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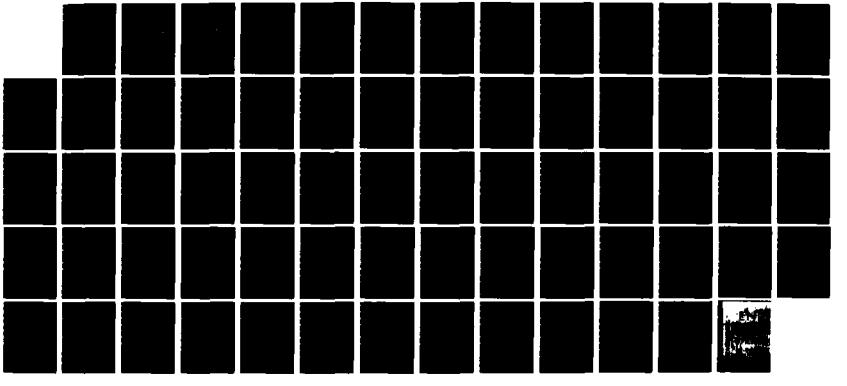

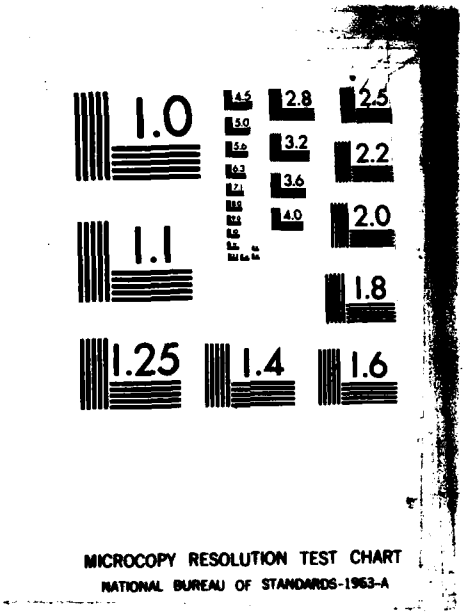

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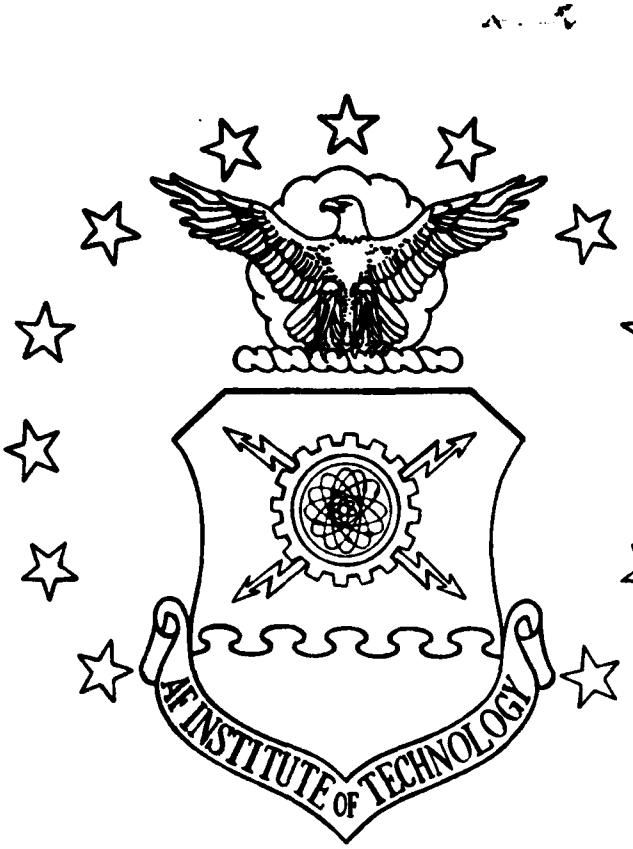

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Major Alvin L. Milam, Ph.D
G. Ronald Christopher, Ph.D

