

DOCUMENT RESUME

ED 031 211

JC 690 244

By-Ravetch, Herbert

Individualization of Instruction: The Junior College Takes a Page from the Elementary-Secondary Notebook.

Pub Date 7 Dec 68

Note-27p.; Seminar paper

EDRS Price MF-\$0.25 HC Not Available from EDRS.

Descriptors-Classroom Techniques, *Individual Instruction, *Individualized Instruction, Innovation, Instruction, Instructional Innovation, *Junior Colleges, Teaching Methods

This report presents a rationale for the individualization of instruction, an examination of applications of these methods in elementary and secondary schools, and some implications for individualization within junior colleges. Innovative techniques used by elementary and secondary education and junior colleges were found quite similar; the following were common to all: programmed instruction, learning centers, team teaching, and audio-tutorial techniques. Within elementary and secondary education, however, the philosophy of individually prescribed instruction is emerging, providing for each student lessons based on his own needs and talents. The technique includes: a sensitive and complete battery of diagnostic tests, placement on a learning continuum on the basis of these tests, and personal prescription of assignments according to behavioral objectives theory. The result is student growth in terms of learning and sense of individual participation and worth. Junior colleges share with elementary and secondary education the concept of the "open door" and the accompanying problem of how to provide for all who present themselves for education. The achievement spread of students at junior colleges is greater than that found at any of the preceding grades; therefore, so is the need for individually prescribed instruction. [Not available in hard copy due to marginal legibility of original document.] (MB)

TABLE OF CONTENTS

	Page
FOOTNOTING AND BIBLIOGRAPHY	iii
INTRODUCTION	iv
PART I. RATIONALE FOR INDIVIDUALIZATION	1
PART II. PRE-COLLEGE EDUCATION	6
PART III. IMPLICATIONS FOR JUNIOR COLLEGE EDUCATION.	13
PART IV. CONCLUSIONS	17
BIBLIOGRAPHY	21

A Note on the Footnoting and Bibliography
in This Paper

The major source of information for this paper came from the library of I/D/E/A/, Institute for the Development of Educational Activity. Some of the items were produced under the sponsorship of I/D/E/A/; others were collected and made available in the I/D/E/A/ clearinghouse. I/D/E/A/ is funded by the Charles Kettering Foundation and disseminates current and difficult-to-acquire materials.

A simplified system of footnoting is used in this paper. The footnote numbers refer directly to the numbers assigned to the entries in the bibliography (1-25). The Accession Numbers that accompany the I/D/E/A/ materials refer to the system of indexing used by I/D/E/A/. The number "14" appearing at the bottom of the chart on the cover page identifies entry #14 of the bibliography as the source of information.

INTRODUCTION

One of the most debated activities in education today is the individualization of instruction. Exploring the goals and techniques of individualized learning is increasingly consuming the energies of elementary and secondary teachers and is beginning to reach significantly into higher education. It is as if a new sun had burst on the educational horizon, a sun that promises to illuminate the dark corners of learning and shine benignly on the masses of students overflowing the playgrounds and academic halls of America. How new is this particular educational "sun"?

Upon closer examination, the individualization of instruction turns out not ~~to~~ ^{to} be new at all. It is ancient; it is modern; it is eternal. Every child, nurtured through his pre-school years by a fiercely protective family, is receiving intense and personal "instruction." It is only upon reaching school age that he must be delivered to crowded classrooms and struggling teachers. Historically, those fortunate few who received a formal education were not exposed so much to a school as they were to the individual concern of a tutor. Even with the advent of formal instruction, the one-room school house, confronted by a wide range of age, ability, and achievement among its students, continued to offer a significant measure of individualized instruction.³ It is ironic that the rigidity of grade groupings and formal curricula and the unfortunate decline of individual attention developed as

a result of a democratic educational system struggling to fulfill its mandate: to educate all the children of an exploding population. It is doubly ironic that having originally given up individualized attention because of the sheer pressure of bodies, educators are now returning to it as a possible solution to the same problem of numbers.

The purpose of this paper is to analyze the individualization of instruction as it is being practiced and explored in the United States today:

1. A rationale for the individualization of instruction will be offered.
2. Some of the applications of this individualized method in elementary and secondary schools will be examined.
3. The implications of individualization for the junior college will be considered.
4. The conclusions of this inquiry will be presented.

