding content, concepts, and principles. The justification for using both channels (auditory and visual) was to provide the subjects with the opportunity to receive information alternately from either channel, and decrease loss of information.

External pacing.

Another technique used in the show was external pacing, first, because it had to be viewed out of Canada, and second, an experimenter

or evaluator, who had no relation with the production, had to handle the media in question. The fact that the media was externally paced implies that the content material is linearly programmed and presented sequentially. The assumptions associated with this method of presentation are that, (1) all the subjects viewing the show are at the same level of sophistication, and, (2) all the students view the same thing at the same time.

In three studies made by Dwyer (1973) analyzing the effectiveness of television, slide/tape and programmed instruction, the author concluded that when visuals are used to complement oral instruction, the level of success with which a student understands the information depends on how readily he can integrate the linguistic and pictorial inputs to form a common conceptual unit, and the key for doing this is to provide adequate amounts of time in order to integrate the information via two sources.

Color.

Color is generally used not only because it makes illustrations more attractive and emotionally appealing, but also because it facilitates student achievement of specific kinds of learning objectives. A survey of literature made by Dwyer (1978) showed that color is able to arouse definite emotional and aesthetic reactions, likes and dislikes, and pleasant and unpleasant associations. Scanlon (1970), in analyzing viewer perception towards television, found that

students who viewed color programs included more emotional content in their written description of the programs.

A number of studies have been conducted about the use of color in a situation in which color did not contribute to the message content but functioned only as a cueing or coding device for facilitating the retrieval of essential learning cues. These studies found that this use of color facilitated student learning of both paired associate and concept tasks (Weiss & Margolis, 1954; Bourne & Resite, 1959; Saltz, 1963).

One of the primary beliefs for using color is that it increases the effectiveness of the material by making it more attractive, thereby evoking more attentive behavior on the part of the learner. This assumption has been supported to a certain degree by the Burke Marketing Research Study (1960). They investigated the effectiveness of color T.V. commercials versus commercials viewed in black and white. It was found that color commercials rated higher and that the use of color prompted greater recall of the commercial. Also, the viewers were able to remember specific details of the presentation better. Additional research investigating the preferences of the learner have found that: (1) students across a wide age range express a consistent preference for complexity and variability in visualization (Stevenson & Lynn, 1971; Baltes & Wender, 1971), and, (2) students prefer color in visuals (Dooley & Harkins, 1970; Dwyer, 1972). In general, reviews of color research show that students

prefer color in illustrative as well as live materials.

Cueing.

Cueing is "the manipulation of stimulus environment, the purpose of which is to incite the external motivation of the students so that they will attend to and interact with the selected stimuli and eventually acquire sufficient information to perform adequately on tests designed to measure knowledge acquisition" (Dwyer, 1978, p. 159).

In this Venezuelan case, cueing did not provide additional information to the subjects but functioned to insure that the intended stimuli were emphasized. Allen (1968) found in research about learning theory and different media that it is useful to direct the learner's attention to particular elements of instructional messages through visual cueing or other attention - attracting devices. Cues also function as advanced organizers, which facilitate the acquisition of specific materials (Ausubel, 1968).

CHAPTER III

METHODEvaluation Process

The present study consisted of the design and production of an audio-visual presentation aimed at influencing the attitude of Venezuelan teachers toward individualized instruction.

The production and evaluation was designed to measure three levels of effectiveness. Stated in the form of research hypotheses, they were as follows:

1. Venezuelan teachers who viewed the slide-tape presentation would show a better understanding of the concepts, advantages and limitations of individualized instruction (cognitive level).
2. Venezuelan teachers who viewed the show would exhibit significantly higher positive attitude toward individualized instruction (affective level).
3. Venezuelan teachers who viewed the show would express positive opinions about the attractiveness of the media presentation (production variables).

Having identified the three levels which would be taken into consideration for the evaluation of the product, it was necessary to establish evaluative tools. In order to accomplish this, a set of different

materials was designed for each level: (1) a pre/post objective test for the cognitive segment; (2) an attitude questionnaire for the affective portion; (3) a general information questionnaire for the aesthetic section. Within the affective measure, an experimental study was conducted to further tap information regarding the thesis' primary goal; that of attitude change. The method section discusses both the parameters surrounding the design and production of the slide-tape presentation, and the entire process of evaluating the production.

Target Population

The slide-tape was designed and developed to be directed at high-school teachers. They were chosen as the target population due to the widespread misunderstanding of the purpose and function of individualized instruction that is supposed to presently exist among them. Because of this, it was attempted to foster a positive change in attitude toward this type of teaching/learning approach. As was mentioned earlier, the high-school level was chosen, first, because it is necessary to implement the new concept as early in the process of education as possible; and, second, because the teachers who work at this level are more resistant to the idea of change, even if it is to improve learning.

Sample of the target population.

The sample consisted of thirty subjects, five being professors,

and the rest student-teacher volunteers from the Instituto Pedagógico de Caracas. Their ages ranged from 21 to 32 years, four being males and twenty six females. Their teaching experience ranged from 1 to 10 years. The levels they taught were primary school, secondary school, and higher education (college and university levels). They were distributed into two groups: group "A" (control) with 16 persons (thirteen females and three males), and group "B" (experimental) with 14 persons (thirteen females and one male). In order to counterbalance against the possible effect of test question order, the two forms (A and B) were randomly assigned to subjects in each of the control and experimental groups, one half of the subjects receiving each.

Apart from the above, two more persons were involved in the process, an experimenter (the person who carried out and supervised all activities) and a monitor (a helper who recorded the beginning and ending times of each activity, and also distributed and collected the envelope with the materials).

Although the subjects were Spanish speaking, the production was presented in English both because they were more familiar with the terminology in its English form, and because their major was TEFL.

Design

There are two types of designs in this study. The production design dealt with the creation of the actual production to meet the

research question. The evaluation design included an experimental segment as a part of the assessment of effectiveness.

Production Design

Content selection.

Reflecting the principle research hypothesis, the selection of content was based on the improvements which individualized instruction can bring to the Venezuelan educational system. The production presented information to develop and foster a positive attitude toward the use of this approach in instruction.

Brief description of the content.

The content of the program was separated into two parts, instructional (cognitive), and attitudinal (affective). The instruction dealt with the characteristics, advantages, planning, preparation of materials, and the new role of the teacher within an individualized instruction framework. The affective segment presented persuasive and motivational content which attempted to begin a change in both the attitude and subsequent behavior of teachers in their instruction (see script, Appendix A).

Production techniques and rationale for media selection.

A slide-tape of approximately fifteen minutes was produced. There were informal shots of students (college and primary school students in their environment), magazines, and drawings created for

this production to impact its message. Narration and music accompanied the visuals. The slide-tape medium was chosen for practical and instructional reasons.

(a) Practical reasons:

(a.1) Precision, pacing, sequencing and aesthetic quality are much easier to control by a teacher, experimenter or evaluator.

(a.2) A slide projector is a type of hardware which can be found in most educational institutes as opposed to other types.

(a.3) The material was tested out of Canada, and this type of package is both easy to transport and control at a distance.

(b) Instructional reasons:

(b.1) Research indicates that with the exception of content which explicitly involves motion or change, there is generally no difference in learning between a still and a motion picture presentation (Levie and Dickie, 1973).

(b.2) There is a uniqueness about projected media that arouses and maintains high student interest (Kinder, 1959).

(b.3) The combination of still projected media (in this case slides) and an audio recording has been found to be powerful both in transmitting factual knowledge and increasing motivation. This kind of production is often

designed to accomplish objectives in the affective domain, or at least is designed to produce positive responses from students to the formal content presented (Kozma, Belle and Williams, 1978). Furthermore, this kind of medium has been successfully designed to arouse emotions on matters of social significance (Wittich and Schuller, 1973).

(b.4) Visual memory seldom works in isolation of verbal memory.

The verbal connections and cues which the instructor provides are important in the student's memory process (Levie and Levie, 1975).

Research and Evaluation Design

Three separate design questions were addressed, each employing a different methodology. The production was thus evaluated for: instructional effectiveness, affective effectiveness and aesthetic quality.

Instructional effectiveness.

