A STUDY OF TECHNICAL STUDENTS' OPINIONS REGARDING SELF-PACED INSTRUCTION

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Edmond, Oklahoma

1969

Submitted to the Faculty of the
Graduate College of the
Oklahoma State University
in partial fulfillment of
the requirements for
the Degree of
MASTER OF SCIENCE
December, 1974

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PREFACE

In the wake of our technical development, the nation is xperiencing a change in its industrial manpower require- ents. The demand for technical and professional people has ostered a need to change our present educational system. oday, education is concerned with designing programs for ne individual. These new programs have forced many schools o initiate programs designed to let the students learn at neir own pace.

This study was designed to determine the opinions of echnical students toward a self-paced method of instruction

I wish to express my appreciation for the encouragement iven me by my thesis advisor, Dr. Don Phillips. I also ould like to thank the computer center staff, Mr. Calvin isen, Mr. Don Connel, and Mrs. Sharon Harris, and the stu- ents I interviewed during the study.

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CHAPTER I

INTRODUCTION

Man, in the 20th century, is caught in an unprecedented chnological boom. Science is affecting his life in every nceivable way. Society is demanding more highly skilled rkers in the labor force. The increasing demand for high- skilled workers has caused many individuals to seek better ucation or training. It has placed a responsibility upon r educational system for preparing the needed skilled work- 's. People must enter the job market with a higher level skill and knowledge than ever before. They must also have e capacity to remain abreast of technological changes that ll occur in the future.

Not only is there a great demand for skill and knowledge our society, there is also a need for increased produc- vity. As a result many learning programs have directed eir attention to a "readiness to work" type of curriculum efore, 1974). The trend toward productive types of cur- culums has caused many educational institutions to examine eir present educational strategy.

Bloom (1968) outlines a strategy for self-paced instruc- on. In this approach the students are provided with suc- ssful and rewarding learning experiences, procedures

ereby each student's instruction and learning can be man-
ed, and enables the student to achieve 75 to 90 per cent
the material studied under present instructional methods
lock, 1971). These components of career development are
ry important for the success of any educational program.

In addition to providing a system for a worker to
quire skill and knowledge, the system or program should
plore his attitudes toward that system. Successful em-
oyment may very heavily depend on the ability of such pro-
ams to develop positive work attitudes (Wentling, 1973).

The Purpose

The over-all problem with which this study was con-
rned with was to determine the opinions of students, in a
chnical institute, regarding the self-paced instructional
proach in use at that institution.

Need for the Study

In general, education beyond high school has been
alled "higher education". The main concern of most state
odies or policy-making departments has been to provide
eneral education rather than applied education.

Post-secondary educational institutions are usually
lassified into four categories: (1) post-secondary techni-
al vocational schools, (2) community or junior colleges,
3) universities or colleges, and (4) combination secondary-
ost-secondary vocational technical schools.

A post-secondary type of instruction was necessary to ve more intensive and practical applied training to meet e increasing demands of modern technology, according to errill (1969). This type of instruction became the foun- tion for technical education.

Technical education is often characterized as catering inly to people with previous industrial experience who nt a more intensive background in a specific field of terest, and as providing an educational opportunity for skilled and semi-skilled persons to enter a higher level cupation of their interest.

The courses involved in technical education are inten- ve, short, and terminal rather than preparatory, however, e level of teaching in technical institute programs is mparable with other programs carried on by the university raney, 1967).

Technical students are for the most part not prepared cope with the rigorous physical science, mathematics, d communication subjects needed to equip them with the ols of technology (Witrock, 1971). Therefore, if a tech- cal institute elects to teach a program that will allow e student to meet the requirements for an associate degree th optimum learning efficiency, begin at his own competen- level, and proceed at his own rate, then it should devel- procedures to evaluate the program.

Recent studies in the area of self-paced programs are ially directed toward the actual practice of the self-paced

ncept, but the study of opinions or feelings regarding ch programs are rare. Therefore, a study which deals with e opinions regarding such a program was needed in the lahoma State University Technical Institute.

Research Questions

The purpose of this study was to determine the opinions students, in a technical institute, regarding a self-ced instruction approach. The following research questions re formulated:

Question 1: Did the self-paced instruction approach allow students to identify personal learning deficiencies?

2: Did the self-paced instruction approach allow students to correct any learning deficiencies?

3: Did the self-paced instruction approach make effective use of a wide range of multi-media self-study aids?

4: Was the instructor available on an individual basis?

5: Was the self-paced instruction approach better organized than a non-self-paced course?

6: Did working students view the self-paced instruction approach as an asset?

7: Were course objectives in the self-paced instruction approach more clearly stated than non-self-paced course objectives?

8: Was absence of the lecture in the self-paced instruction approach viewed as a program asset by students?

Assumptions Basic to the Study

The following assumptions were incorporated in the
ıdy, it was assumed (1) that students entering a self-
:ed course had the necessary skills to master the subject
the self-paced concept, (2) that students currently tak-
; or having recently completed a self-paced course had
·med opinions about the self-paced method of instruction.

Limitations of the Study

The following are limitations of the study: (1) that
nges in the self-paced instructional material occurred
'ore the study was done, (2) that the interviewer developed
·t of the original self-paced instruction program, and
that the population for the study did not include those
hnical students who had withdrawn from a self-paced
.rse, or those who had graduated from the technical insti-
.e after having taken a self-paced course.

Definition of Terms

A common understanding of technical terms is important
order to convey ideas and recommendations in this world.
lish is a living language, and the meanings of its words
important if it is to serve as a factor in the effective-
s of our thinking. For clarity the following terms are
ined:

Affective Domain: An area of human behavior that deals

primarily in attitudes, feeling and motives of human functioning (Tuckman, 1973).

Attitude: The degree of positive or negative affect associated with some psychological object (Edwards, 1957).

Behavioral Objectives: An object that is measurable in terms of doing an observable act or performing an act (Mager, 1962).

Cognitive Domain: An area of human behavior that deals primarily in knowledge and information of human functioning (Tuckman, 1973).

Non-Self-Paced Course: A course that is taught using the lecture as its main method of instruction.

Programmed Instruction: A well controlled learning sequence through stimuli and, breaking down of subject matter into many simple tasks (Smith, 1971).

Psychological Object: Any symbol, phrase, slogan, person, institution, idea; an idea toward which people can differ with respect to positive or negative affect (Edwards, 1947).

Terminal Behavior: The behavior that will be accepted as evidence that the learners have achieved the main objective (Mager, 1962).

CHAPTER II

REVIEW OF LITERATURE

The review of literature is focused on two basic mes, (1) self-paced instruction, and (2) opinions regard- self-paced instruction. Stated ideals and procedures olved in a self-paced instructional system are incorpo- ed into the first theme. Theme two deals with some of reactions regarding the strategy of self-paced instruc- n. The studies and readings reveal similarities and ferences in problems, purposes, techniques, and proce- es, and in identifying results that might serve as a is for comparison with the results from this study.