PART I: RATIONALE FOR INDIVIDUALIZATION

In this era of sensitivity to human relations and awareness of the individuality and worth of every human being, we often talk about the singularity of every person. The author recalls an orientation held some years ago for new secondary teachers where the superintendent talked about the need to be aware of the opportunity and the challenge that each student offered. Then, stopping before the author, who happened to be sitting in the front row, she said: "Herbert Ravetch, you are unique. There is no one who has ever lived in the whole history of the human race, there is no one alive today on the entire surface of this globe, and there is no one in the entire future of mankind, no matter how many millions of years that may be, who has been, is, or ever will be exactly the same as you. Herbert Ravetch, it is a pleasure to meet you!" The other teachers roared with laughter, appreciating the dramatic way in which the superintendent had delivered her charge: the need to treasure the precious and singular potential of every single student. How many of them also were fully aware of the perplexing ramifications of this salute to the individual?

It is one thing to delight in the unique human qualities of each student who enters our classrooms. It is quite another for the overburdened teacher to wonder how he will be able to cope with this diversity, even while he is drawing

esthetic inspiration from the human variability that has been placed in his charge.

Consider four children chosen at random from a class at the Lulu Walker School in Tuscon, Arizona. Some of the achievement levels of these four children are reproduced on the front page of this report. These four children were all born in March, 1958; and in the spring of 1966, as third graders, they were tested for word meaning, reading comprehension, spelling, mathematics, science, and social studies concepts. What the chart reveals can be no surprise to anyone remotely aware of the irregular, unpredictable rates of growth found in all people in general but in young children in particular. The chart not only shows an achievement spread among these eight-year-olds of three years, but it also reveals unusual irregularity among the children for the individual areas of achievement. Student #3 may be more than a year ahead of student #2 in science/social studies concepts, but the same student (#3) is more than a year behind the other student (#2) in spelling achievement. Further examination of these four students will reveal further anomalous contrasts among children all grouped together in a standard third grade classroom.¹⁴

Dr. John Goodlad chides the teacher who claims that he teaches a 4th grade or a 5th grade. Actually, says Goodlad, the achievement spread in a standard 4th grade is four years, in a standard 5th grade, five years. If the above teacher truly means what he says, then what he is saying is that he is teaching only a handful of the 34 to 38 pupils found in most of the elementary classrooms of the United States.⁴

Goodlad goes on to point out that pupils do not grow up all in one piece. They grow upon a broken front, all irregular, and our individual experience, as well as the chart reproduced and referred to above, certainly supports his premise.

One additional point needs to be made: Not only is the teacher of the 3rd or 7th or 11th or college freshman year confronted by students of uniform chronological age but entirely diverse achievement "ages," but each student contains within him an unpredictable and difficult-to-determine array of achievement levels, achievement potentials, responses to various learning techniques, and, of course, complex psycho-, socio-, physiological factors that must significantly affect all the preceding and all that will follow this point in time.

If this seems to be a belaboring of the obvious, it is purposely and properly so. Nothing in this is very new. It has been known intuitively for centuries and scientifically demonstrated in our time. However, this "obvious" has rarely led to the seemingly obvious reaction: Since students are multi-faceted creatures with uneven, diverse responses to their environments, must not the irregularities of their responses be charted and must not they be taught by multi-faceted techniques that are sensitive to their individual requirements?

Instead, for generations the integrity of chronology has been maintained, and "homogeneous" classes have sat passively before teachers and been taught. Even in such a traditional learning situation, however, the principle of individuality is, and always has been, at work. Forty children exposed to the same teacher have never truly been a homogeneous, captive

4

audience. Some have slept, and some have day-dreamed, and some have listened, and some have scribbled notes furiously, etc. What has been "taught" has been screened, considered, rejected, stored according^{to}/the needs, interests, and desires of each of those forty children.¹

Although this kind of self-directed learning is consciously and unconsciously going on in our classes today, the question that is increasingly being raised is whether or not we are satisfied to follow this traditional, even immemorial, system of education. Those who ask this question sincerely do not discount the success that education has had through its centuries with just this traditional system. It is quite obvious that dozens of generations and hundreds of thousands of human beings have been taught and have learned by means of the old pedagogy. What these challengers of the status quo ask is what about the multitudes that have failed under this system: did they have to fail? And what about the millions who, in the past, were never given the opportunity to try for education beyond a few of the primary grades? These millions are upon us now because we have purposely invited them to partake fully and equally of the educational opportunity offered in our democratic society.