A pretest/posttest design was employed whereby subjects served as their own control. Threats to validity such as history or maturation were eliminated due to the short intratest interval, thus further dispelling need for a control group. The instructional evaluation of the slide-tape presentation is not to be viewed as a true experimental procedure but rather as a measure of

learning, (i.e., relative instructional effectiveness). For analytic purposes, the design had to consider the procedural difference between the two groups, even though the instructional sequence was the same (pretest-presentation-posttest). In other words, the affective questionnaire position may have influenced the instructional value of the presentation, and thus had to be tested for. Therefore, the design was a 2 Attitude (questionnaire before vs. after instruction) X 2 Test Position (pre vs. post test), with repeated measures on the Test Position factor. The dependent variables were gain scores which reflect the level of learning attained as a result of watching the program, and actual scores on the pre and post tests separately. These scores were also compared relative to two biographical data, age and teaching experience. Analyses of variance and t-tests were employed as analytic procedures.

Affective effectiveness.

The design provided a means of measuring the attitudes of the individuals at two different times. Group "A" filled in the questionnaire before shown the audiovisual presentation. This measured the attitude that Venezuelan teachers have toward individualized instruction. Group "B" received the same questionnaire but completed it following a viewing of the presentation, thus assessing the impact of the production. The design was thus a 2 Attitude (questionnaire before vs. after instruction) fixed model. Again,

ANOVAs and t-tests were used to analyze these data.

The dependent variable was the level of response of the students as registered on a Likert-type scale for thirty one questions, the hypothesis being that those who viewed the program would display a more positive attitude toward the concept of individualized instruction. Again, attitude was further analyzed according to blocked age and teaching experience of the subjects.

Production quality.

The evaluation of this segment was drawn from questions asked on the information sheet. The model used was based on a similar evaluation carried out by the ELS Evaluation Staff (1978). The main intention of these questions was to gather information about the general appeal of the program (students had to rate the show on a 5-point scale, from very interesting to very boring), main idea of the program, comprehension of the facts presented, reactions to the content, how effectively the information was presented, how it would influence their way of teaching, inaccuracies in the content of the presentation, and general opinion of the show as a whole (including the aesthetics). The results are tabled in a descriptive format, listing the percentage of students who felt the production was poor, average, or good on each evaluation point. Comparisons were also made between relative attitudes towards individualized instruction and biographical information with quality

ratings. That is, it was supposed that learners with a positive attitude toward individualized instruction would judge the presentation more aesthetically desirable.

Materials

There was a set of nine different materials designed for the experiment. They are described in the order of their appearance in the evaluation sequence. All materials can be found in Appendix A.

Instructions for the experimenter.

As the evaluation of the materials had to be done outside Canada to retain validity, special instructions on how to carry out the evaluation were sent to the person in charge of the experiment. They dealt with the whole process of evaluation of the package, and described the entire procedure in explanatory detail. Anticipating possible mechanical problems, instructions on how to handle the show manually were also sent.

Directions for the subjects.

This part provided an introduction of the package to the students. The directions gave them information about the evaluation process in which they were going to take part, including the purpose and basic sequence of events. The students were also told to continue working throughout each section, often reviewing, and to ask questions

individually during the session: Students were told in the directions to ask questions regarding the procedure following its initial reading.

Time sheet.

The time sheet was designed for recording the beginning and ending times of each activity.

Questionnaire.

The questionnaire had thirty-one statements which were ranked on a 5-point scale from strongly agree to strongly disagree. The Likert-type scale was used because it easily permits students to express the extent of agreement or disagreement with a particular statement of an attitude, opinion or judgement (Tuckman, 1972). Principle subtopics within the questionnaire included the advantages for both teachers and students, the role of the teacher, and the purported improvements individualized instruction offers the educational system. The questionnaire response labels used the following key: strongly agree (SA) = 5, agree (A) = 4, undecided (U) = 3, disagree (D) = 2, strongly disagree (SD) = 1. Individual statements were constructed in both positive and negative forms to avoid response set by the subjects (Tuckman, 1972). There were 31 items from which twenty had positive direction, and eleven negative direction. The "advantages for the students" had six statements; the "advantages for the teacher" had four; the "role of the teacher" ten;

and "the importance of individual instruction as an approach" had twelve.

Placebo.

A reading on an irrelevant topic was chosen for this segment. It dealt with language learning by primates, in this particular case a gorilla. The topic was chosen, first, because it has to do with psycholinguistics, and therefore had experimental credibility, and, second, because it was thought to be entertaining and interesting to the subjects. The reading was an extract from an article published in National Geographic, October 1978, by Francine Patterson.

Pre/post tests.

The main intention of these instruments was to measure the subjects' knowledge about individualized instruction both prior to and after the presentation of the show. The questions on the tests were systematically drawn from the content domain of the presentation. Each test had fifteen items, thirteen true or false and two free response. Two forms (A and B) were generated for each test, differing only in the order of the questions to eliminate bias due to question sequence. All questions were paraphrased forms of the instruction to insure measurement of comprehension (Anderson, 1972). Changes from the pretest to posttest reflected sequence differences but retained identity in substantive content to create parallel forms.

Presentation.

The content of the slide-tape show was the product of research on the topic. It tried to be informative and, at the same time, motivational. Its aim was to produce a change in attitude towards a different approach to the teaching/learning process, and to provide certain information about the process itself. The technical components of this production were: the audio part, which was a narration of the information on individualized instruction as well as music, and the video portion, which consisted of 115 slides on different aspects of the teaching process. The shots were taken from real life activities, and from drawings and magazine pictures depicting major aspects of individualized instruction. The duration of the show was fourteen minutes and ten seconds. The content of the production is best understood by a viewing or reference to the script (the reader is recommended to read the script in Appendix A).

Interpolated task.

This segment of the evaluation consisted of three arithmetic problems which followed the presentation of the audio-visual show. Its intention was to eliminate short-term memory (Atkinson & Shiffrin, 1968). That is to say, it was probable that the subjects could retain some of the information to which they had just been exposed without comprehension. This task provided a distraction before going on with the post-test.

Information sheet.

This part was designed to obtain two types of information. First, biographical data were gathered on the subjects themselves, such as age, teaching experience, and exposure to this approach to learning. Also obtained was information about the quality and aesthetics of the media presentation. Subjects' opinions on the program, its effectiveness, confusing parts, and their personal comments were used as a formative evaluation, a critical segment of the on-going instructional design process.

Procedure

The process had seven stages: questionnaire or placebo, pre-test, presentation of the show, interpolated task, post-test, information sheet, and placebo or questionnaire. Figure 1 provides a pictorial display of the experimental procedure. The total time to accomplish the task was one hour and three minutes.

The subjects were brought to a room where all the apparatus were prearranged. Envelopes with the prepared set of materials were distributed to assure equal group representation, random assignment of subjects to groups, and counterbalancing (see appendix A). After they were seated and quiet, the experimenter asked the subjects to open their respective envelopes, and to take out the directions sheet. The instructions were read aloud, and time was given so that doubts could be clarified. Having finished with this, the first part of the evaluation began.

A B C D E F

GROUP A	QUESTIONNAIRE	PRE-TEST (A)	PRESENTATION	INTERPOLATED TASK	POST-TEST (B)	INFORMATION SHEET	PLACEBO
	QUESTIONNAIRE	PRE-TEST (B)	PRESENTATION	INTERPOLATED TASK	POST-TEST (A)	INFORMATION SHEET	PLACEBO
GROUP B	PLACEBO	PRE-TEST (A)	PRESENTATION	INTERPOLATED TASK	POST-TEST (B)	INFORMATION SHEET	QUESTIONNAIRE
	PLACEBO	PRE-TEST (B)	PRESENTATION	INTERPOLATED TASK	POST-TEST (A)	INFORMATION SHEET	QUESTIONNAIRE

Figure 1. Experimental Procedure

Group "A" filled in the attitude questionnaire while group "B" read the placebo (eight minutes and 25 seconds). Both groups then completed the pre-test (six minutes and 25 seconds) and viewed the presentation. An interpolated task consisting of three arithmetic problems followed the presentation (one minute). Subjects then completed the post-test (six minutes and thirty seconds) and filled in the information sheet which asked for personal data as well as opinions about the media used (eight minutes and fifteen seconds). Finally group "A" did the reading while group "B" filled out the questionnaire (seven minutes and 55 seconds). Subjects in both groups therefore had the same activities except that the position of the questionnaire was reversed. The starting and ending times of each segment were recorded by the monitor. The students were given enough time to complete each part such that the experimenter watched the group, and provided a one minute warning when virtually all the subjects appeared to have finished. The instructions directed the students to review their work if they finished prior to the end of each section. When the final section was completed, the students placed back the materials in their respective envelopes and handed them in to the experimenter, who dismissed and thanked the subjects. All the envelopes were arranged and sent back to Canada.