Self-Paced Instruction

In the self-paced instruction method, the behavioral ective is the foundation of the program. The behavioral ective specifies what the learner must be able to "do" or rform" when mastering the objective (Mager, 1962). The t important characteristic of a behavioral objective is t it identifies the kind and level of performance neces- y for the attainment of the objective (Allendoerfer, 1971).

Objectives have always been a part of the present in- uctional method, but are usually stated in terms of what

; to be accomplished to pass a course. The objectives of
; self-paced method are stated in terms of what the stu-
t, or learner, must perform to a satisfactory degree in
er to continue to the next level of instruction. The
f-paced method is based entirely on this concept; however,
also utilizes many other paths of learning (Johnson, 1971).

Individually prescribed instruction, as we know today,
its initial start in 1968 in Pittsburgh. The program
been originally designed to teach arithmetic, reading,
science for grades K-6. The usual approach is to break
jects into a sequence of objectives and learning units
each objective. However, unlike programmed instruction,
dents do not proceed through the same programmed lessons.
h students' learning progress is constantly monitored,
learning lessons are tailored to fill their needs (Block,
1).

The self-paced individually prescribed instruction
rse is developed by constructing a hierarchy of behavior-
objectives. This means that the whole course is divided
o a group of mini-courses or basic units of instruction.
h mini-course has a clearly stated objective. Each ob-
tive must be described in performance terms, indicating
t the student must do that can be observed and measured
show what he knows. All statements can be written with
y a few active verbs, such as: demonstrate, describe,
t, derive, calculate, select, etc. The key is developing
objective that requires the student to perform an

servable act.

A full chart of all the mini-courses is designed with h of the study tasks arranged in proper sequence. This ures that the first things are learned first and that sequent units capitalize on and reenforce the material rned earlier. For each mini-course, the instructor con- ucts a series of assessment items and learning activity kages (LAP); the assessment items are a list of things student is to do to show that he has accomplished the avioral objective; that is, sample assessments which help student check his competency. The LAP is a batch of erial containing all of the things to practice in order meet the objectives of the mini-course. Actually, it is o-it-yourself manual; it provides the unique opportunity several paths for one to succeed.

Several aids are provided in the self-paced course such audio tapes, models, video tapes, laboratory demonstra- ns, library references, program instruction material, puters, sample tests, seminars, etc. Where differences student learning styles can be accommodated, the mechan- l self-study aids and media can be effectively employed assist the learning process instead of the teaching pro- s (Gren, 1971).

Opinions Regarding Self-Paced Instruction

The search of literature regarding opinions about self- d instruction system yielded very few studies on the

ıbject. Only one study was found that dealt directly with ;udent reactions to a self-paced learning. Two other ;udies were found that dealt primarily with students' attiıdes toward the use of behavioral objectives and attitudes)ward the self-paced instruction format.

A study by Taylor (1971) focused on the student reacion to the grade contract method of instruction. In this tudy, Taylor assessed student opinions with a 14-item attiıde scale. He found a generally favorable opinion toward ıe grade contract system. Although this learning style is ɔt exactly like self-paced instruction type, it does closey parallel many of the procedures used in the self-paced ıstruction approach. The grade contract procedure used by aylor was based upon the assumption that the objectives ere clearly stated and students were given individual freeom to determine rate and objectives. Like self-paced intruction it provided students a one-to-one relationship ith the instruction and a way to determine grade achieveent.

One of the important features of self-paced instructior s the focus on behavioral objectives. Lawson (1971), in a tudy on students' attitudes toward behavioral objectives, ttempted to show the effectiveness of instructional objecives of technical drafting concepts. The population was sked to respond to a 16-item questionnaire using a modifiec ersion of the Likert type scale. His conclusions were (1) hat instructional objectives proved to be useful and

'fective in facilitating relevant learning, (2) that pre-
)ecified instructional objectives indicated that the asses-
)rs were aware of content expectations, and (3) that the
ıstruction objectives indicated a positive reaction to stu-
)nts' desired instructional outcome.

A study by Wentling (1973) compared a mastery learning
.tuation to a non-mastery learning situation. He defined
.s dependent variables as (1) immediate cognitive achieve-
)nt, (2) attitude toward instruction, (3) time spent on
ıstruction, and (4) delayed cognitive achievement. He ad-
inistered the Otis-Lennon Mental Ability Test to his sub-
)cts. His conclusion was that the mastery learning strateg
)recipitated immediate achievement and delayed achievement
as superior over the non-mastery strategy. He also con-
luded that the amount of time spent on instruction was 50
)rcent greater for the mastery strategy, and no significant
ifference in attitude was revealed.

CHAPTER III

DESIGN AND METHODOLOGY

The purpose of this chapter is to describe the sample d the method by which the data was collected and analyzed. ny problems require precise experimental control and manip- ation; others may be more satisfactorily investigated by y of natural observations or non-experimental assessment. e techniques used in this study appeared to best fit the oblem being considered.

Instrument

Although a great deal of current research has focused the measurement of opinions, an instrument for measuring inions regarding self-paced instructional programs was not und in recent studies. However, the techniques that were esented in recent studies did suggest ways that the in- stigator could develop such an instrument.

The design and development of the questionnaire and nduction of the interview were based upon suggestions by lwards (1957) and Van Dalen (1962). An attempt was made to strict the number of questions for the interview. Ques- ions that were selected for the interview were sent to thre instructors that were using a self-paced format. Each was

ked to review the questions and to select from the list of questions approximately 21 that could be used in the terviews. After editorial changes were made, a questionire was developed for the interview. A copy of the questionnaire is included in Appendix A.

Population for the Study

The population for this study was all students at Oklaoma State University Technical Institute who were currently rolled in, or who had already completed at least one self-ced instruction course. All subjects for this study were elected from classes held at Oklahoma State University Technical Institute during the school year of 1973-1974.

Data Collection

Data was gathered from two groups of subjects; (1) a oluntary group and (2) an involuntary group. The two group ere interviewed independently of each other. Each subject as asked whether they (1) strongly disagree, (2) disagree, 3) undecided, (4) agree, or (5) strongly agree with each uestion. However, questions 8, 11, 20 and 21 required a ore desceptive response since they were designed to yield a ifferent type of information.

The voluntary group (N=34) was interviewed from Novembe 973 to December 1973. The voluntary group was made up of tudents who responded to signs placed on bulletin boards in ne Engineering Technology and Administration Buildings.

ıformation regarding the subject of the study and the time ıd location of the interviews was placed on these signs. copy of the sign used is included in Appendix A.