The conditions of education today, then, are quite different from the past. No longer should a child's educational program be tied rigidly to the old irrelevancy of the number of his days on earth. Instead, says Goodlad, the question must be this: What content and what techniques of instruction is this particular, unique child ready for? There must be a diagnosis,

a prescription, a filling of the prescription, and then a repetition of this sequence over and over again, throughout the education of the individual.⁴ The doctor does not take a roomful of sick people and give them all a shot of penecillin because they all happen to be running a fever. Neither must the teacher. But the teacher must have a "pharmacy of educational alternatives"⁴ with which to respond to the diagnosis of each student's "fever."

Such is the case presented by Goodlad and others,^{1,3,8,10,16} and it is a case that clearly has merit. Can such a system, however, work with masses of students? Where is the pharmacy of alternatives, and where is the precise diagnosis that they require? Are they available or can they^{BE} produced? Is this system physically and economically possible? Or are we talking about a laboratory dream that must eventually take its place on the heap of brilliant but unworkable remedies?

PART II: PRE-COLLEGE EDUCATION

In 1963 the University City School District in Missouri received a three-year grant from the Ford Foundation to make major improvements in the learning environment of a school system of already acknowledged high quality. Given the three years, the University City School District planned a three-phased sequential program:

1. The first year was a listen-and-learn year. Sixty-five administrators and teachers traveled to all parts of the United States, researching, observing, storing up information. Educational and community committees did surveys and research. The public was enlisted and polled.
2. When curriculum problems were clearly identified, outside consultants were brought in, and teachers were given release-time to attack the particular problem. What they were able to develop was tried out in pilot programs and then transmitted to other teachers through in-service training courses.
3. The third phase consisted of more outside visits, curriculum building based on the developments of #1 and #2 above, further use of outside consultants, and the fusing of many findings into overall patterns that were introduced into the general curriculum.

Although many discoveries were made and many new ideas implemented, there emerged from this three-year study four basic characteristics that tended to be a part of all the programs that were attempted:

1. There was a movement toward greater individualization of programs to account for the diversity in the personality, ability, and experience of each student.
2. There was a movement toward maximum active participation by the student in the learning process.
3. There was the adoption of an experimental attitude among school people in initiating, evaluating, and modifying new curricula.
4. There was a movement toward a more flexible and efficient use of personnel and facilities.

The essential findings of this three-year search, therefore, were the need for 1) a flexibility of approach, 2) an experimental attitude, 3) the active participation of the student in his own learning, and 4) the clear response to student diversity. Nothing here was absolutely new. Socrates probably used every one of these with his students. The University City School District, however, did not just publish another report. They put into practice these findings in the modified and newly created courses of their district.

Let a few sample programs serve to illustrate this application:

- A group of 300 educationally disadvantaged children who would be entering kindergarten in September were examined in an educational diagnostic clinic six months prior to their entrance to determine their specific deficiencies. Following this diagnosis, two demonstration centers, where visiting teachers could observe and learn, carried out the prescriptions assigned to the various children by the diagnostic clinic. Thus an attempt was made to discover the "seeds" of failure at the earliest level and remove or reduce them before the child's actual entry into kindergarten.
- A reading-study center was established in a senior high school. Materials reaching from the 6th to the 16th grade were made available during and after school. The project was developmental with programs being built for each volunteer student.

- Chronic problem children in junior high school were removed from two academic programs, as well as the disciplinary study halls into which they were usually assigned. They were approached not on the basis of their unruliness and need for strong-arm correction but on the basis of the same characteristics already developed: flexibility of approach, student participation, and attention to individual need.

1. Field trips for information and insight (observing elementary classrooms and analyzing success and lack of success in the students observed).
2. Special physical education, crafts, and reading programs for those with perceptual-motor disabilities.
3. Special one-to-one tutoring.
4. Special one-to-one counseling.