CHAPTER IV

RESULTS

The data were gathered from three sources: instructional tests, an affective questionnaire, and an aesthetic and biographic evaluation. The evaluation of the production's effectiveness (which utilized all three components) also included an experimental component that involved only the attitude questionnaire as a source of information. The results of the product evaluation are reported in the order in which it was felt they would influence behavior; i.e., a change in knowledge level would indirectly affect the attitude of the learner.

Instructional Effectiveness

Performance in the pre and post tests was used as the dependent measure for instructional effectiveness. Both tests were scored for the number of correct answers. It was first necessary to test for the equivalency of forms A and B and for the counterbalancing procedure between the control and experimental groups. No differences were found in any of the comparisons.

It is important to make clear that even though the whole sample received the same cognitive treatment (i.e., pre-test, show and post-test), the overall experimental procedure differed for the control

and experimental groups. An analysis of variance with repeated measures on the Test Position factor was applied to the experimental versus control groups, and the pre versus post tests. Means and standard deviations are presented in Table 1.

The results showed that there was a significant difference between pre and post tests ($F(1,28) = 15.08, p < .05$). No other effects were significant.

Two biographical factors, age and teaching experience, were examined for their possible effect on the subjects' responses in the pre and post tests. Those factors were considered because they were thought to influence the type of learning resultant from the presentation of the show.

The first step in doing this was to divide all subjects into three groups according to their age. Control and experimental groups were combined as there was no interaction between groups (a t-test on gain scores also suggested no appreciable learning differences). The first group had individuals with ages ranging from 21 to 23 ($n = 9$); the second group consisted of ages 24 to 26 ($n = 9$); and, the third group 27 to 32 years old ($n = 11$).

For teaching experience, subjects were also rearranged into three groups. The first group had individuals from 0 to 1 year of teaching experience ($n = 8$); the second group consisted of subjects with 2 to 3 years in teaching ($n = 9$); and, the third group had individuals with 4 to 9 years of teaching experience ($n = 12$). Means

TABLE I
MEANS AND STANDARD DEVIATIONS ON
PRE AND POST TEST SCORES

Control Group

	<u>Pre</u>	<u>Post</u>
\bar{X}	11.56	14.31
SD	5.06	3.72

Experimental Group

	<u>Pre</u>	<u>Post</u>
\bar{X}	13.00	16.79
SD	4.06	2.29

and standard deviations are listed in Table 2. A one-way ANOVA on gain scores showed no difference for age. When pre and post-tests were examined separately, overall pre-test by blocked age also showed no difference among groups. On the other hand, the comparison made in the post-test showed that there was an influence of the age factor on the amount of learning by the individuals ($F(2,28) = 4.1496, p < .0273$).

Gain scores again provided no information when teaching experience was considered. The comparison on pre-test scores by blocked teaching experience showed a significant difference ($F(2,29) = 4.0325, p < .0294$), while the post-test results also seemed to suggest the influence of teaching experience by achievement ($F(2,29) = 5.9576, p < .0072$). The negative values on spurious gain scores resulting in abnormal variance would appear to account for the discrepancy in results.

Post hoc Newman-Keuls were performed on the overall pre and post tests blocked by age and teaching experience (see Table 3 for the results). The comparison of the overall post-test by blocked age showed that $C > A = B$. In other words, there was an influence of the age factor on the amount of learning by the individuals. The comparison on pre-test scores by blocked teaching experience showed a significant difference suggesting that teaching experience of the individuals had an influence on the scores obtained ($C > A > B$). In the post-test the results also seemed to be influenced by the

TABLE II
 MEANS AND STANDARD DEVIATIONS FOR GROUPS
 REARRANGED BY AGE AND
 TEACHING EXPERIENCE ON COGNITIVE TEST SCORES

Overall Pre-Test by Blocked Age

<u>Group</u>	<u>\bar{X}</u>	<u>SD</u>
A	11.44	4.30
B	11.67	4.00
C	14.36	3.91

Overall Post-Test by Blocked Age

<u>Group</u>	<u>\bar{X}</u>	<u>SD</u>
A	14.78	3.42
B	14.44	2.01
C	17.45	2.21

Overall Pre-Test by Blocked Teaching Experience

<u>Group</u>	<u>\bar{X}</u>	<u>SD</u>
A	12.13	5.62
B	9.50	3.41
C	14.58	3.65

TABLE II (Cont'd)

Overall Post-Test by Blocked Teaching Experience

<u>Group</u>	<u>\bar{X}</u>	<u>SD</u>
A	13.88	3.91
B	13.90	2.92
C	17.58	1.88

TABLE III
NEWMAN-KEULS COMPARISONS FOR MEANS

Overall Post-Test by Blocked Age

	A	B	C
A	-	0.33	3.01 *
B	-	-	2.63 *

* $p < .05$

Overall Post-Test by Blocked Teaching Experience

	B	A	C
B	-	2.63 *	5.08 *
A	-	-	2.46 *

* $p < .05$

Overall Pre-Test by Blocked Teaching Experience

	B	A	C
B	-	2.63 *	5.08 *
A	-	-	2.46 *

* $p < .05$

teaching experience factor ($C > A = B$).

Affective Questionnaire

The questionnaire items were scored utilizing the 5-point scale from strongly agree to strongly disagree, with 5 points assigned to responses expressing a favorable predisposition toward individualized instruction, to 1 for unfavorable responses. The thirty one items were divided into four subtopics and analyzed separately as well as overall. Means and standard deviations are listed in Table 4.

First analyzed were comparisons between control and experimental groups with the combined responses and the four subtopics separately. All t-tests utilized one-tailed probabilities, as the only desired direction of attitude change was positive. The results of the overall questionnaire showed that there was a marginally significant difference (according to conventional levels) in favour of the experimental group ($t = 1.64$, $p < .0561$, $df = 28$). The first subtopic comparison took into consideration "the advantages for the student". The results showed that the experimental group again demonstrated a more positive attitude ($t = 1.73$, $p < .0473$, $df = 28$). The comparison taking into account the "advantages for the teacher" again showed the experimental group to be superior ($t = 2.38$, $p < .0122$, $df = 28$).

The third analyzed sub-topic was the "advantages of utilizing individualized instruction" over the traditional approach. The

TABLE IV
 MEANS AND STANDARD DEVIATIONS FOR THE
 AFFECTIVE QUESTIONNAIRE

	<u>Overall Questionnaire</u>	
	<u>Group 1</u>	<u>Group 2</u>
\bar{X}	111.25	120.00
SD	13.91	15.29
	<u>Advantages for the Student</u>	
	<u>Group 1</u>	<u>Group 2</u>
\bar{X}	22.25	24.00
SD	2.82	2.69
	<u>Advantages for the Teacher</u>	
	<u>Group 1</u>	<u>Group 2</u>
\bar{X}	14.94	16.93
SD	2.32	2.24
	<u>Role of the Teacher</u>	
	<u>Group 1</u>	<u>Group 2</u>
\bar{X}	31.13	32.86
SD	5.98	9.17

TABLE IV (Cont'd)

<u>Individualized Instruction as an Approach</u>		
	<u>Group 1</u>	<u>Group 2</u>
\bar{X}	42.94	46.21
SD	5.59	5.55

results in this area showed marginal significance, the experimental over the control group ($t = 1.61$, $p < .0593$, $df = 28$).

The sub-topic "role of the teacher" was not found to be significant.

The second segment of the affective evaluation explored two external factors which probably influenced how the subjects felt, age and teaching experience (see cognitive evaluation for the distribution of subjects into groups).

It should be noted that even though subjects were randomly assigned to each group, a disproportionate number of subjects with more teaching experience were found in the experimental group. Comparisons within separate groups were thus all non-significant with both age and teaching experience as blocking variables. Comparisons with combined group scores yielded no effect for age differences, but when all subjects were blocked by teaching experience, there was a significant difference ($F(2,29) = 4.7587$, $p < .0170$). A Newman-Keuls test ranked the means $C > A = B$ (see Table 5 for results).

General Information

The general information results provided data that were used for the cognitive and affective parts as well as data for the aesthetic evaluation. These data are reported by percentages. This questionnaire had three distinguishable parts. The first one consisted

TABLE V
NEWMAN-KEULS
OVERALL QUESTIONNAIRE BY
BLOCKED TEACHING EXPERIENCE

Group	A	B	C
A	-	1.98	16.38 **
B	-	-	14.40 **

** $p < .01$

of biographic data (such as sex, age, teaching experience, experience with individualized instruction). The second part dealt with the general appeal of the program (how subjects felt about the program); and the last part was about the comprehension of the general content. The production variable data came from the second and third parts of the questionnaire. First discussed are the biographic data followed by the production variable data.