The involuntary group (N=16) was interviewed from Feb- ıary 1974 to March 1974. Subjects in this group were se- ɔcted from class rolls of instructors using the self-paced ıstructional format. Due to the limited number of availabl: ɔudents and to the length of time required for individual ıterviews, randomized sampling was not attempted in this ırt of the study. It was felt that due to the small sample ɔceptable methods of random sampling would not yield a homo ɜneous group.

Subjects in both groups were given the opportunity to ɔmment on the questions and express a comment at the end of ıe interview.

Data Analysis

The method of analysis used in this study was based upo: ɜrcentage of responses. A percent value of the frequency ? responses to the five possible selections were calculated ɔr each group. A total percentage was also calculated for ɔth groups. Questions 8, 11, 20, and 21 were also based ɔon the percent of the frequency of response for their ıalysis. The facilities of the Oklahoma State University ɛchnical Institute Computer Center at Oklahoma City were sed to compute the percent of responses for each group and ıe total population.

Histograms (see Appendix A) were constructed to present graphical picture of the percentages obtained for both roups and the total sample. Histograms were not developed r questions 8, 11, 20 and 21.

CHAPTER IV

PRESENTATION AND ANALYSIS OF THE DATA

The data presented in this chapter will consist of an ıalysis of the percent of responses in each of the five ıtegories used for the interview questions.

The technical students chosen for the study were seek-ıg a two-year associate degree in some field of technology. ıe programs that were represented by the study were: Fire ·otection, Police Science, Electronics, Computer Program-ing, Nurse Science, Technical Writing and General Engineer-ıg Technology during the years of 1971 to 1974. All ɔudents were attending the Oklahoma State University Tech-ical Institute at Oklahoma City. The number of students ıterviewed for each technology is shown in Table I.

The number of respondents represented by the group lassification used in the study is shown in Table II.

TABLE I

POPULATION OF THE STUDY BY TECHNOLOGY

Technology	Number of Respondents		
	Voluntary	Non-Voluntary	Total
lice Science	5	2	7
re Protection	6	4	10
ectronics	11	6	17
mputer Programming	7	4	11
rse Science	2	0	2
chnical Writing	1	0	1
neral Engineering Technology	2	0	2
tal	34	16	50

TABLE II

NUMBER OF RESPONDENTS FOR EACH GROUP CLASSIFICATIONS

Groups	Number of Respondents
Enrolled in a self-paced course at the present time	30
Enrolled in a self-paced course during the school years of 1971-1974	20

Question 1: Do you feel the self-paced course is etter organized than a non-self-paced course?

The data indicating the results of the interview are nown in Table III. The data indicates that 55.80% of the oluntary group, and 81.30% of the involuntary group felt nat the self-paced course was better organized than a non-elf-paced course. The data also shows that 41.20% of the oluntary group and 18.75% of the involuntary group felt hat the self-paced course was not better organized than a on-self-paced course. 2.90% of the voluntary group was ndecided as to which course was better organized.

TABLE III

PERCENT OF RESPONSES TO QUESTION 1 SHOWING THE RELATIONSHIP OF THE THREE GROUPS

o you feel the self-paced instruction course is better organized than a non-self-paced course?

	Group	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
=34	Voluntary	5.90	35.30	2.90	44.00	11.80
=16	Involuntary	0	18.75	0	68.75	12.50
=50	Total	4.00	30.00	2.00	52.00	12.00

Question 2: Do you feel the instructor helped you on n individual basis?

Table IV indicates that 91.2% of the voluntary group, ıd 100% of the involuntary group felt that instructors ɜaching on the self-paced method helped students on an indi·.dual basis, and 8.80% of the voluntary group felt that ıey did not receive any help on an individual basis from ıe instructor.

TABLE IV

PERCENT OF RESPONSES TO QUESTION 2 SHOWING THE RELATIONSHIP OF THE THREE GROUPS

) you feel the instructor helped you on an individual basis						
	Group	Strongly Disagree	Disagree	Unde-cided	Agree	Strongly Agree
=34	Voluntary	2.90	5.90	0	41.20	50.00
=16	Involuntary	0	0	0	18.75	81.25
=50	Total	2.00	4.00	0	34.00	60.00

Question 3: Did you spend more time studying in the ɜlf-paced course?

Results of the interview appear in Table V. The data ıows that 44.10% of the voluntary group, and 62.50% of the ıvoluntary group felt that they did spend more time study-ıg in the self-paced course. The data also shows that '.10% of the voluntary group, and 37.50% of the involuntary

oup felt that they did not spend more time studying in the lf-paced course. The data shows that 8.80% of the volun- ry group was undecided to the question.

TABLE V

PERCENT OF RESPONSES TO QUESTION 3 SHOWING THE RELATIONSHIP OF THE THREE GROUPS

.d you spend more time studying in the self-paced course?						
	Group	Strongly Disagree	Disagree	Unde- cided	Agree	Strongly Agree
:34	Voluntary	0.00	47.10	8.80	35.30	8.80
:16	Involuntary	0.00	37.50	0.00	56.25	6.25
:50	Total	0.00	44.00	6.00	42.00	8.00

Question 4: Did you feel the grading system used in ıe self-paced course was justified?

The data indicating the results of the interview are ıown in Table VI. The data shows that 82.40% of the volun- ıry group, and 100% of the involuntary group felt that the ıading system used in the self-paced course was justified. ıe data also shows that 8.80% of the voluntary group felt ıat the grading system used in the self-paced course was ɔt justified. 8.80% of the voluntary group was undecided ı the question.

TABLE VI

PERCENT OF RESPONSES TO QUESTION 4 SHOWING THE RELATIONSHIP OF THE THREE GROUPS

l you feel the grading system used in the self-paced course s justified?						
	Group	Strongly Disagree	Disagree	Unde-cided	Agree	Strongly Agree
34	Voluntary	5.90	2.90	8.80	61.80	20.60
6	Involuntary	0	0	0	93.75	6.25
50	Total	4.00	2.00	6.00	72.00	16.00

Question 5: Do you feel the self-paced course will help ı in more advanced courses?

Table VIII shows the results of the interview. The data ows that 64.70% of the voluntary group felt that the self- ed course would help them in more advanced courses, and 25% of the involuntary group felt that they would be helpe more advanced courses by taking a self-paced course. 50% of the voluntary group felt that they were not going be helped in more advanced courses by taking a self-paced ırse. 12.50% of the involuntary group felt the self-paced ırse would not help them in more advanced courses. 8.80% the voluntary, and 6.25% of the involuntary group were un- ided on the question.

TABLE VII

PERCENT OF RESPONSES TO QUESTION 5 SHOWING THE RELATIONSHIP OF THE THREE GROUPS

) you feel the self-paced course will help you in more ad-anced courses?						
	Group	Strongly Disagree	Disagree	Unde-cided	Agree	Strongly Agree
=34	Voluntary	5.90	20.60	8.80	64.70	0
=16	Involuntary	0	12.50	6.25	62.50	18.75
=50	Total	4.00	18.00	8.00	64.00	6.00

Question 6: Did the self-paced course make use of a ide range of audio-visual equipment?