What the University City School District discovered is that there are diagnostic instruments which can adequately analyze specific disabilities connected with the learning process; that there are methods, many of them admittedly experimental and unproven, for the alleviation of such problems; that through a loosening of schedules and a willingness to experiment, school people can afford a better probability of success to individual children no matter where they may fit into the normal curve of human divergence. Most important of all, University City School District has found that there is time and there are programs to fill the needs of individual children.¹⁸

It is encouraging to note that University City School District is not alone, that the same basic characteristics of a modern educational program that were discovered there are being discovered and rediscovered throughout the nation.

- The Union Free School District, New York:
This district reports an individualized reading program at the heart of which is a continuing series of individualized conferences. The conferences are without reference to grade level. There is only a search for strengths and weaknesses and individual prescriptions for each student. 1
- Oakmont Elementary School, Claremont, California:
A nongraded primary program, starting with a short meeting with individual planning teachers, then regroups children among seven teachers for sessions in arithmetic and language. This system demands the careful charting of each student's progress and the shifting of students to appropriate groups. 2
- Western States Small Schools Project (Colorado, New Mexico, Arizona, Utah, Nevada): "Students must accept their own responsibility ~~for~~ for learning. "The teacher is an organizer of learning, not a presenter of information." A sequential curriculum must have individual alternatives within the courses of instruction. It is not enough for each student to move at his own speed in the same text. Each course should have a "pharmacy of educational alternatives" (Goodlad). 7
- University of Pittsburgh: Learning Research and Development Center: The components of an innovative system of math for K-6 are 1) sequential curriculum stated in terms of what students are expected to do at each stage (some 300 behavioral objectives identified), 2) placement and diagnostic tests to determine what instruction needs to take place, and 3) lessons that reflect both #1 and #2. 9
- Oakleaf Mathematics Curriculum, Pennsylvania:
Identifying the entering behavior is essential, the level of skill at any point of the continuum where the student begins to study. After that, no student goes on to more difficult material before he has mastered the previous material. Study is on an individual basis, and, therefore, no student is ever trapped in material which he has already mastered. At all times there must be alternate paths to the same objective. 10

- University of Pittsburgh: Learning Research and Development Center: The study of science on the elementary school level is carried out through individual carrels that are programmed in an audio-tutorial system. 13
- Lulu Walker School, Arizona: "Education is each individual's responsibility, and we attempt to develop each child's awareness of this idea." This is implemented through team teaching, independent study, daily-flexible programs, a large, individualized study center. 14
- Skokie Junior High School, Illinois: A learning laboratory provides individualized instruction and opportunity for continual growth and experimentation. The program is unusually varied, having structures for at least ten or more combinations of students with problems (remedial, low achievement-high potential), with special interests (seminars with outside authorities), and with special abilities (independent study). Emphasis is on making the student responsible for his own learning, independent, and self-selective. 15

The common thread of these programs, selected at random from a larger number, is not hard to find. It is central to the program developed by the University City School District of Missouri and is the theme that joins all of these educational explorations together: the uniqueness of all individuals, who learn at their own speed and in their own way.

The lengths to which individualization can be carried have already been suggested, but what seems at this time ~~seems~~ to be the ultimate organization of the process, often included in the previous programs, is presented in detail by Robert Scanlon in a report done for the I/D/E/A/ Research and Development Division. Scanlon describes not individualized instruction but individually prescribed instruction. Team teaching, special groupings of students, programmed learning are attempts at individualized instruction, says Scanlon, but they do not go to the root of the