Biographic data.

The sample was composed of thirty subjects, being 87% female and 13% males. Their ages ranked from 21 to 32 years distributed in the following way:

<u>Number of subjects</u>	<u>Age</u>
1	21
3	22
5	23
4	24
3	25
2	26
2	27
4	28
2	30
1	31
2	32

In relation to their teaching experience, 87% of the subjects had taught while 13% had no experience whatsoever. The years of experience of the subjects who had taught were distributed as follows:

<u>Years of Experience</u>	<u>Number of Subjects</u>
1	4
2	7
3	3
4	3
5	2
6	1
7	1
8	1
9	3
10	1

Their teaching levels were:

<u>%</u>	<u>Number of Subjects</u>	<u>Teaching Level</u>
3.84%	1	Primary school
38.46%	10	Secondary school
30.76%	8	College or/and university
3.84%	1	Primary and secondary schools
3.84%	1	Primary and university
11.53%	3	Secondary and university
3.84%	1	Primary, secondary and university
3.84%	1	did not specify

There were two questions regarding their experience with individualized instruction. The first one was whether they had taken any courses taught by The Keller Plan or any other type of individualized instruction approach. The results were:

67% had not (20 subjects)

33% had (10 subjects)

The courses they had taken with the approach were:

Evaluation I (3 subjects)

Modular instruction (2 subjects)

Tutorial semester (1 subject)

Audiovisual instruction (1 subject)

Teaching techniques (3 subjects)

The second question was whether they had taught using any type of individualized instruction, the results were:

90% had not (27 subjects)

10% had (3 subjects)

The courses taught by those who had utilized this approach were:

British Culture (1 subject)

Modular Instruction (2 subjects)

Production variable data

General appeal. The overall appeal of the program was high, with 67% of the students finding the program very interesting.

Do you think the program is:

- 67% Very interesting
- 30% Interesting
- 3% So-so

When asked whether there had been any parts in the program that were confusing, their answers were:

- 73% Not at all
- 3% Was confusing
- 7% "You have to see it twice"
- 3% Some difficulty with the language
- 3% "I don't really know if the teacher will be able to consider all the individual differences"
- 3% A little fast
- 7% Did not answer

Regarding their general opinion on the aesthetics of the program, the open remarks are grouped as follows:

- 20% excellent/very well presented
- 20% very good
- 3% really interesting
- 13% attractive
- 13% good
- 10% O.K./good enough
- 20% had no opinion

Comprehension of instructional content. Students were asked what they had learned from the program with questions which follow. Overall, a majority of the students perceived that the instructional message of the program was appropriate to their needs and interests. As to specific questions: "What do you think the program is trying to tell you?"

80% Advantages of using individualized instruction

13% Individualized instruction is better than the traditional approach

7% Importance of taking into account students' differences and the needs of each individual

When asked: "Would you use this approach to teach in your class?"

70% answered positively - it is motivating (5 subjects)

- gives good results (4 subjects)

- improves knowledge (4 subjects)

- "if I receive more information" (1 subject)

- learning is easier (1 subject)

- in theory classes (1 subject)

- its interesting (2 subjects)

- better than the traditional way (2 subjects)

10% answered negatively: - no explanation (1 subject)

- groups too large (2 subjects)

7% did not know

7% "I would but I can't"

7% It depends on the subject and/or content to be taught

When asked: "In what curriculum areas would you use this type of instruction?"

- 40% all areas
- 30% language
- 10% information areas such as history, geography, science, etc.
- 3% evaluation course
- 3% areas that do not involve development of skills
- 3% areas where the presence of the teacher is not too necessary
- 10% did not answer at all

The following question ask the learners if they felt that the individualized instruction approach was suitable for their respective curriculum areas. "What particular facts in the presentation make you think it is suitable for that curriculum area?":

- 13% all the facts given in the show were appropriate
- 10% individual pace and needs
- 10% the use of media
- 7% students working at own pace, evaluative measurement, feedback,
- 3% the goals
- 3% student can obtain information outside the class or without needing the teacher
- 3% it can be adapted to the materials available

3% research and problem-solving

40% did not answer

When asked whether the concept of individualized instruction had been presented effectively, their answers were:

93% answered positively

3% "It can emphasize the way of teaching through it"

3% "A little bit fast but attractive"

The last question of this part (comprehension) was whether they perceived any inaccuracies or inconsistencies in the content of the program; they answered as follows:

80% said they had not perceived any

3% it was somewhat fast

3% "I don't understand many of the pictures in the sense that I feel it would be the same without most of them"

3% "I don't know"

10% did not answer at all

In summary, the students felt, first, that the program was well done; second, that individualized instruction as an approach is desirable and useful in any educational environment; and, third, that, given the opportunity they would utilize this approach so as to improve the teaching/learning process.

CHAPTER V

DISCUSSION

The preliminary results offered in the present evaluation strongly suggest that the slide-tape presentation positively effects teachers' attitude via instruction. The initial supposition that Venezuelan teachers harbor misgivings about individualized instruction was upheld only in part, and a variety of obstacles for its actual implementation were discovered. The discussion to follow is divided using the same conceptual headings that have been used throughout this study: cognitive, affective and aesthetic. It includes some conjectures and queries stemming from the results obtained at each level.

Instructional Effectiveness

The primary goal in the production of the slide-tape presentation on individualized instruction per se was to convey a specific body of knowledge in a motivating and effective manner. The results obtained through comparing learners' performance on the pre and post tests determined the amount of learning which occurred as a result of the presentation. Both the experimental and the control groups displayed a significant increment in learning. The results were even more gratifying when taking into account the fact that the information

provided in the show turned out not to be largely novel for the subjects (a 60% correct response rate in the pre-test). From a purely instructional standpoint, therefore, the production functioned very effectively.

The confirmation that significant learning would occur was not surprising, but the subsequent biographical comparisons on achievement data yielded results contrary to the belief held at the design stage of this study. It was initially thought that older teachers would be more resistant to changes. In this particular level (cognitive), it would have been reflected by their poorer attainment of the information provided in the show than the younger teachers. However, age had no influence in the amount of content acquired. This result supports the satisfying conclusion that Venezuelan teachers of all ages are open to receiving innovative information, even though later on they may not use or apply it.

Apart from the age factor, in the rationale it was also hypothesized that teaching experience would have had a big influence in the way teachers responded. That is to say, teachers with more teaching experience would have been more negatively oriented due to amount of time they had taught with the traditional approach, due to their training, and due to the years of "realism" which were thought to convert idealists into realists. The results showed that indeed, teaching experience played an important role in the way they responded, but not in the same manner that was hypothesized.

Individuals with more teaching experience seemed to have learned more from the show than the ones with less experience. It is supposed that "newer" teachers have not yet had the opportunity either to perceive the differences in learning styles of their students, or they are still very inflexible or rigid with their teaching perspectives.

The cause for this state of affairs could very well lie in training. Many learners in the sample were student-teacher volunteers with little or no teaching experience, though the distribution was fairly well proportioned throughout the experience range. Naturally, there was a relation between age and teaching experience. Individuals who were older and with more teaching experience performed best. On the other hand, the younger individuals did not perform as well as their counterparts. This particular fact has led us to believe that probably teacher training in Venezuela is not offering the necessary amount of information and developing the skills needed to deal with the classroom's individual differences. It should be emphasized in teacher-training programs that the traditional approach is not the only way to cope with the classroom situation, and that there is a wide variety of variables that will undermine a non-flexible pattern of transmitting information. Student-teachers should be given the opportunity to deal with a number of approaches to teaching, to see that there is more than one way to deal with a classroom filled with other human beings who are different from each other. From that

experience the student-teacher would also learn that his/her role changes according to the approach chosen. As the problem is seen, when a teaching-training session comes, the student-teachers "imitate" the way the supervisor does his/her work. Then, they think that the method employed in that situation is the one which can best accommodate all subsequent situations. Of course they are told to plan their classes "stating behavioral objectives" and to use a variety of media. But, if one looks at the situation from a realistic point of view, it is unlikely that the gadgetery and objective statements will help the students in the classroom learn unless the student-teacher can "see" them and "try" them. During internships more emphasis is usually placed on three factors: (1) to please both the supervisor of the internship and the teacher of the classroom the student-teacher was assigned; (2) to obtain the credits required for the certification degree; and (3) to experience the taste of success or ... failure.