The data indicating the results for question six appear ı Table VIII. The data shows that 76.50% of the voluntary roup, and 68.80% of the involuntary group felt that audio-isual equipment was not utilized in the self-paced course. 3.50% of the voluntary group, and 31.30% of the involuntary roup felt that the self-paced course did make use of audio-isual equipment. Neither group had a person that was unde-ided on this question.

Question 7: Does the self-paced course bring out the ause of failure in learning?

The results of the interview are shown in Table IX. ıe data indicates that 76.50% of the voluntary group, and ıat 75.00% of the involuntary group felt that the self-pace

urse identified the failure to learn in the self-paced urse. 11.75% of the voluntary group, and 18.75% of the voluntary group felt that the cause of failure in learning s not identified. The data reveals that 11.75% of the luntary group, and 6.25% of the involuntary group were un-cided.

TABLE VIII

PERCENT OF RESPONSES FOR QUESTION 6 SHOWING THE RELATIONSHIP OF THE THREE GROUPS

d the self-paced course make use of a wide range of audio-sual equipment?

	Group	Strongly Disagree	Disagree	Unde-cided	Agree	Strongly Agree
34	Voluntary	8.80	67.70	0	23.50	0
16	Involuntary	6.25	62.50	0	31.25	0
50	Total	8.00	66.00	0	26.00	0

TABLE IX

PERCENT OF RESPONSES TO QUESTION 7 SHOWING THE RELATIONSHIP OF THE THREE GROUPS

es the self-paced course bring out the cause of failure in arning?

	Group	Strongly Disagree	Disagree	Unde-cided	Agree	Strongly Agree
34	Voluntary	0	11.75	11.75	61.80	14.70
16	Involuntary	0	18.75	6.25	75.00	0
50	Total	0	14.00	10.00	66.00	10.00

The sample was asked on Question No. 8 of the interview, f given a choice of the types of aids that are used in the lf-paced course, which ones would you like to use in the urse?" The choice of aids they had to choose from was pes, sound on page, lecture, films, slides, overhead, and her. The data is given in Table X.

TABLE X

PERCENTAGE OF RESPONSES TO THE TYPES OF AIDS THAT SHOULD BE USED IN A SELF-PACED COURSE

Aids	Number of Responses	Percent* of Responses
pes	13	26.00
und on Page	13	26.00
cture	38	76.00
lms	7	14.00
ides	11	22.00
erhead	13	26.00
her		
1. Booklets	1	2.00
2. Examples	1	2.00
3. Teaching Machine	1	2.00

ercentage was based upon the responses of the total sample (N=50).

Question 9: Do you think the self-paced course was sier than a non-self-paced course?

Table XI shows the results of the interview. The data ows that 26.50% of the voluntary group, and 50% of the in- luntary group felt the self-paced course was easier than a n-self-paced course. 70.60% of the voluntary group, and .50% of the involuntary group felt that the self-paced rse was not easier than a non-self-paced course. 2.90% the voluntary group, and 12.50% of the involuntary group re undecided on the question.

TABLE XI

PERCENT OF RESPONSES TO QUESTION 9 SHOWING THE RELATIONSHIP OF THE THREE GROUPS

you think the self-paced course was easier than a non-lf-paced course?

	Group	Strongly Disagree	Disagree	Unde-cided	Agree	Strongly Agree
34	Voluntary	2.94	67.65	2.94	23.53	2.94
16	Involuntary	0	37.50	12.50	50.00	0
50	Total	2.00	58.00	6.00	32.00	2.00

Question 10: Do you think the self-paced course cor- cts the learning disability of the students?

Table XII shows the results of the interview. The data

.dicates that 67.60% of the voluntary group, and 81.25% of .e involuntary group felt that disabilities were corrected · the self-paced course. 26.50% of the voluntary group, .d 12.50% of the involuntary group felt that the learning .sabilities were not being corrected by the self-paced ·urse. 5.90% of the voluntary group, and 6.25% of the in-·luntary group felt they could not answer in favor or ;ainst the question.

TABLE XII

PERCENT OF RESPONSES TO QUESTION 10 SHOWING THE RELATIONSHIP OF THE THREE GROUPS

you think the self-paced course corrects the learning dis-ility of the student?						
	Group	Strongly Disagree	Disagree	Unde-cided	Agree	Strongly Agree
34	Voluntary	11.80	14.70	5.90	61.80	5.80
16	Involuntary	0	12.50	6.25	81.25	0
50	Total	8.00	14.00	6.00	68.00	4.00

The sample was asked on Question No. 11 of the inter-ew, "If given a choice, would you at the present time roll in a self-paced course or a non-self-paced course?" e data given in Table XIII presents an analysis of the re-tionship between the voluntary, non-voluntary, and total mple group responses to the question. 67.70% were in favor

ıd 35.30% were not in favor of enrolling in a self-paced ›urse at the present time for the voluntary group. 93.75% ›re in favor and 6.25% were not in favor of enrolling in a ›lf-paced course for the non-voluntary group. The total ımple percentage was 74.0% in favor of enrolling in a self-ıced course and 26.0% not in favor of enrolling in a self-ıced course.

TABLE XIII

PERCENTAGE ANALYSIS OF THE RESPONSE OF ENROLLING IN A SELF-PACED COURSE OR NON-SELF-PACED COURSE

Group	Enroll in a Self-Paced Course	Not Enroll in a Self-Paced Course
›luntary (N=34)	64.70	35.36
›n-voluntary (N=16)	93.75	6.25
›tal (N=50)	73.99	25.99

Question 12: Do you feel the self-paced course has a .ace in the technical institute?

The data for the results of the interview are shown in ıble XIV. The results show that 91.20% of the voluntary ›oup, and 56.25% of the involuntary group felt that the ›lf-paced course was needed in a technical institute. Only

80% of the voluntary group, and 6.25% of the involuntary oup felt that the self-paced course was not needed at the chnical institute. 37.50% of the involuntary group felt decided on the question.

TABLE XIV

PERCENT OF RESPONSES TO QUESTION 12 SHOWING THE RELATIONSHIP OF THE THREE GROUPS

you feel the self-paced course has a place in the techni-l institute?

	Group	Strongly Disagree	Disagree	Unde-cided	Agree	Strongly Agree
34	Voluntary	0	8.80	0	50.00	41.20
16	Involuntary	0	6.25	37.50	56.25	0
50	Total	0	8.00	12.00	52.00	28.00

Question 13: Do you think subjects such as Mathematics, emistry, and Physics should be taught on a self-paced basis

The results of the interview are shown in Table XV. The ta indicates that 58.80% of the voluntary group, and 75.00% the involuntary group felt that Mathematics, Chemistry, d Physics should be taught on a self-paced basis. The data so indicates that 38.20% of the voluntary group, and 25.00% the involuntary group felt that Mathematics, Chemistry, d Physics should not be taught on a self-paced basis.