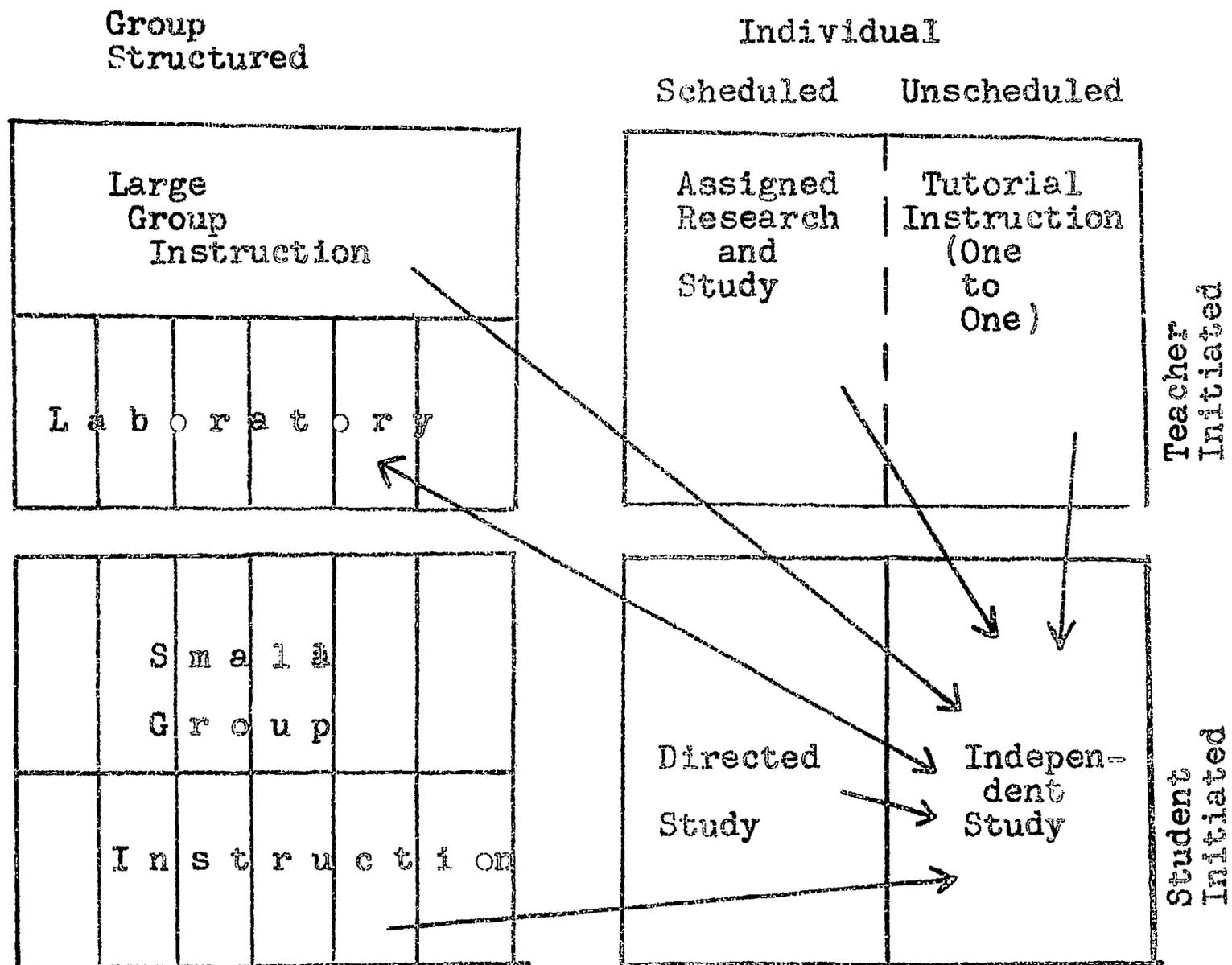
problem: that, ideally, each child needs not a group lesson but an individually prescribed lesson that is based on his own peculiar needs and talents. A system for mathematics and reading developed at the Learning Research and Development Center at the University of Pittsburgh has the following sequence:

1. The child places himself on a continuum of achievement through placement tests and pre-tests.
2. Assignments are made by daily personal prescription related to curriculum material in a sequence or continuum.
3. The child's mastery of his assignments is judged by curriculum-embedded tests and post-tests. An 85% level of achievement is required.
4. The child works independently, builds a sense of responsibility, and gains confidence in his own knowledge. The child realizes that learning is a process dependent upon his own participation and initiative.

Scanlon, the former principal of Oakleaf Elementary School in Pittsburgh where this system was tested, goes on to say that the fundamental building blocks of this system are a carefully sequenced and detailed listing of behaviorally stated instructional objectives which ~~would~~ give the student clear direction and awareness of the learning process in which he is involved. The system allows the teacher to become less of a lecturer and more of an evaluator, a counselor, and a facilitator of learning.³

Without question this system requires the most careful retraining of the teacher and extensive time for the development of materials to carry out this program. Scanlon and others, however, detail the methods by which this can be accomplished. As they see it, good teaching is that which increases the opportunities for self-learning. Only the awareness of the individual

of his own ability and responsibility to learn for himself can build the kind of resourcefulness and independence that continues to stand as one of the chief goals of our society. It is no surprise, therefore, that independent study, in any one of its multiple forms, is the star of the individualized-instruction show. Even the architectural form accompanying education increasingly points in this direction:



What, then, can we say about this not new but re-emphasized principle of education? It is clearly invading the elementary and secondary school. How valid is it for other levels of education? To what degree has it already been recognized and incorporated into higher education? What implications, if any, does it have for the junior college in particular?