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Air Force Institute of Technology
Directorate of Educational Plans and Programs
Plans Division
Wright-Patterson AFB Ohio 45433

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20. ABSTRACT

A statistical analysis was done of tutored videotape instructional system (TVIDS) for SYS 100, Introduction to Acquisition Management, provided by the School of Systems and Logistics to determine if (a) student groups were comparable in terms of grade/rank, education level, sex, age, and years of logistical experience; (b) student groups were statistically equal in terms of entry level knowledge; (c) student groups were statistically equal in terms of academic achievement; (d) students accepted the tutored videotape instructional system. Data gathering instruments included a demographic questionnaire, end-of-course critique, pretest, and post-test content exam. Analyses were performed using cross-tabulation, chi-square, one-way analysis of variance, and multiple regression. The significance level was established at .05.

Results indicated the students were comparable in grade/rank and age. There were statistical differences among course offerings for the educational level of students. Sex and years of logistical experience could not be compared due to the population variances not being equal.

Of the eleven comparison groups, only one group was statistically different in entry level knowledge.

For academic achievement, four comparison groups were statistically different.

The average acceptability score for all students showed that students did not accept the TVIDS as a means of instruction.

In summary, the demographic factors of grade/rank and education level are predictors of academic achievement, and the students do not accept the TVIDS as a mode of instruction.

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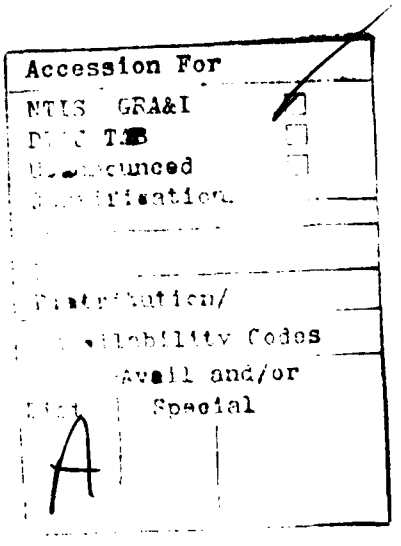

ANALYSIS OF TUTORED VIDEOTAPE INSTRUCTIONAL DELIVERY SYSTEM SYS 100, 82A, B, C, E, AND 83A

1. INTRODUCTION

This report summarizes the analyses of data collected during the 1982 and 1983 offerings of the SYS 100 (Introduction to Acquisition Management) professional continuing education course presented by the Tutored Videotape Instructional System (TVIDS). The course was presented at two locations. Four offerings were at the Aeronautical Systems Division (ASD) WPAFB, Ohio and one at the Electronic Systems Division (ESD), Hanscom AFB, Massachusetts.

2. METHODOLOGY

2.1 Data Preparation. Data used in this analysis were obtained from the following instruments:

(a) Demographic information questionnaire (Appendix A)

(b) Student End-of-Course Critiques (Appendix B)

(c) Content Pretest

(d) Content Post-Test

Data were obtained using student completed computer scan sheets. These were processed to provide disk files on the AFLC CREATE computer system using AFIT's OPSCAN equipment located in the School of Systems and Logistics. Data gathered by each instrument includes a numeric student identification code, permitting consolidation of data items for each student. Separate files containing data from each of the four instruments at each of the two locations were output from the CREATE System in punched card format and loaded into disc files on the ASD CYBER computer system. The following steps were then accomplished to prepare a consolidated data base.

2.1.2 Software was written in FORTRAN to grade the tests, and combine the test scores with demographic and end-of-course critique data.

2.1.3 Obvious errors on the scan sheets such as erroneously coded student identification were manually corrected.

The result of this data preparation process is the data base listed at Appendix C. The format of each record is:

Record Columns	Content
1&2	Student location
3&4	Student number
5-10	Demographic Questions 1-6
25-54	End-of-Course critique items 1-30
56-58	Pretest score in percent
60-62, 64-66, 68-70	Post-test scores in percent for three tests

Although responses to the demographic instrument and end-of-course critique were alpha characters, the scanning process yields a numeric representation. In the data base, a value of 0 corresponds to an "A" student response, and a 1 represents a "B" response, etc. A blank column indicates no response to the item. As many observations as possible from each record have been used in the analysis presented in this report.