Most of student-teachers have an enormous potential to deal with their future pupils. For that reason it is thought that their performance, not only during training but from then on, would be more successful if instead of teaching them a few notions on individualized instruction or taking a course using the Keller Plan students be allowed to experience by themselves what an individualized approach to teaching means. Not all areas of a curriculum may be taught through this approach, but training programs should strive to open the doors of experiencing a variety of means for improving the educational,

system. In any case, flexibility and personalization must be emphasized.

While the above treatise on teaching-training is only partially supported by the results of the cognitive section alone, the equally important affective component covered next provides additional strength to the argument.

Affective Effectiveness

One of the goals in producing a slide-tape show on individualized instruction was to foster an attitude change among Venezuelan high-school teachers. The reason for wishing such a change in attitude was due to the widespread misunderstanding of the concepts, characteristics, and principles of this approach. It was believed that one of the causes for the negative reaction on the part of the general populous toward individualized instruction was due in part to the lack of proper information, especially that concerning with the advantages for the learner and the society, and indirectly the new role of the teacher. It was thought that although teachers recognize that not all students are the same, they have a genuine fear of being replaced by the method or being forced to learn a whole new bag of tricks. To tap the attitude of teachers both influenced and uninfluenced by the presentation, data were gathered by a questionnaire and compared in an experimental fashion. It was found that the experimental and control groups performed significantly different, with the post-presentation (experimental) subjects expressing a more positive attitude, especially

in the areas of the advantages for both student and teacher, and the advantages of individualized instruction when compared to the traditional approach. The results of the four subsections of the questionnaire are discussed in conjunction with the free-response questions from the information sheet. Overall, assuming that the questionnaire provided a reasonably valid, interval-scale measure of attitude, all learners did express a somewhat high positive attitude toward the various goals of the method.

When considering affective effectiveness, as with instructional effectiveness, it was hypothesized that factors such as age and teaching experience would have an influence in the way subjects felt.

Surprisingly, the exploration of age in the questionnaire yielded no effect for that factor. That is to say, individuals of the three age groups were equally open to a positive change in attitude.

On the other hand, again similar to cognitive achievement, teaching experience made a big difference. The more time subjects had been teaching, the more positive an attitude they professed. As articulated in the cognitive section, the more favorable performance on the part of the more experienced was unexpected. This fact again led to a conclusion regarding the differences, or perhaps better said, lack of differences among teacher training programs over the past ten years. Actual classroom teaching experience seems to have made teachers aware of the limitations and benefits of various approaches. All of them in one way or another, perceive and realize that not all the students are the same. Some are faster, others are slower, though all are treated as a

single group. They know that it is absurd to pretend that their students will learn the whole program and will manage to be promoted to the next level without any differential treatment. They know that all that was presented in the slide-tape program is useful but what they do not know is how to handle those differences to cope with the learning situation. It may also be that experienced teachers, after years of frustration, hungrily seek any relief, and try new methods out of desperation rather than as a result of seasoned wisdom. Both likely influence the apparent differences found in this study, but if results for the better occur, the motivation behind them becomes less important. The lack of difference in knowledge of content seems to support, nevertheless, the training problem argument.

Production Variable Evaluation

An overall view of the information sheet data indicates that the program was successful in the areas of student appeal and comprehension of instructional content. The following are some conclusions about the data gathered:

1. Students who viewed the program were attentive to the content presented. Ninety seven per cent rated it as very interesting or interesting.
2. The majority (80%) had a very good opinion in regard to the aesthetics of the program, and from the whole sample only 13% had some difficulty understanding some parts of it.

3. Twenty-one subjects (70%) concluded that the approach would be valuable for use in the classroom. The others felt that the approach was not appropriate for their particular area, but responded favorably to the concepts presented.
4. The majority of the individuals perceived the instructional message which the program's content intended. Most students emphasized the concept of the advantages of using individualized instruction over the traditional approach. These were the ideas central to the attempt to change attitude, and were thus strong subjective evidence that if a change in attitude were to occur, it would do so as a result of the independent variable.
5. Subjects evidenced a high degree of recall and comprehension of the information in the program (71% correct on the post-test on the average).
6. The curriculum areas where they felt individualized instruction could be used were diverse, but forty per cent thought that the approach was good for all areas, especially information courses. One of the teachers even suggested that it should be utilized in areas that do not involve development of skills.
7. The facts that led them to believe that this particular approach was suitable for their particular curriculum area were centered around the advantages for the student. No body answered anything related to the function and/or advantages for

the teacher in an individualized instruction setting, even though the presentation carried this message.

8. The vast majority (93%) felt that the concepts were presented effectively, and did not perceive any inaccuracies or inconsistencies in the content of the program.
9. Two teachers said that they needed to view it twice in order to understand it better.
10. All the aspects which were dealt with in the information questionnaire (information sheet) provided a very highly positive answer from the target audience.

From the above premises it could be said that the program seemed to have achieved the objectives stated at the beginning of the study. Referring to the cognitive segment of the study, through understanding and digesting the instructional message presented, individuals demonstrated an increment in learning as evidenced by the results obtained. These results also showed a high degree of recall by the individuals.

The attitudinal findings provided by this aesthetic questionnaire were very interesting. For instance, even though some subjects said that they would not use individualized instruction in their particular cases, they were open to receiving the information which was intended to foster an attitude change. At the same time, even though it seems contradictory, a high percentage of subjects thought of this approach as suitable for all curriculum areas. Another very interesting finding

In this aesthetic section was the fact the responses of the subjects were centered around the advantages for the students. In other words, they recognize individualized instruction as beneficial for the students, but there was a total lack of recognition regarding the desirable change in role from the standpoint of the teacher, even though the show carried the message. This fact led us to believe that probably teachers accept that individualized instruction is useful and feasible for the student, but that its adoption would be disruptive and perhaps even detrimental to their own position and role. Essentially, it would amount to a lot of hard work. The more successful they were at completing the task the more endangered their job would be, and its corresponding security. Indeed, in a highly competitive environment such as Caracas, job security becomes a paramount issue. What researchers stipulate as being an upgrading in job requirements, that of coordinator, guide, resource person, is in fact viewed negatively. Of the four subtopics on the questionnaire, only the area of the teachers' role showed no effect. In that it is this area where the greater misconceptions exist, and this area where the greatest resistance to learning exists, the likelihood of change is somewhat diminished. Teachers are thus positively disposed to individualized instruction as an instructional method, but carry strong negative opinions regarding the part which they as individuals must play. The failure of teacher training programs to provide a complete picture is again evident.

The aesthetics per se were judged to be as effective as they were

planned to be. A small percentage of the learners had any difficulties in understanding some parts of the program. An overall evaluation rated it as very interesting. It was thus concluded that the concepts were effectively presented and understood, not only from the results in the learning segment but also from the subjective opinions gathered on the information sheet. The slide-tape format, presenting approximately 15 minutes of useful and carefully presented information, was apparently an appropriate choice for the stated objectives.

SUMMARY

The results obtained from measuring the three levels of the production showed that there was a significant increment in learning, a positive change in attitude plus a very highly positive opinion on the aesthetics of the presentation.

Although individualized instruction was accepted as useful and feasible as an instructional approach, as teachers, the subjects still exhibited strong resistance to accept their own new role. The benefits, they believed, were primarily for the student. Additional teaching experience was observed to contribute favorably to their disposition toward individualized instruction. It was concluded that more information and experience is needed at the teacher-training level if effective and widespread implementation of individualized instruction is to become a reality in the future.

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APPENDIX A

INSTRUCTIONS FOR THE MONITOR

- (1) I have included enough materials for up to 60 students. 40 would be ideal, 30 is okay. Any less would not be good.*
- (2) Get everyone seated, and have them spread out as much as possible.
- (3) Before you begin passing out the envelopes, announce that you are passing out materials for the evaluation, and tell them not to open the envelop until you instruct them to.
- (4) Pass them out in the order that I have arranged them (from the top down) until everyone has one. The order must be: 1, 11, 21, 31, 2, 12, 22, 32; 3, 13, 23, 33, 4, 14, 24, 34, and so on. Essentially, there are four groups, 1-10, 11-20, 21-30, and 31-40.
- (5) Next, tell them to remove all the contents from the envelope at one time, turn upside-down on the envelope, and place the pile on the floor on the left side of their desk. (Everyone should have the entire pile faced down exactly as it came out of the envelope). (It would help to demonstrate).
- (6) Tell them to pick up the "top" sheet. It must be a single sheet of paper with the word "Directions" at the top.
- (7) Read through the directions out loud while the class follows along silently. If they have any questions about what to do, repeat what to do, as they work through the session. Don't tell them any other details of what is to come. Emphasize that if

they still have questions as they are working through the materials, to raise their hand and ask the monitor for help.