PART III: IMPLICATIONS FOR JUNIOR COLLEGE EDUCATION

During the spring and summer of 1963, Dr. B. Lamar Johnson made an exploratory survey of the utilization of junior college faculty services in representative junior colleges throughout the country. It was one of the first attempts to catalogue innovative developments in higher education. Searching for those developments in the junior college, which must stand as the major innovation in higher education during our century, could only be appropriate and promising. And Dr. Johnson did find an extensive list of innovations, among them push-button lecture halls, rooms of adjustable size, closed- and open-circuit television, a visit from an expert via telephone, programmed instruction, acceleration of student progress, team teaching, faculty and facility sharing, variations of class size, and many others. Despite this extensive list, Dr. Johnson concluded that most of the innovations were located in a very few schools and that the majority of schools were doing little or nothing that could be considered a truly new response to the ancient questions of learning.²⁰

For the most part, there were only a few schools, "islands of innovation," Dr. Johnson called them, which were dedicated to a structured and consistent search for new and improved methods of instruction. In some of the colleges, Dr. Johnson identified innovative teachers who were individual islands of innovation in the midst of indifferent faculties. Dr. Johnson hoped that the

publishing of his report would acquaint the junior college community with some of the new and exciting developments in college education, would help to further the practice of present innovations, and would spur the search for yet-to-be-discovered remedies.²⁰

In his report of the 1967 Conference on the Experimental Junior College, Dr. Johnson reported that while innovation (the attempting of a new thing) was growing, experimentation (the attempting of a new thing under rigorous control, followed by careful evaluation) was very much the exception. Yet he was heartened by the many changes that had occurred in the past four years, and, in article after article of this conference, educators spoke of the vigorous search for new methods and more productive systems that had been tried or were being planned. Reports were made concerning language laboratories, branch mini-colleges electronically linked to the home campus, calendar and schedule adaptations, traveling teachers, tutorial plans, audio-tutorial adaptations, the "sidewalk" college, and the Sensorium, offering total environmental control of the classroom.²¹

Alongside of these two reports from Dr. Johnson, it is interesting to place the "Curriculum and Instruction Survey" published by the CTA-JCC in September, 1968. Sixteen California junior colleges are included. For the most part the innovations mentioned have already been reported ⁱⁿ Dr. Johnson's surveys; and although there is some repetition, the following should be mentioned: video tape recorders, computer assisted learning, program for the culturally deprived, international travel and study, use of para-professionals, cross-discipline courses, and student internship.¹⁹

As we compare these reports with the elementary-secondary innovative activities reported earlier in this paper, it is interesting to note that on the broadest educational front, from kindergarten to junior college, there is a steady echo of parallel techniques, sometimes even identical in structure and application, differing only in the level of content which is being presented. The following seem common to all areas: learning centers, large- and small-class instruction, programmed instruction, team teaching, audio-tutorial instruction, schedule adaptation, tutorial plans. On the whole, there seem to be parallel efforts to utilize the teacher, the time, and the facilities to improve the educational process.

Where, then, if any, is the distinction?

I believe that there are two. First, as we in the junior college find our way into team teaching, small group instruction, ability groupings in multi-track programs, our elementary-secondary brethren have the satisfaction^{of knowing} that they have been using most of these techniques for generations and sometimes chide us about finally catching up. Secondly, and far more significantly, there is emerging in elementary education a point of view which is as new for them as it is for us: individually prescribed instruction. Individually prescribed instruction offers a "new" philosophy of education as well as the means of implementation.