2.2 Analysis Objectives. This data analysis addresses the following research questions:

2.2.1 Were student groups comparable in terms of grade/rank, education level, sex, age, and years of logistical experience?

2.2.2 Were student groups statistically equal in terms of entry level knowledge?

2.2.3 What statistical differences in academic achievement occurred in offerings of the same course?

2.2.4 To what extent was the TVIDS acceptable to students?

2.3 Analysis Techniques. The following statistical methodologies, as implemented in the Statistical Package for the Social Sciences (SPSS), were applied in the analysis:

2.3.1 Cross tabulation and chi-square contingency table analysis. With this approach, data are presented in a two-way categorization to permit comparison of the percentage distribution of responses to a given item across categories defined by second item. This technique is particularly useful in comparing demographic items among the various offerings of locations at which

the course was presented and in comparing end-of-course critique responses in a similar fashion. The chi-square statistic calculated from data arrayed in this manner permits test of the hypothesis that the two modes of classification such as item and site are independent. Rejection of the hypothesis suggests dependence and would, as an example, imply statistically significant differences among locations. In all contingency table results presented in this report, the chi-square statistic is given to allow the reader to evaluate the degree of significance which equals or exceeds the .05 confidence level.

2.3.2 One-way analysis-of-variance (ANOVA). The ANOVA technique, as implemented in the SPSS breakdown procedure, presents a mean score on a single criterion variable for each specific group of respondents. A test of the hypothesis that all group means are identical can be performed. Rejecting this hypothesis implies that at least two of the groups differ significantly in criterion mean score. This method was used in examining the test scores using the following variables:

(a) Pretest score

(b) Post-test score

(c) Achievement

(d) Acceptance

Ten comparisons were made based on the five offerings. Specific comparison groups are shown in the experimental design section.

2.3.3 ANOVA and Multiple Comparison Test. There are some assumptions underlying the ANOVA and its mathematical development. One assumption is that the population distributions from which the samples were drawn are normal. A second assumption is that subjects of the experiments were randomly and independently drawn from this population.

The Scheffe' method of multiple comparisons was chosen to test the difference in means for the demographic data. The method was chosen because it is more rigorous than other multiple comparison methods, it can handle unequal cell numbers and it is not seriously affected by violation of assumption of normal distribution and homogeneity of variances.

2.3.4 Regression Analysis. To evaluate the relative importance of demographics, attitudinal variables, and presentation mode as predictors of the learning criteria, regression models in which the value of the criteria is predicted by a linear combination (weighted sum) of these variables were constructed. The models were built in a sequential fashion, using stepwise regression which adds predictor variables to the model in a sequence corresponding to their ability to predict the criterion. Statistical test of the predictive significance of each variable can be accomplished, and only statistically significant variables are included in the model.

2.3.5 Significance level. To determine if any differences between groups were significant, the 5% significant level was set. Any difference beyond 95% is a statistically significant difference and is simply written as being significant or significantly different.

2.4 Experimental design. The comparison groups included three tutored videotape offerings given in 1982 at Wright-Patterson in ASD, one offering given at ESD (82E) and an offering at ASD (83A). The comparison groups were:

All ASD vs ESD
82A vs 82B
82A vs 82C
82A vs 83A
82A vs 82E (ESD)
82B vs 82C N = 259
82B vs 83A
82B vs 82E (ESD)
82C vs 83A
82C vs 82E (ESD)
83A vs 82E (ESD)

In the tables, the following abbreviations apply:

CS = chi-square
SL = significance level or p = probability

3. RESULTS

3.1 Demographic variables. The five demographic variables of grade/rank, education level, sex, age, and years of job-related experience were compared using cross-tabulation. Demographic data for ASD 82A was not available to include in this analysis. The chi-square statistic tested for independence of the variables.