90% of the voluntary group was undecided on the question.

TABLE XV

PERCENT OF RESPONSES TO QUESTION 13 SHOWING THE RELATIONSHIP OF THE THREE GROUPS

you think subjects such as Mathematics, Chemistry, and ysics should be taught on a self-paced basis?

	Group	Strongly Disagree	Disagree	Unde-cided	Agree	Strongly Agree
34	Voluntary	20.60	17.60	2.90	52.90	5.90
16	Involuntary	25.00	0	0	62.50	12.50
50	Total	22.00	12.00	2.00	56.00	8.00

Question 14: Do you feel working students benefit from lf-paced courses?

The data from the interview is shown in Table XVI. The ta shows that 79.40% of the voluntary group, and 100% of e involuntary group felt that working people benefit from king the self-paced course. The data also shows that .80% of the voluntary group felt that working people do t benefit from taking self-paced courses. 8.80% of the luntary group was undecided to the question.

TABLE XVI

PERCENT OF RESPONSES FOR QUESTION 14 SHOWING THE RELATIONSHIP OF THE THREE GROUPS

) you feel working students benefit from taking self-paced)urses?

	Group	Strongly Disagree	Disagree	Unde-cided	Agree	Strongly Agree
=34	Voluntary	0	11.80	8.80	61.80	17.60
=16	Involuntary	0	0	0	25.00	75.00
=50	Total	0	8.00	6.00	50.00	36.00

Question 15: Do you feel course objectives in the self ıced course are more clearly stated than non-self-paced)urse objectives?

The results of the interview appears in Table XVII. ıe data shows that 70.60% of the voluntary group, and 68.75% ' the involuntary group felt that they understood the self- ıced objectives better than non-self-paced course objec- .ves. The data also indicates that 23.50% of the voluntary 'oup, and 18.75% of the involuntary group felt that they .d not understand the self-paced course objectives better ıan the non-self-paced course objectives. 5.90% of the)luntary group, and 12.50% of the involuntary group was un- ;cided.

TABLE XVII

PERCENT OF RESPONSES TO QUESTION15 SHOWING THE RELATIONSHIP OF THE THREE GROUPS

you feel course objectives in self-paced instruction are re clearly stated than non-self-paced course objectives?						
	Group	Strongly Disagree	Disagree	Unde-cided	Agree	Strongly Agree
:36	Voluntary	0	23.50	5.90	64.70	5.90
:16	Involuntary	0	18.75	12.50	50.00	18.75
:50	Total	0	22.00	8.00	60.00	10.00

Question 16: Does the self-paced course make the stu-nt more responsible for his studies?

Table XVIII shows the results of the interview. The ıta indicates that 88.20% of the voluntary group, and 87.50% ' the involuntary group felt the self-paced course made the :udent more responsible for his work. The data also shows ıat 11.80% of the voluntary group, and 12.50% of the in-›luntary group felt that the self-paced course did not make ıem more responsible for their work.

Question 17: Do you feel the self-paced course resem-.es a correspondence course?

The results are shown in Table XIX. The data shows ıat 29.40% of the voluntary group, and 37.50% of the invol-ıtary group felt the self-paced course was similar to a cor ›spondence course. The data also shows that 64.70% of the

luntary group, and 56.25% of the involuntary group felt at the self-paced course did not resemble a correspondence urse. 5.90% of the voluntary group, and 6.25% of the in-luntary group were undecided.

TABLE XVIII

PERCENT OF RESPONSES TO QUESTION 16 SHOWING THE RELATIONSHIP OF THE THREE GROUPS

es the self-paced course make the student more responsible r his studies?

	Group	Strongly Disagree	Disagree	Unde-cided	Agree	Strongly Agree
34	Voluntary	0	11.80	0	73.50	14.70
16	Involuntary	0	12.50	0	50.00	37.50
50	Total	0	12.00	0	66.00	22.00

TABLE XIX

PERCENT OF RESPONSES TO QUESTION 17 SHOWING THE RELATIONSHIPS OF THE THREE GROUPS

you feel the self-paced course resembles a correspondence urse?

	Group	Strongly Disagree	Disagree	Unde-cided	Agree	Strongly Agree
34	Voluntary	8.80	55.90	5.90	20.60	8.80
16	Involuntary	12.50	43.75	6.25	37.50	0
50	Total	10.00	52.00	6.00	26.00	6.00

Question 18: Do you feel you learned any practical ills while taking the self-paced course?

The data for question 18 appears in Table XX. The re-lts indicate that 61.70% of the voluntary group, and 100% the involuntary group felt that they did learn some prac-cal skills in the self-paced course. The data also shows at 38.30% of the voluntary group felt that they did not arn any practical skill while taking the self-paced course. ere was no undecided responses to the question.

TABLE XX

PERCENT OF RESPONSES TO QUESTION 18 SHOWING THE RELATIONSHIPS OF THE THREE GROUPS

you feel you learned any practical skills while taking the lf-paced course?

	Group	Strongly Disagree	Disagree	Unde-cided	Agree	Strongly Agree
34	Voluntary	8.90	29.40	0	55.90	5.90
16	Involuntary	0	0	0	81.25	18.75
50	Total	6.00	20.00	0	64.00	10.00

Question 19: Do you feel courses such as History, glish, etc., are more suitable to the self-paced approach?

Table XXI shows the results of the interview. The data ows that 64.70% of the voluntary group, and 32.50% of the voluntary group felt that a course of a non-mathematical

ture is more suitable for the self-paced approach. The ta also shows that 29.40% of the voluntary group, and .00% of the involuntary group felt that the non-mathmatical urses were not suitable to the self-paced approach. 5.90% the voluntary group, and 12.50% of the involuntary group lt undecided on the question.

TABLE XXI

PERCENT OF RESPONSES TO QUESTION 19 SHOWING THE RELATIONSHIP OF THE THREE GROUPS

you feel courses such as History, English, etc. are more itable to the self-paced approach?

	Group	Strongly Disagree	Disagree	Unde-cided	Agree	Strongly Agree
34	Voluntary	2.90	26.50	5.90	58.80	5.90
16	Involuntary	6.25	43.75	12.50	25.00	12.50
50	Total	4.00	32.00	8.00	48.00	8.00

Question 20 of the interview asked, "Do you think the lf-paced program at Oklahoma State University Technical stitute in Oklahoma City should be continued or discon-nued?"

The data given in Table XXII represents the relation-ip of the responses to the question. 91.20% were for con-nuing the program, and 8.80% were for discontinuing the

ogram for the voluntary group. The non-voluntary group s 93.80% for continuing and 6.30% for discontinuing the ogram. The total sample responses were 92.00% for contin- ng and 8.00% for discontinuing.