Arthur Cohen touches on this in his "Tinkering or Revolution: A conference Critique." Most innovations, Dr. Cohen feels, are in educational media, means, and methods but not in educational ends. We do a great deal of manipulation of the means of education. Dr. Cohen invites his readers to a manipulation of the ends. In

establish
 order to ~~achieve~~ those ends, Dr. Cohen concludes, there must be a
clear definition of these ends; in short, there must be clearly
 defined behavioral objectives that can be stated, taught, and
 then evaluated.²¹

What Dr. Cohen espouses certainly finds its echo in elementary
 education. Perhaps because the skills of reading and arithmetic and
 in the elementary grades
 writing/are so primary in nature, they have always been described as
 behavioral objectives. However, the process described by Scanlon,
 individually prescribed instruction, goes beyond this. Cohen holds
 that clearly defined behavioral objectives will clarify the learning
 process for both teacher and student, and his position is entirely
 valid. The behavioral objective, however, is only a part of
 Scanlon's proposal. When all of the "hardware" and the cathode
 tubes are put aside, individually prescribed instruction is the
 one profound departure in modern education which avoids the
 symptoms of present educational ills and penetrates to the source.

Scanlon's concept (with the supporting and clarifying function
 of the behavioral objective, Scanlon's learning continuum) liberates
 the student. No more is he locked into a parade of his chrono-
 logical peers, degraded by his comparative failure or inflated by
 his comparative superiority. He is free to be himself, to taste
 the joys of learning, growth, and success at whatever level he
 exists, not in competition with a mythical "average" but joining
 the stream of learning wherever he finds it and wherever it
 finds him.

This is elementary. This is fundamental. This is the
 universal of the learning process. It can not be denied and it
 dare not be ignored.

PART IV: CONCLUSIONS

The junior college is stirring. It is presently engaged in a period of search and growth that can only be compared to that earliest period when the junior college was new, and the whole world of post-high school education lay before it for the first time. Today, the "islands of innovation" are extending, and more and more of a mainland can be seen. No longer is the junior college struggling for the status of a coat-tail university. It has declared its independence, or, rather, its individuality.

During the summer of 1968, Mrs. Jean Wilkinson, a junior college English instructor, conducted a UCLA Extension course: "Junior College English: Teaching Workshop." It was her, and UCLA's, intention to respond to a need that university education has largely ignored: the professional examination of problems peculiar to the teaching of junior college English. The summer's experience confirmed the value of such a course and provided ways of extending and improving it. Mrs. Wilkinson is treading virgin territory, and she knows it.²⁵ She is joined by Derek Singer who asks "Do We Need A Community College Institute?" and answers with a clear affirmative.²⁴ Such an institute must be administered by the junior college movement, not for it by some outside agency. These writers are not engaged in a denigration of the university. They are simply announcing ~~the~~ one clear fact: that the junior college must recognize its own problems and its own potential and do something about them itself, not because no one else is interested, but because no one else is really as capable.

As it searches in these and other new directions, how can the junior college profit from the developments of pre-college education? It is interesting to note that there is one area in which the junior college clearly resembles the grades that precede it, in the Open Door that it shares only with elementary and secondary education. Because of this Open Door, ~~all~~ ^{all} of these institutions share the same problem: how to respond to all of the children of this nation that present themselves for education? By the 13th grade, however, the achievement spread that Goodlad refers to in the 4th grade as being four years has stretched to seven or eight or more. And yet it is precisely here that individually prescribed instruction has its greatest restorative effect in a directly proportionate relationship: the greater the achievement spread, the greater the need for an individually prescribed system of education and the greater the opportunity for the student who has fallen behind.

Let us recall the elements of this program:

1. a sensitive and complete battery of diagnostic tests,
2. the placement of the student on a learning continuum in response to the entrance behavior delineated in #1,
3. daily personal prescription of assignments in lessons designed according to behavioral objectives theory,
4. and the growth of the student in his learning and in his sense of individual participation and worth.

It is not possible to deny the validity of this system. Parts of it are already being tried in the junior college. Dr. Benson Schulman is experimenting at Los Angeles Pierce College with just such a system of individually prescribed lessons.

The course being taught is English 1, and the low-achievers who are enrolled in this experimental course are staying and succeeding.²³

Recently, educators in Ohio developed an educational system called PLUS (Personal Learning Unit Systems). PLUS tests students and discovers what they do not know. The materials that accompany the test are specifically designed to instruct the student in response to the needs that his tests reveal. The developers of PLUS compare it to calling the doctor when someone is sick. PLUS discovers the nature of the illness and then prescribes a cure.²² Whether PLUS is indebted to Dr. Goodlad's "pharmacy of alternatives" for its terminology remains open. What is not open is the need for the diagnosis of the varied and distinct problems of thousands of freshmen entering our junior colleges and for the individually prescribed instruction with its proven curative powers. To follow Goodlad, we should not treat all of those students with one medicine. We need desperately that "pharmacy of alternatives."