Tables D-1 through D-5 show the demographic data. The data for rank/grade is in Table D-1.

TABLE D-1
GRADE/RANK

CATEGORY	OFFERING					TOTAL
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E	
06, E8, 9, GM14	--	0%	2%	2%	0%	1%
05, E7, GM13	--	6	9	0	4	5
04, E6, GS12	--	13	27	16	15	18
03, E5, GS11	--	18	21	22	23	21
01, 2, E4, GS10	--	64	41	60	58	55

(CS = 12.71 SL = .39)

Offering	SIGNIFICANCE LEVEL: p =				
ASD 82A	---				
ASD 82B	---	---			
ASD 82C	---	.13	---		
ASD 83A	---	.37	.10	---	
ESD 82E	---	.92	.53	.65	---
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E

Each comparison group showed no statistical difference.

Table D-2 shows the data for student educational level in each offering.

TABLE D-2

EDUCATIONAL LEVEL

RESPONSE	OFFERINGS					
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E	TOTALS
Doctorate	---	---	---	---	---	---
Masters	---	13%	36%	16%	39%	24%
Bachelors	---	71	54	75	42	63
Associate	---	4	2	0	8	3
High School	---	13	9	10	12	11

(CS = 18.69 SL = .03)

SIGNIFICANCE LEVELS: p =

Offering					
ASD 82A	---				
ASD 82B	---	---			
ASD 82C	---	.04	---		
ASD 83A	---	.52	.08	---	
ESD 82E	---	.04	.51	.01	---
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E

ASD 82C vs ASD 82B, ESD 82E vs ASD 82B and ESD 82E vs ASD 83A are statistically different in this catagory.

Table D-3 shows student group composition according to the sex factor.

TABLE D-3

SEX

CATEGORY	OFFERINGS					TOTAL
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E	
Male	---	71%	91%	84%	77%	81%
Female	---	29	9	16	23	19

SIGNIFICANCE LEVELS: p =

Offering					
ASD 82A	---				
ASD 82B	---	---			
ASD 82C	---	.01	---		
ASD 83A	---	.16	.44	---	
ESD 82E	---	.76	.16	.63	---
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E

Only ASD 82C vs ASD 82B reveal a statistically difference composition on this factor.

Each comparison group was statistically equal in terms of age of the students. These data for age are displayed in Table D-4.

TABLE D-4

AGE

CATEGORY	OFFERINGS					TOTAL
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E	
46-55	---	9%	4%	8%	4%	6%
36-45	---	15	20	14	31	18
26-35	---	36	41	29	31	35
20-25	---	40	36	49	35	40

SIGNIFICANCE LEVELS: p =

Offering					
ASD 82A	---				
ASD 82B	---	---			
ASD 82C	---	.56	---		
ASD 83A	---	.82	.31	---	
ESD 82E	---	.35	.69	.28	---
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E

Table D-5 displays the data for job-related experiences.

TABLE D-5

YEARS OF JOB-RELATED EXPERIENCE

CATEGORY	OFFERINGS					TOTAL
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E	
8+	---	6%	4%	0%	0%	3%
6-7	---	2	4	0	0	2
4-5	---	4	5	4	0	9
2-3	---	26	13	9	12	15
0-1	---	67	75	87	89	77

(CS = 15.60 SL = .21)

SIGNIFICANCE LEVELS: p =

Offerings					
ASD 82A	---				
ASD 82B	---	---			
ASD 82C	---	.45	---		
ASD 83A	---	.05	.37	---	
ESD 82E	---	.20	.45	.53	---
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E

ASD 83A vs ASD 82B were statistically different.

Table D-6 displays the data for the multiple comparison tests on demographic variables using the Scheffe method as well as using Bartlett's test of homogeneity of variances.