TABLE XXII

PERCENTAGE OF ANALYSIS OF THE RESPONSES OF EITHER TO CONTINUE OR DISCONTINUE THE SELF-PACED PROGRAM

Group	Continued	Discontinued
luntary (N=34)	91.20	8.80
n-voluntary (N=16)	93.75	6.25
tal (N=50)	92.00	8.00

Question 21 of the interview asked, "Do you feel the structor's attitude was positive or negative toward the lf-paced course?"

The data given in Table XXIII presents the relation- ip of the responses to the question. The table shows that .00% of the total sample felt that the instructors involve the self-paced courses projected a positive attitude, and 00% felt that some instructors projected a negative atti- ude.

TABLE XXIII

PERCENTAGE OF ANALYSIS OF THE RESPONSES OF THE INSTRUCTOR'S ATTITUDE TOWARD THE SELF-PACED COURSE

Group	Number of Responses		Percent of Responses	
	Positive	Negative	Positive	Negative
untary (N=34)	30	4	88.20	11.80
-voluntary (N=16)	16	0	100.00	0
al (N=50)	46	4	92.00	8.00

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The problem with which this study was concerned was to :termine the opinions of technical students regarding a :lf-paced instruction program at a technical institute. ıis study was also concerned with the problems encountered r students taking related technical courses utilizing the :lf-paced format. This study attempted to provide data ıat could be used to improve the self-paced instruction ɔrmat.

Summary

There has been a tremendous growth in the technological evelopment in society in the past 20 years. The impact of ıis technological growth has placed a tremendous demand ɔon educational institutions to keep up with the recent echnological developments through improved curricula and eaching methods. The need to produce more and better pro- essional and semi-professional manpower at a faster rate as caused many institutions to deviate from traditional eaching methods and seek what appears to be more modern and fficient teaching methods.

An attempt was made in this study to investigate the

lf-paced method of instruction for the technician prepara-
ons programs at Oklahoma State University Technical Insti-
.te at Oklahoma City.

An interview schedule was developed to collect data
·om two groups of respondents utilized in the study. Ques-
.ons were designed to elicit their opinions regarding the
ɔlf-paced method of instruction. The subjects interviewed
ı the study were technical students seeking a two-year
ɜsociate degree in some engineering field during the fall
' 1973 through spring, 1974. Percentage analysis, a graph,
ıd simple listings were used throughout the study.

Findings

The study sought to answer eight research questions
ɔncerning the opinions of technical students regarding the
ɛlf-paced method of instruction. This section states each
ıestion and the findings based upon the responses.

First Research Question: Did the self-paced instructio
ɔproach allow students to identify personal learning defi-
iencies?

The results presented in Table IX suggest that the
ajority of students in a self-paced course are able to iden
ify some of their own problems in learning. During the
ıterview, students would express their opinions on how they
ere able to recognize their mistakes and able to correct
ɔme of their mistakes before continuing the course. They
lso felt that spending more time in one section of the

terial helped them in later sections of the material.

Second Research Question: Did the self-paced instruc-on approach allow students to correct any learning defi-encies?

The results presented in Table XII suggest that the udents taking a self-paced course do correct most of their arning disabilities. Most of the students expressed that ey did have more time in which to review their skills and ill continue to make progress within the course. Many udents expressed the feeling of stopping within the course d being able to upgrade their skills and not be left way hind in the course material as they would have in a non-lf-paced course.

Third Research Question: Did the self-paced instructior proach make effective use of a wide range of multi-media lf-study aids?

The results presented in Table VIII indicate that the structors in the self-paced courses did not use the audio-sual equipment at the technical institute.

Fourth Research Question: Was the instructor available an individual basis?

The results presented in Table IV indicate that more an seven-eights of the sample felt that they are getting e individual help needed in courses taught on a self-paced proach.

During the interview, the investigator sensed that the udents were pleased with the attitude of the instructor's

llingness to help them. Only a few felt that some instruc-
rs did not make an honest effort to help them. The fact
smaller classes at the technical institute also helped
e students feel that the instructors were willing to help
em. Approximately 6% of the students interviewed felt thai
ey did not receive individual help during the course.

Fifth Research Question: Was the self-paced instruc-
on approach better organized than a non-self-paced course?

The results presented in Table III indicate that approx-
ately two-thirds of the total sample felt the self-paced
urse was better organized than a non-self-paced course.
the opinion of the investigator, the reason the involuntar
oup answered in favor of the question (81.25%) was due pri-
rily to changes that had occurred in the material since
e self-paced program started.

Sixth Research Question: Did working students view the
lf-paced instruction approach as an asset?

The data presented in Table XVI implies that the major-
y of both groups (voluntary and involuntary) feel that
rking students benefit from the self-paced structure.

Many students indicated during the interview as to the
exibility of the self-paced system as to their work sched-
e. Many students also expressed their feeling that more
urses should be taught on this basis.

Seventh Research Question: Were course objectives in
e self-paced instruction approach more clearly stated than
n-self-paced course objectives?

The data presented in Table XVII indicates that most of e students seem to understand the self-paced course objec- ves better than non-self-paced course objectives. The ta also reveals that approximately one-fourth of the total mple (22.00%) was better able to understand non-self-paced urse objectives rather than self-paced course objectives.

Eighth Research Question: Was absence of the lecture the self-paced instruction approach viewed as a program set by students?

The results of Table X indicate that the majority 6.00%) of the sample felt a strong need to incorporate cture into the self-paced format as an aid to the self- ced material. Other aids only received minor support as ds to the self-paced format.

The students, during the interview, felt that lecture ould be on a regular schedule and attendance be made an tional requirement. Many students felt that providing a cture would help clear up many problems they had encoun- red in the self-paced material and the classroom inter- tion would help them with common problems.

Lecture in the self-paced format was used as an aid dur g the program's second semester (spring, 1972) and was set on an optional attendance basis for those who attended. ny students felt that this change in the self-paced struc- re helped the program materialize. The students seem to ccept" the idea of learning on self-paced format with the cture as an aid.

Conclusions

In general, the opinions of the sample indicate a positive response to the self-paced instruction approach.

It can be concluded from this study, based on the opinions of the students sampled, that:

1. Students taking the self-paced course are able to identify personal learning deficiencies.
2. Learning deficiencies encountered by the students during the self-paced course are corrected by the self-paced course.
3. The employment of multi-media self-study aids were not used during the self-paced course.
4. The students did recive individual help from an instructor while taking the self-paced course.
5. The self-paced instruction approach was better organized than other non-self-paced courses.
6. Working students view the self-paced course as a viable way to their needs.
7. Self-paced course objectives are better stated than non-self-paced course objectives.
8. A major proportion of students (76%) would like to see lectures included in the self-paced instructional programs.
9. The amount of study time required in the self-paced course was greater for the involuntary group.
10. Students in the involuntary group said that the self-paced course was harder.