- (8) If there are no more questions, tell them to place the directions upside-down on their right side, on the floor, and tell them to pick up the top sheets from their left. This package must have a large letter A circled at the top. Ask the class if anyone does not have such a package. If so, have your helper check the student's pile so that it is arranged properly (packages marked A-F from top to bottom when faced down).
- (9) Be sure to write down all the beginning and the ending times on the sheet provided. In all cases, let them work at their own pace.
- (10) One half of the students will be reading the placebo passage, the other half completing the questionnaire. It is critical that those with the questionnaire have enough time to finish. Walk around the room as they are working, and when you notice that everyone with the questionnaire is finished, announce that they are going to have one more minute, and then stop them. You will have to play it by ear, but it shouldn't take more than 10 minutes. When people begin finishing, remind the group as a whole that they should continue reading or working until all the time is up. Be sure no one starts talking or working on other parts of the evaluation.

(11) As soon as you call time on package A, tell them to place it upside-down on their right side and pick up package B. Again, make sure everyone has the right sheets. It is the pretest. Ask them to answer the questions as best as they can, and not to worry if they don't know the answers, but at least try. Use the same strategy as the first package for setting the time. Make sure everyone finishes, unless it gets uncomfortably long, and give them a one minute warning to finish up any ideas they haven't written down. Use your own judgement. Be sure to have your helper note the times, if possible.

(12) When the time is up for package B, have them place it upside-down to their right on the floor and tell them that they are now going to be shown a 15 minute production about individualized instruction. Ask them to please pay close attention to the presentation, and learn as much as they can from it. It should be both interesting and informative. Remind them that there will be a short posttest following the presentation on its content. Then start the presentation. If the students start talking among themselves while you are preparing to start the presentation, ask them to please not talk. (You don't need to record this time.)

(13) As soon as the presentation is over, ask them to pick up the next top sheet on their left, this one marked C. Ask them to read the instructions and work on the problems until you tell them to stop. Time this part for one (1) minute on your watch.

and stop them when it has passed. It is not important that they finish. When the minute is up, ask them to set it to their right and not to worry if they didn't finish. Humor them.

- (14) Now tell them that they will get their chance to show how much they learned from the presentation. Ask them to pick up the next package on their left D. This is the posttest. Ask them to complete it just as they did the pretest, and to please try to do as well as they can. Remind them that all the questions were answered in the presentation, and that they should base their responses on that. Wish them luck. Time this one just like the pretest- giving them enough time to finish without being too long, and include the one minute warning.
- (15) When they have completed the posttest, have them put it to their right, and pick up package E. Tell them that we would like to get some basic information about their previous teaching experience. Ask them to please respond as completely as possible, but that they don't need to write a lot. Just brief, concise statements would be very helpful. Again, give them enough time. There will be a lot of variation in the amount of time required for this section, so it will be more difficult to know when to stop them. Don't let it run on too long. To help, give them a two minute warning instead of one minute if several people are still working. Use your good judgement, and ask the helper to indicate the times on the sheet.

- (16) Finally, have them set down the information sheet and pick up package F. Again half the class will be reading, the other half working on the questionnaire. Ask them to either read or work on their own materials carefully, and to please do a good job. Time this section as you have the others. It is important that all the questionnaires be completed.
- (17) When all the questionnaires are done, ask everyone to pick up all the packages and put them in the envelope. Then ask them to print their name on the envelope. This is to insure authenticity. Tell them we will not be connecting their name with what they do in the session. If someone objects to writing his name, tell him to print Pedro Perez. Then collect all the envelopes.
- (18) Announce that a copy of the text from the presentation is available, or simply pass them out. Thank everyone very much for their cooperation, and tell them that I will be forwarding the results to you, so they can ask how it turned out (if you are so inclined).

*If more than forty people show up, pass out the envelopes to those in the front part of the room. Then tell the rest of the students that they will be part of a separate group. Ask them to complete the dittoed questions I have sent. If there is another room where they can go and complete the form, that would be perfect. Bring them there and tell them they can leave when they are finished. Otherwise just ask them to either leave quietly when they are done, or welcome them to stay until the presentation is done. Then ask them to go.

INSTRUCTIONS FOR THE STUDENTS.

DIRECTIONS

You are about to participate in a formative evaluation of a unit about individualized instruction. The exercises will be divided into four major parts.

First, you will be asked to read or answer some questions about your familiarity and attitudes regarding individualized instruction.

Second, you will be shown a slide/tape presentation.

Third, we will ask you to complete a short posttest and an information sheet about your educational experiences.

And finally, you will be given a section to either read or complete.

Please follow the directions given by the monitor closely, as it is very important that you understand exactly what we would like you to do. Each package will be clearly marked with a circled red letter in the top center of the page. You will work on one package at a time. There are many different versions of this evaluation being tested here, so you will probably not be working on the same task as your neighbor. Please just attend to your own materials.

If you have any questions during the session, simply raise your hand and a monitor will help you. Don't ask another participant. If you complete any package before the time is up, please go back and check over your answers or continue reading on that particular package until your time is up. Do not go back to previous packages.

Once again, please follow the directions carefully. We very much appreciate your time, help, and cooperation.

Gracias, amigo!

If you have any questions at this time, please ask.

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TIME SHEET

PLEASE RECORD THE FOLLOWING TIMES- Fill in each of the spaces
using both minutes and seconds (e.g., "begins"- 1:05:30, "ends"- 1:09:45)
Be as accurate as possible to the quarter minute. Thanks!

Session begins : :

Questionnaire or Placebo begins : :

ends : :

Pretest begins : :

ends : :

Interpolated task begins : :

(lasts one minute)

Posttest begins : :

ends : :

Information sheet begins : :

ends : :

Questionnaire or Placebo begins : :

ends : :

Session ends : :

THANK YOU VERY MUCH FOR YOUR HELP!!

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PRE/POST TESTS

PRE TEST FORM A, POST TEST FORM B

Check True or False in the space provided for each of the following statements. (T for true, F for false)

1. Concern for the individual and meeting his needs is a recent development in education.
2. Individualized instruction permits the student to proceed at his own pace without pressure on his rate of progress.
3. Lectures are the best overall type of instruction.
4. To be done properly, the materials for teaching a course with individualized instruction must usually be produced commercially because of their complexity.
5. Instruction is usually planned so as to take into account all the students' differences.
6. Individualized instruction is applicable to both large and small group instruction.
7. Individualized instruction requires the teacher to accept the concept of mastery.
8. Planning a course for individualized instruction is necessarily different from planning by the traditional approach.
9. Individualized instruction not only increases the learner's self-achievement, but also promotes knowledge enrichment.

- _____ 10. Individualized instruction benefits the slow learner more than the fast learner.
- _____ 11. Activities such as drill and practice and diagnostic remediation are assumed by individualized instruction.
- _____ 12. By using individualized instruction, the role of the teacher changes from leading the learning activities to observing and remediating individual problems.
- _____ 13. In order to use individualized instruction, it is necessary to have an open classroom or an open space school.

14. Cite four reasons why individualized instruction is considered superior to the traditional approach.

- (1)
- (2)
- (3)
- (4)

15. How does the teacher's role change when the transition is made from the traditional to individualized instruction? List four ways:

- (1)
- (2)
- (3)
- (4)

PRE TEST FORM B, POST TEST FORM A

Check True or False in the space provided for each of the following statements. (T for true, F for false.)

1. By using individualized instruction, the role of the teacher changes from leading the learning activities to observing and remediating individual problems.
2. Individualized instruction benefits the slow learner more than the fast learner.
3. Individualized instruction permits the student to proceed at his own pace without pressure on his rate of progress.
4. To be done properly, the materials for teaching a course with individualized instruction must usually be produced commercially because of their complexity.
5. Individualized instruction is applicable to both large and small group instruction.
6. In order to use individualized instruction, it is necessary to have an open classroom or an open space school.
7. Individualized instruction requires the teacher to accept the concept of mastery.
8. Activities such as drill and practice and diagnostic remediation are assumed by individualized instruction.
9. Concern for the individual and meeting his needs is a recent development in education.