TABLE D-6

HOMOGENEOUS TESTING: DEMOGRAPHICS BY LOCATION

VARIABLE	SCHEFFE	BARTLETT
Grade	p = .03	p = .38
Education	p = .21	p = .46
Sex	p = .04	p = .01
Age	p = .75	p = .73
Experience	p = .02	p = .00

The Scheffe multiple comparison tests showed significant differences in grade, sex, and years of logistics experience; however, the tests for homogeneity of variances showed that the variances of sex and years of experience are not equal. As far as the study is concerned, no statistical comparisons can be made which include sex and years of experience, but judgmental comparison can be made.

In summary, the demographic variables show that students in ASD 82C were of high grade/rank, and their numbers included more men than women. Students of ESD 82E were older, had more graduate degrees, and had less job-related experience than students from other class offerings.

3.2 End-of-course critiques. The 30 multiple choice questions and the student responses are shown in Tables C-1 through C-30 in percentage scores. The ten short answer questions from the back of the critique are summarized following Table C-30. Table C-1 gives the data on the first question, "The course objectives were made clear either orally or in the instructional aids."

TABLE C-1

OBJECTIVES MADE CLEAR

CATEGORY	OFFERINGS					TOTAL
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E	
Agree	70	95	87	73	72	81
Disagree	30	5	13	27	28	19

(CS = 12.77 SL = .01)

SIGNIFICANCE LEVELS: p =

Offering					
ASD 82A	---				
ASD 82B	.01	---			
ASD 82C	.09	.28	---		
ASD 83A	.97	.02	.18	---	
ESD 82E	1.00	.02	.19	1.00	---
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E

The totals reflect overall satisfaction (81% agree) that the course objectives were clear to the students.

Table C-2 displays the data for question 2: "The course appeared well-structured."

TABLE C-2

COURSE WELL-STRUCTURED

RESPONSE	OFFERINGS					TOTALS
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E	
Agree	40	86	74	62	32	63
Disagree	60	14	26	38	68	37

(CS = 31.44 SL = .00)

SIGNIFICANCE LEVELS: p =

Offering					
ASD 82A	---				
ASD 82B	.00	---			
ASD 82C	.00	.21	---		
ASD 83A	.12	.02	.33	---	
ESD 82E	.68	.00	.00	.05	---
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E

Overall, 63% of the students approved of the course structure.

Table C-3 displays the data for question 3: "The course structure permitted questions to be asked and answered satisfactorily."

TABLE C-3

STRUCTURE PERMITTED QUESTIONS

RESPONSE	OFFERING					TOTALS
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E	
Agree	51	23	52	47	24	41
Disagree	49	77	48	53	76	59

(CS = 13.87 SL = .01)

SIGNIFICANCE LEVEL: p =

Offering					
ASD 82A	---				
ASD 82B	.02	---			
ASD 82C	1.00	.01	---		
ASD 83A	.90	.04	.83	---	
ESD 82E	.06	1.00	.04	.12	---
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E

A majority of the students replied negatively (59%) with ASD 82B students being the most negative.

Table C-4 displays the data for question 4: "There were adequate handout materials."

TABLE C-4
ADEQUATE HANDOUTS

RESPONSE	OFFERING					TOTALS
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E	TOTALS
Agree	51	73	83	88	56	72
Disagree	49	27	17	12	44	28

(CS = 18.97 SL = .00)

SIGNIFICANCE LEVEL: p =

Offering					
ASD 82A	---				
ASD 82B	.08	---			
ASD 82C	.00	.31	---		
ASD 83A	.00	.16	.75	---	
ESD 82E	.92	.25	.02	.01	---
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E

Seventy-two percent of the students felt the handout materials were adequate.

Table C-5 displays the data for question 5: "The course was the right length."