11. The voluntary group viewed courses such as History, English, etc. more suitable to the self-paced approach.

In brief, the findings suggest some evidence that opinns of the sample do favor the self-paced instruction approach. The findings also indicate that more studies should conducted to provide more data related to the effectiveess of the self-paced method of instruction.

The findings in this study support some of the findings esented by Wentling (1973). For example, he found that mediate learning achievement and delayed achievement were r superior for the mastery learning strategy and not super for non-mastery learning strategy. Wentling also showed at students in the mastery learning course spent more time udying than in the non-mastery learning approach. These ndings agree with the results of Table VII which indicates udents felt that they spent more time studying in the self ced course.

The fact that 70% of the total sample felt that course jectives are more clearly stated than non-self-paced course jectives tends to support the findings of Lawson (1971). s study showed that instructional objectives were effective facilitating relevant learning concepts.

Recommendations

As is true of most studies, this one raises far more estions than it answers. Following are several recommendaons for further research related to this topic.

1. Follow-up studies should be made to determine how effectively the learning resulting from self-paced instruction is retained.
2. A study be conducted to follow and evaluate the achievement of students in self-paced courses vs. the achievement of students in non-self-paced courses.
3. A study be conducted to determine attitude changes.
4. The lecture be used as a supplement to the self-paced course.

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APPENDIX A

.gn used in contacting students, questionnaire used in the ;udy, and Histogram of the percent of responses to each ıestion.

A T T E N T I O N I P I S T U D E N T S - - -

P R E S E N T A N D P A S T !

N o w i s y o u r c h a n c e t o e x p r e s s y o u r v i e w s o n I P I

S e e :

M r. S o n a g g e r a

i n t h e l i b r a r y

November 1 to December 1

M - W - F 1 : 3 0 - 3 : 3 0

T - T h 1 - 4

o r

T 1 0 3

M - W - F 9 - 1 0 a n d 1 1 - 1 2

P h o n e : 9 4 7 - 4 4 2 1 E x t. 6 2

Code

- strongly disagree
- disagree
- undecided
- agree
- strongly agree

Group

A - Now in a self-paced instruction class

B - Withdrew from self-paced instruction class

Do you feel the self-paced instruction course is better organized than a non-self-paced course?

Do you feel the instructor helped you on an individual basis?

Did you spend more time studying in the self-paced course?

Did you feel the grading system used in the self-paced course was justified?

Do you feel the self-paced course will help you in more advanced courses?

Did the self-paced course make use of a wide range of audio-visual equipment?

Does the self-paced course bring out the cause of failure in learning?

If given a choice of the types of aids that are used in the self-paced course which ones would you like to use in the course?

1. Tapes
2. Sound on Page
3. Lecture
4. Films
5. Slides
6. Overhead
7. Other (specify)

Do you think the self-paced course was easier than a non-self-paced course?

Do you think the self-paced course corrects the learning disability of the student?

. If given a choice would you at the present time, enroll in a self-paced course or a non-self-paced course?

. Do you feel the self-paced course has a place in the technical institute?

. Do you think subjects such as Mathematics, Chemistry, and Physics should be taught on a self-paced basis?

. Do you feel working students view the self-paced course as an asset?

. Do you feel course objectives in self-paced instruction are more clearly stated than non-self-paced course objectives?

. Does the self-paced course make the student more responsible for his work?

. Do you feel the self-paced course resembles a correspondence course?

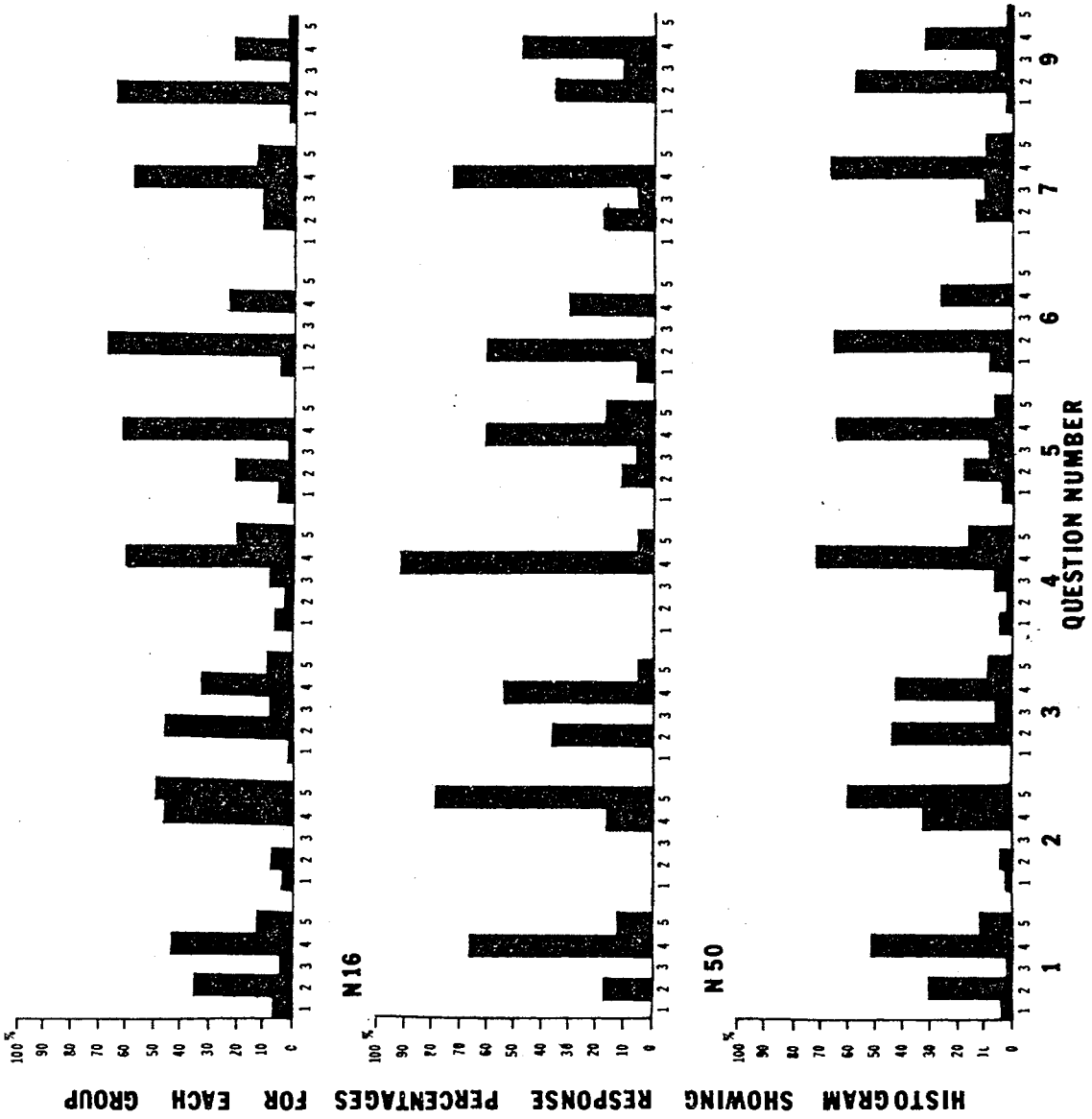
. Do you feel you learned any practical skills while taking the self-paced course?