- _____ 10. Instruction is usually planned so as to take into account all the students' differences.
- _____ 11. Lectures are the best overall type of instruction.
- _____ 12. Individualized instruction not only increases the learner's self-achievement, but also promotes knowledge enrichment.
- _____ 13. Planning a course for individualized instruction is necessarily different from planning by the traditional approach.
14. Cite four reasons why individualized instruction is considered superior to the traditional approach.
- (1)
 - (2)
 - (3)
 - (4)
15. How does the teacher's role change when the transition is made from traditional to individualized instruction? List four ways:
- (1)
 - (2)
 - (3)
 - (4)

INTERPOLATED TASK.



Before we continue on to the next section, would you please complete the following simple math problems as quickly as you can.

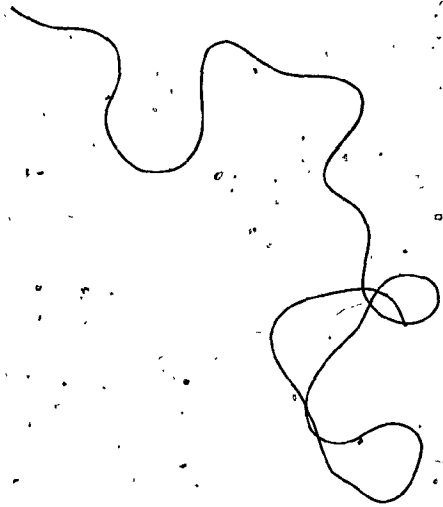
$$\begin{array}{r} 2847 \\ - 1938 \\ \hline \end{array}$$

$$\begin{array}{r} 4178 \\ \times 42 \\ \hline \end{array}$$

$$\begin{array}{r} 223 \\ + 196 \\ 575 \\ \hline \end{array}$$

DO NOT TURN THE PAGE UNTIL YOU ARE TOLD TO

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PLACEBO



Conversations With a Gorilla

by Francine Patterson

Koko is a 7-year old "talking" gorilla. She is the focus of my career as a developmental psychologist, and also has become a dear friend.

Through the mastery of sign language - the familiar hand speech of the deaf - Koko has made us, her human companions, aware not only that her breed is bright, but also that it shares sensitivities commonly held to be the prerogative of people.

Take Koko's touching empathy toward fellow animals. Seeing a horse with a bit in its mouth, she signed, "Horse sad". When asked why the horse was sad, she signed "Teeth". Shown a photo of the famous albino gorilla Snowflake struggling against having a bath, Koko, who also hates baths signed, "Me cry there", while pointing at the picture.

I fully agree with Koko, if she meant that she is good even in a bad situation. I've come to cherish her lies, relish her arguments, and look forward to her insults. While these behaviors demonstrate occasional lapses from sweetness, they also provide reassuring benchmarks in the formal and controlled scientific testing that has monitored Koko's progress since I began to teach her American Sign Language in July 1972.

Of course such subjective behavior as lying is difficult to

prove empirically, but when Koko uses language to make a point, to joke, to express displeasure, or to lie her way out of a jam, then she is exploiting language the way we do as human beings. Certainly that is linguistic, though perhaps not moral, progress.

What makes all this awesome is that Koko, by all accepted concepts of animal and human nature, should not be able to do any of this. Traditionally, such behavior has been considered uniquely human; yet here is a language-using gorilla. (Two years ago she was joined by another of her species, a young male named Michael, who is the subject of similar study and training.)

Enrolling at Stanford in 1970 as a graduate student, I chose nonhuman primates for my research. In 1971, R. Allen and Beatrice Gardner came to speak. They were by then well-known for their success in two-way communication with Washoe, a female chimpanzee.

The Gardners' breakthrough was to perceive that the chimp's difficulty in acquiring language might not be stupidity, but rather an inability to control lips and tongue. So they decided to try to teach Washoe American Sign Language used by an estimated 200,000 deaf Americans. The language consists of gestures, each of which signifies a word or idea. Washoe endorsed the Gardners' choice by learning 34 signs during the first 22 months. This was more than eight times the number of spoken words that the chimpanzee Viki, the subject of Keith and Cathy Hayes's six year effort, learned to utter. After four years of Project Washoe, by 1970, Washoe had

acquired 132 signs, and she used these signs in combinations similar by those employed by children during the first stages of learning to talk.

Hearing the Gardners tell their tale persuaded me that attempting to teach a chimp sign language would be to pursue the ultimate animal. At that time I held no brief for gorillas.

My colleagues were not very sanguine about teaching Koko sign language. Some questioned the gorilla's dexterity as compared with the chimpanzees. Others were skeptical about the animal's intellect. In 1959, Hilda Knobloch and Benjamin Pasamanick had reported: "There is little question that the chimpanzee is capable of conceptualization and abstraction that is beyond the abilities of the gorilla".

My experience has been totally at odds with the assumption. While Koko has been contrary at times, I believe that such brattiness may indicate intelligence rather than its absence.

In 1929, the great primatologists Robert and Ada Yerkes wrote: "It is entirely possible that the gorilla, while being distinctly inferior to the chimpanzee in ability to use and fashion implements and to operate mechanisms, is superior to it in certain other modes of behavioral adaptation and may indeed possess a higher order of intelligence than any other existing anthropoid ape". Now, fifty years later, Koko is bolstering evidence of the gorilla's intellectual primacy.

Initially, my work with Koko used many of the techniques of Project Washoe. Experts in the new field of language development in humans - part of the discipline called psycholinguistics - found little agreement about what exactly language was, or when a child could be said to have it. Linguists, however, were virtually unanimous that Washoe did not have a language. But by the time I began to publish data on Koko, many early critics of the Gardners had either recanted or softened their criticisms, in part because of the fresh evidence on the language capacities of apes. At the same time as Project Washoe, Ann and David Premack established two-way communication with Sarah, a female chimpanzee. Sarah spoke and was spoken to through plastic symbols. The Gardners and Premacks were followed by Duane Rumbaugh, who installed yet another female chimp, Lana, at a computer console at the Yerkes Regional Primate Research Center in Atlanta. Lana gradually learned to communicate by typing out statements on an arbitrarily encoded keyboard. The computer was programmed to reject grammatically improper sentences.

The weight of all these experiments helped erode the doubts that an ape could be capable of language. Certainly, the pioneering work of the Gardners, the Premacks, and Dr. Rumbaugh has richly benefited me: I have been able directly to employ methods they discovered by trial and error, and have not had to refight the battle of credibility.

Once I had established that Koko performed at least as well as

Washoe - learning the signs for "drink" and "more" within the project's first few weeks - I could probe new areas of the gorilla's potential for language and thought.

This is part of an article published in National Geographic,
October 1978, pages 438-465.

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ATTITUDE QUESTIONNAIRE

This questionnaire has been compiled to sample your opinion about educational teaching techniques. Indicate how you feel about each of the following statements by circling your answer on this scale: SA - strongly agree, A - agree, U - undecided, D - disagree, SD - strongly disagree. Please consider each statement carefully before you respond, and try to avoid using "undecided (U)".

Thank you!

- SA A U D SD 1. The lecture type of instruction implies more status.
- SA A U D SD 2. There is no need for improvement in our educational system.
- SA A U D SD 3. In order to function in an individualized instruction setting the teacher has to spend more time in planning and producing materials.
- SA A U D SD 4. Students who finish high school are not well prepared to enter university.
- SA A U D SD 5. Learning experiences in the traditional system of instruction are limited in comparison to the ones in an individualized instruction system.
- SA A U D SD 6. With a curriculum tailored according to each individual's need, the achievement of the student will increase.

(SA - strongly agree, A - agree, U - undecided, D - disagree, SD - strongly disagree).

- SA A U D SD 7. In an environment where individualized instruction is used the importance of the teacher is eroded.
- SA A U D SD 8. The use of individualized instruction allows the teacher to be more creative on the job than the lecture type of instruction.
- SA A U D SD 9. The planning of traditional instruction is aimed at the average student.
- SA A U D SD 10. Good teaching means being more loyal to your own personal and professional goals than to the improvements of the educational system.
- SA A U D SD 11. There is no need to make learning as enjoyable as possible.
- SA A U D SD 12. Any change from traditional to individualized instruction will produce confusion among teachers, students, and the community.
- SA A U D SD 13. Teacher time can be better utilized within an individualized instruction program.
- SA A U D SD 14. Individualized instruction will function better in private schools.
- SA A U D SD 15. The main task of the teacher is to disseminate factual information.
- SA A U D SD 16. Teacher's age influences the method of instruction.