TABLE C-5
COURSE RIGHT LENGTH

RESPONSE	OFFERING					TOTALS
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E	
Agree	24	52	56	44	36	44
Disagree	76	48	44	56	64	56

(CS = 10.58 SL = .03)

SIGNIFICANCE LEVEL: p =

Offering					
ASD 82A	---				
ASD 82B	.02	---			
ASD 82C	.01	.91	---		
ASD 83A	.13	.63	.41	---	
ESD 82E	.48	.30	.17	.72	---
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E

Students from three of the five offerings disagreed with the course length, and the total percentage showed 56% who did not like the course length.

Table C-6 displays the data for question 6: "My time could have been better utilized elsewhere."

TABLE C-6

TIME BETTER UTILIZED ELSEWHERE

RESPONSE	OFFERINGS					TOTALS
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E	
Agree	43	25	37	32	40	35
Disagree	57	75	63	68	60	65

(CS = 3.51 SL = .48)

SIGNIFICANCE LEVELS: p =

Offering					
ASD 82A	---				
ASD 82B	.13	---			
ASD 82C	.71	.29	---		
ASD 83A	.48	.64	.83	---	
ESD 82E	1.00	.30	1.00	.74	---
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E

Students generally agreed that their time in class was well-spent.

Table C-7 displays the data for question 7: "I will be able to do my job better as a result of this course."

TABLE C-7
WILL DO JOB BETTER

RESPONSE	OFFERINGS					TOTALS
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E	
Agree	59	91	87	76	83	80
Disagree	41	9	13	24	17	20

(CS = 15.30 SL = .00)

SIGNIFICANCE LEVELS: p =

Offering					
ASD 82A	---				
ASD 82B	.00	---			
ASD 82C	.01	.78	---		
ASD 83A	.20	.15	.32	---	
ESD 82E	.09	.59	.94	.76	---
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E

Eighty percent of the students agreed with this statement with ASD 82B being the most positive.

Table C-8 displays the data for question 8: "Required reading exercises, and other outside class activities were excessive."

TABLE C-8

EXCESSIVE HOMEWORK

RESPONSE	OFFERINGS					TOTALS
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E	
Agree	57	46	52	47	42	49
Disagree	43	54	48	53	58	51

(CS = 1.72 SL = .79)

SIGNIFICANCE LEVELS: p =

Offering					
ASD 82A	---				
ASD 82B	.49	---			
ASD 82C	.81	.75	---		
ASD 83A	.56	1.00	.83	---	
ESD 82E	.37	.90	.56	.89	---
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E

A slight majority of students disagreed with this statement.

Table C-9 displays the data for question 9: "Throughout the course, there was adequate transition between the various blocks of instruction in terms of tying in and relating materials to course objectives."

TABLE C-9
ADEQUATE TRANSITION BETWEEN BLOCKS

RESPONSE	OFFERINGS					TOTALS
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E	
Agree	32	61	59	51	32	50
Disagree	68	39	41	49	68	50

(CS = 11.96 SL = .02)

SIGNIFICANCE LEVELS: p =

Offering					
ASD 82A	---				
ASD 82B	.02	---			
ASD 82C	.02	1.00	---		
ASD 83A	.17	.53	.63	---	
ESD 82E	1.00	.04	.04	.22	---
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E

A mixed reaction of the students showed a 50-50 percentage split about whether or not the transitions between blocks were adequate.

Table C-10 shows the data for question 10: "The simulation/case studies/integration problem exercise(s) aided in the total learning experience."

TABLE C-10
SIMULATION AIDED LEARNING

RESPONSE	OFFERINGS					TOTALS
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E	
Agree	73	89	93	85	84	85
Disagree	27	11	7	15	16	15

(CS = 7.27 SL = .12)

SIGNIFICANCE LEVELS: p =

Offering					
ASD 82A	---				
ASD 82B	.13	---			
ASD 82C	.02	.75	---		
ASD 83A	.36	.88	.43	---	
ESD 82E	.48	.86	.44	1.00	---
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E

Eighty-five percent of the students felt the course exercise helped them learn the material.

Table C-11 shows the data for questions 11: "Discussion of the tests helped me learn."