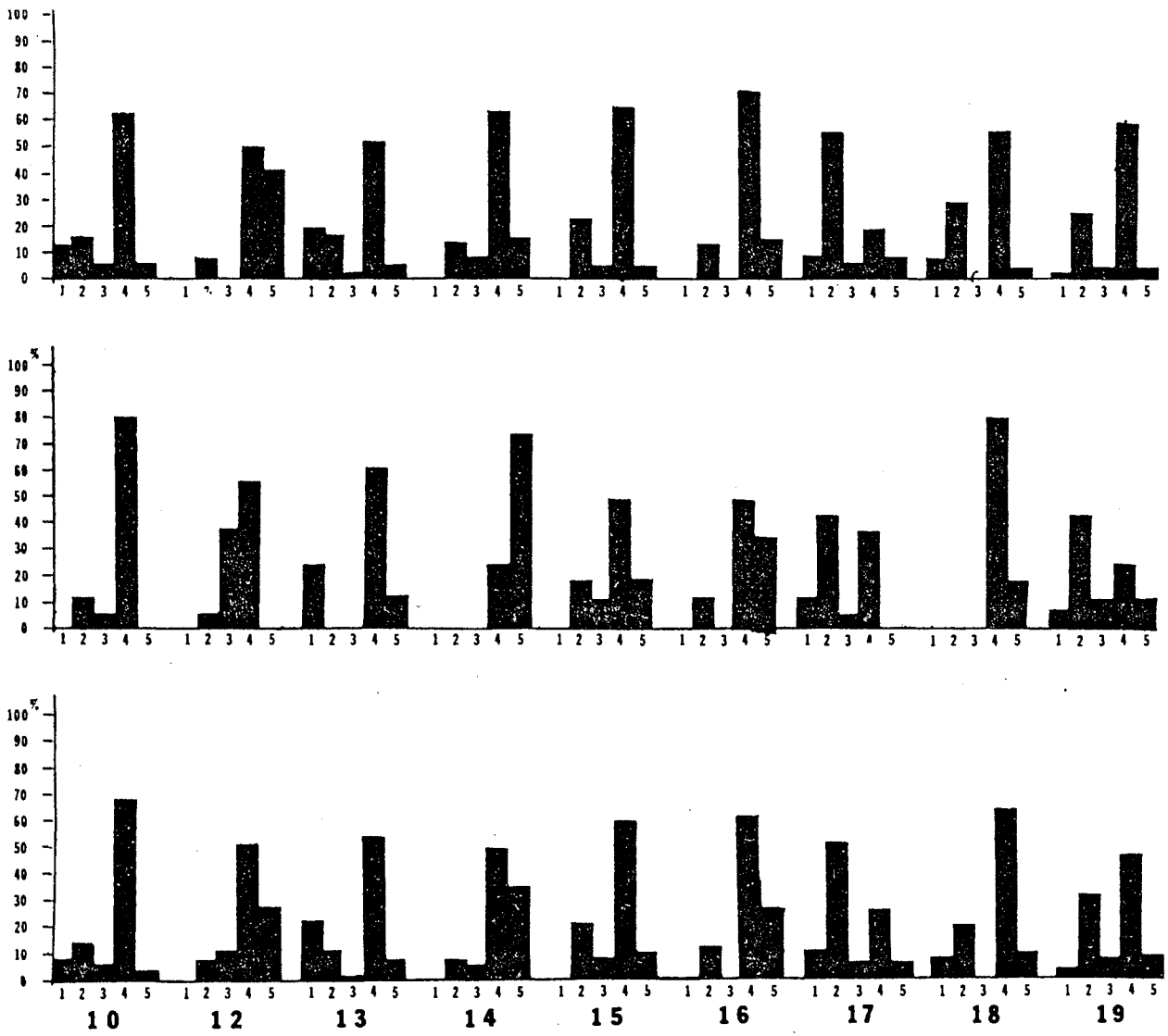
. Do you feel courses such as History, English, etc. are more suitable to the self-paced approach?

. Do you think the self-paced program at Oklahoma State University Technical Institute should be continued or discontinued?

. Do you feel that the instructors attitude was positive or negative toward the self-paced course?

mments:


HISTOGRAM SHOWING RESPONSE PERCENTAGES FOR EACH GROUP
N 50
N16
QUESTION NUMBER
1
2
3
4
5
6
7
9
100 %
90
80
70
60
50
40
30
20
10
0
1 2 3 4 5


100
90
80
70
60
50
40
30
20
10
0
%
1 2 3 4 5
10
12
13
14
15
16
17
18
19

APPENDIX B

SELECTED COMMENTS

SELECTED ATTITUDE STATEMENTS ABOUT THE GENERAL STRUCTURE OF THE SELF-PACED PROGRAM

mments:

) "Need to study the background of the student."

) "Need to improve the working structure."

) "Need a basic knowledge of the subject."

) "Need lecture in the self-paced structure."

) "Do away with the program."

) "Better objectives should be written in a form so the student understands what is expected of him."

') "Need better counseling in subject such as Mathematics and Chemistry before the student enters in these subjects."

3) "Provide more choices between the self-paced and conventional course."

)) "Need to look at students' background before entering a self-paced course."

)) "Revise the written material used in the self-paced classes."

1) "Need to develop a system in which other help can be present."

2) "Fine."

3) "No changes needed."

SELECTED ATTITUDE STATEMENTS FROM BOTH GROUPS

uestion Number 11: If given a choice would you at the resent time enroll in a self-paced course or a conventional ourse."

omments:

) "Enroll in a conventional course because of the classroom atmosphere and group interaction."

2) "Enroll in a self-paced course depending upon the subject."

3) "Enroll in a self-paced course, because of the flexibility of the course."

4) "Enroll in a self-paced course depending upon which course it is."

5) "Enroll in a self-paced course, because you can learn more and do the course work at your own rate."

6) "Enroll in a conventional course, because of the lectur and grading system."

7) "Enroll in a self-paced course because of the intense learning of the subject, and it covers a wider range of material in the subject."

8) "Enroll in a conventional course because of the discipline of the course."

VITA

Michael Albert Sonaggera

Candidate for the Degree of

Master of Science

esis: A STUDY OF TECHNICAL STUDENTS' OPINIONS REGARDING SELF-PACED INSTRUCTION

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