(SA - strongly agree, A - agree, U - undecided, D - disagree,
SD - strongly disagree).

- SA A U D SD 17. The student's achievement is a reflection of the type of instruction he receives.
- SA A U D SD 18. Students are not used to working in order to acquire knowledge.
- SA A U D SD 19. Older people are more resistant to changes.
- SA A U D SD 20. The educational system is an extremely complex economic and political organism in which individualized instruction will not be possible.
- SA A U D SD 21. With the use of individualized instruction in few years there would not be jobs for the teacher.
- SA A U D SD 22. Rather than an open school or an open classroom, one has to have an open philosophy in order to accept a change.
- SA A U D SD 23. Imported ideas never worked in the Venezuelan context.
- SA A U D SD 24. The traditional system of instruction protects the teacher's job stability.
- SA A U D SD 25. It is not possible to use individualized instruction in a classroom with more than thirty students.

(SA - strongly agree; A - agree, U - undecided, D - disagree, SD - strongly disagree).

- SA A U D SD 26. With the traditional approach to teaching
it is easier to improvise in class.
- SA A U D SD 27. Even with a different approach to learning
student achievement will remain low.
- SA A U D SD 28. The traditional system of instruction
permits more discipline control than the
individualized instruction system.
- SA A U D SD 29. The fact that a large number of students
fail a course increases the good reputation
and toughness of the teacher.
- SA A U D SD 30. There is no substitute for the feeling of
being a sargent in the classroom.
31. The optimization of the development of the
individual's personal, social and intellectual
characteristics are beyond the teacher's
- SA A U D SD (a) control
- SA A U D SD (b) responsibility

AUDIO-VISUAL CONTENT

(SCRIPT)

Introduction

Individualized instruction has long been a goal of education. Concern for the individual student and meeting his needs dates back to the one-room school house. However, despite our conviction that the student is an individual, that he learns at his own rate, has a unique style for learning, and has different sources of motivation, teachers usually continue to use the traditional class approach. Their instruction aims at the mythical average student, citing lack of time, resources, and flexibility as the excuse.

The only way to meet the individual needs and abilities of each learner is to personalize the instructional process, and this can be done by using individualized instruction.

Individualized instruction involves tailoring the curriculum to the student and allowing him to proceed at his own pace without considering his rate of progress, and individualized instruction does not restrict the type of learning materials or learning strategies which can be employed. This approach makes ample allowance for both large and small group instruction. It gives the student the opportunity to apply skills learned in basic programs to different materials. It provides not only for specific needs but also for individual reading within a structured situation.

Individualized vs. Traditional Instruction

We have been led to believe that the lecture is the best type

of instruction, even though not all the students benefit from it. Lectures have a long history as the primary vehicle for university teaching, and are imagined to be the instructional technique of great teachers and famous people. Lectures therefore imply high status. It is important to remember, however, that not all the students are the same. Some are slower and some are faster, and they will benefit more if instruction is planned according to their individual needs. Lectures cannot attend to individual differences. While teachers have always known this to be true for younger learners, the rapid increase in professional specialization has made it necessary at the secondary and university levels. Would you want your doctor to have attended only lectures during his training?

The principle advantage to using individualized instruction is that it provides the student with the tools necessary for mastery learning. The student is given as much time as he needs to learn a unit of sequenced instruction and then only can he proceed to the next step. It is a matter of acquiring knowledge rather than of competition skills. At the same time, the student will develop certain techniques or approaches to learning. Individualized instruction systematically eliminates the frustration students feel when they cannot comprehend new information because they did not understand the previous material.

Features of Individualized Instruction

Individualized instruction is not something new. As we all know, ultimately all learning occurs individually. As evidence that individualized instruction really works, several applied programs have been very successful, among them the Open University, The Keller Plan, L.A.P., P.L.A.N., and many others. There are many features that can be included in an individualized instruction approach, but it is the teacher who decides which to choose according to his preferences and to the limitations imposed by practical or institutional influences. The following are the most frequently cited features of individualized instruction:

- (1) Adjustment of instruction based on the assessment of entering abilities.
- (2) Explicit behavioral objectives.
- (3) Active responding.
- (4) Feedback.
- (5) Structured presentation of materials.
- (6) Self-pacing.
- (7) Mastery.

The most important aspect of individualized instruction is that everyday activities which teachers are used to doing will be enriched and will not be routine. This approach to instruction will assist them in making their work more personalized according to the needs of each individual. Activities such as drill and practice and

diagnostic remediation are assumed by the instructional system.

The very fast student can benefit with more information and work, while the slow student is given both the time and materials appropriate to his needs. Some individuals need to work harder than others in order to acquire the same knowledge and skills, and individualized instruction allows the learner to continue working until he does, rather than moving on and leaving him to fall hopelessly behind. The main intention of this approach is to make learning as effective and enjoyable as possible.

Preparing Instructional Materials

The materials for teaching a course with individualized instruction can be developed using one or a combination of two different approaches. The first involves the selection of commercially produced materials which can be adapted to the needs of the region, school, class, or individual. With the second approach, materials are produced by the teacher or by a team of teachers. Most often, these two approaches are combined, as would be the case when you select a single text but also develop supportive or supplementary content and exercises.

Preparation of an Individualized Instruction Course

The course planning for individualized instruction is neither different from nor more time consuming than the one we are used to

preparing. The planning is characterized by its logical structure of content, and by its direction towards individual needs. There are some steps which can be followed in the preparation of a course using individualized instruction, and they are:

- (1) Establish instructional objectives. It is generally agreed that objectives which are specific, observable and measurable make any instructional activity more viable.
- (2) Determine performance criteria. This includes statements specifying the performance level on the part of the learner as well as how the performance is to be demonstrated.
- (3) Suggest learning alternatives. When possible, the student is given a list of available learning alternatives from which he selects the ones that interest him.
- (4) Design evaluative measures. In order to assess the progress of each individual learner through the various learning tasks, a system of pre-post testing is designed. The student may also have opportunities of self-assessment as he progresses through learning. Periodic evaluation functions as a diagnostic technique, with mastery always the goal.

The adaptations of this process can be achieved by teacher initiative and/or administrative leadership.

Dynamic Teacher's Role

The teacher will have new role as a change agent. He will be a diagnostician determining the strengths and weaknesses of students, as well as the level of learning ability of each individual. He will be a social engineer because he will encourage group interaction and will stimulate communication among students. The teacher will be a facilitator of learning as he identifies the potential of various learning sources and helps the students select the appropriate learning alternatives and identify learning goals. By virtue of his professionalization the teacher will act as a consultant to parents, colleagues and the community. He also will have a role as a program designer as he will conduct a persistent search for innovation and systematic techniques to individualize instruction. In essence, the role of the teacher will change from a baby sitter and drill master to a learning coordinator.

Summary

Individualized instruction not only provides the student with the necessary tools for mastery learning, but also increases the learner's self-achievement. It promotes knowledge enrichment and a variety of learning techniques, and allows self-pacing. This

approach to instruction directs its attention to individual differences, and provides feedback. But what is most important is that it can take place in any structure. One does not need an open classroom or an open space school, but rather an open philosophy about an individualized program of continuous progress.

INFORMATION SHEET

GENERAL INFORMATION

Please respond to the following questions as completely and concisely as you can.

(1) Sex: female _____
male _____

(2) Age: _____

(3) Teaching experience: yes _____
no _____

if yes, years of experience: _____

teaching level (s): _____

(4) Experience with individualized instruction:

(a) Have you taken any courses, taught by Keller Plan or any other type of individualized instruction? (If yes, please specify.)

(b) Have you taught using any type of individualized instruction? (If yes, please specify.)

(5) Media presentation:

(a) Do you think the program is

- very interesting
- sort of interesting
- so - so
- sort of boring
- boring

(b) What do you think the program is trying to tell you?

(c) Would you use this approach to teaching in your class? Why or why not?

(d) In what curriculum area(s) would you use this type of instruction?

(e) What particular facts in the presentation make you think it is suitable for that curriculum area?

(f) Was the concept of individualized instruction presented effectively?

(g) Do you perceive any inaccuracies or inconsistencies in the content of the program?

(h) Were there any parts of the program that were confusing? If so, which one(s)?

(f) What is your general opinion on the aesthetics of the program?

Thank you very much for your cooperation. It is sincerely appreciated.