Let us then take one more lesson from our elementary school brethren. The three-year study of the University City School District of Missouri discovered that there is time and that there are programs to fill the needs of individual children. Undeniably, they also discovered that there is a great deal of money needed, but in our society, locally and ~~federally~~ ^{nationally} sensitive to educational needs, that money is available. If we want the most promising educational solutions so far discovered for our college "children, then we can have them; but we must want them

and we must demand them. The complex of activities surrounding individually prescribed instruction holds the promise of a major leap forward for the junior college "open-door" student and his hunger for educational restoration and fulfillment.

*

*

*

BIBLIOGRAPHY

I/D/E/A Sources (listed numerically by Accession Number)

1. 67-249 Frumerten, D.A and Bowen-Smith, K. Northport Schools Handbook for Individualized Reading Instruction. Union Free School District, East Northport, New York, May, 1966.
2. 67-374 Dorothy Bromage. The Oakmont Nongraded Primary Program. Claremont Unified School District, Claremont, California, 1967.
3. 67-406 Robert G. Scanlon. Individually Prescribed Instruction. I/D/E/A/ Research and Development Division, 1967.
4. 67-408 Dr. John I. Goodlad. "Keynote Address," Fourth Annual Conference on Individualization of Instruction. Fountain Valley School District, February 5-6, 1965.
5. 67-410 Charles Danowski. Individualization of Instruction: A Functional Definition. Research Bulletin: Institute of Administrative Research, Vol. 5, No. 2, February, 1965.
6. 67-415 Allan A. Glatthorn. Learning in the Small Group. I/D/E/A Research and Development Division, 1966.
7. 67-417 Individualizing Instruction in Small Schools. Western States Small Schools Project, 1966.
8. 67-422 "Education of Individuals." Working Paper #12. I/D/E/A/ Research and Development Division, 1964.
9. 67-463 Joseph I. Lipson. Individualizing Instruction in Elementary Mathematics. University of Pittsburgh; Learning Research and Development Center, [n.d.]
10. 67-465 Joseph I. Lipson. Rationale and Philosophy of Revised Oakleaf Mathematics Curriculum. University of Pittsburgh Learning Research and Development Center, [n.d.]
11. 67-467 Mathematics Curriculum, Individually Prescribed Instruction. University of Pittsburgh Learning Research and Development Center, [n.d.]
12. 67-495 How Can We Get Our Students to Think Like Scientists? Cooperative Project for Curriculum Development, [n.d.]
13. 67-503 Joseph L. Lipson. Individualized Science Laboratory. University of Pittsburgh Learning and Research and Development Center, [n.d.]

14. 67-557 Individualized Instruction Program at Elementary Level. Lulu Walker School, Tuscon, Arizona, 1966.
15. 67-645 Design for Learning, Learning Laboratory. Skokie Junior High, Winnetka, Illinois, Public Schools, 1964.
16. 67-711 The Learning Research and Development Center. University of Pittsburgh, Pennsylvania, 1966.
17. 67-770 Proceedings: Conference on Instructional Methods and Teacher Behavior. Far West Laboratory for Educational Research and Development, 1966.
18. 67-847 The Impact of New Ideas in Education, Vol. III. University City School District, Missouri, 1966.

Other Sources

19. Curriculum and Instruction Survey. California Teachers Association-JCC, September, 1968.
20. Johnson, B. Lamar. Islands of Innovation, Occasional Report Number 6. University of California, Los Angeles, March, 1964.
21. -----, editor. The Experimental Junior College, Occasional Report Number 12. University of California, Los Angeles, January, 1968.
22. "New Test Reveals What Students Do Not Know." Los Angeles Times. Part I, p. 18, November 18, 1968.
23. Schulman, Benson. Instructor's Guide: English Composition (Rough Draft). Westinghouse Learning Corporation, 1968.
24. Singer, Derek. "Do We Need a Community College Institute?" Junior College Journal, October, 1968.
25. Wilkinson, Jean. "A Program to Improve the Education of Junior College English Teachers." University of California Extension, Los Angeles, 1968.

*

*

*