TABLE C-11

TEST DISCUSSION HELPED ME LEARN

RESPONSE	OFFERINGS					TOTALS
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E	
Agree	97	89	94	88	80	91
Disagree	3	11	6	12	20	9

(CS = 6.68 SL = .15)

SIGNIFICANCE LEVELS: p =

Offering					
ASD 82A	---				
ASD 82B	.29	---			
ASD 82C	.90	.52	---		
ASD 83A	.30	1.00	.52	---	
ESD 82E	.07	.53	.11	.62	---
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E

The response to the question show a positive reaction to reviewing the tests immediately after completion.

Table C-12 gives the data for question 12: "The tests were given at proper intervals."

TABLE C-12

TESTS GIVEN AT PROPER INTERVALS

RESPONSE	OFFERINGS					TOTALS
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E	
Agree	73	84	93	82	68	82
Disagree	27	16	7	18	32	18

(CS = 9.58 SL = .05)

SIGNIFICANCE LEVELS: p =

Offering					
ASD 82A	---				
ASD 82B	.34	---			
ASD 82C	.02	.32	---		
ASD 83A	.51	1.00	.26	---	
ESD 82E	.89	.21	.01	.33	---
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E

A majority of students from each offering agreed with this question.

Table C-13 displays the data for question 13: "There was ample opportunity to interact with the facilitator during class."

TABLE C-13
OPPORTUNITY INTERACT WITH FACILITATOR

RESPONSE	OFFERINGS					TOTALS
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E	
Agree	59	54	65	53	28	55
Disagree	41	46	35	47	72	45

(CS = 9.80 SL = .04)

SIGNIFICANCE LEVELS: p =

Offering					
ASD 82A	---				
ASD 82B	.83	---			
ASD 82C	.77	.41	---		
ASD 83A	.75	1.00	.38	---	
ESD 82E	.03	.06	.01	.10	---
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E

Fifty-five percent of the students agreed with this statement. Only the ESD 82E class disagreed.

Table C-14 displays the data for question 14: "I liked the hours the course was offered."

TABLE C-14

I LIKED HOURS COURSE OFFERED

RESPONSE	OFFERINGS					TOTALS
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E	
Agree	62	89	91	85	84	83
Disagree	38	11	9	15	16	17

(CS = 14.81 SL = .01)

SIGNIFICANCE LEVELS: p =

Offering					
ASD 82A	---				
ASD 82B	.01	---			
ASD 82C	.00	1.00	---		
ASD 83A	.05	.92	.66	---	
ESD 82E	.12	.86	.62	1.00	---
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E

Eighty-three percent of the students were satisfied with the course hours.

Table C-15 shows the data for question 15: "The time of day when my class met was acceptable."

TABLE C-15

TIME OF DAY FOR CLASS ACCEPTABLE

RESPONSE	OFFERING					TOTALS
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E	
Agree	59	86	96	91	96	86
Disagree	41	14	4	9	4	14

(CS = 29.38 SL = .00)

SIGNIFICANCE LEVELS: p =

Offering					
ASD 82A	---				
ASD 82B	.01	---			
ASD 82C	.00	.16	---		
ASD 83A	.01	.76	.59	---	
ESD 82E	.00	.39	1.00	.84	---
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E

Students in ASD 82A were the most negative toward the time of day for classes, however, 86% of all students agreed the hours were acceptable.

Table C-16 displays the data for question 16: "Class duration (hours per day) should be increased.

TABLE C-16
HOURS PER DAY FOR CLASS SHOULD BE INCREASED

RESPONSE	OFFERINGS					TOTALS
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E	
Agree	5	9	7	9	0	7
Disagree	95	91	93	91	100	93

(CS = 2.58 SL = .63)

SIGNIFICANCE LEVELS: p =

Offering					
ASD 82A	---				
ASD 82B	.84	---			
ASD 82C	1.00	1.00	---		
ASD 83A	.92	1.00	1.00	---	
ESD 82E	.65	.31	.40	.36	---
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E

Ninety-three percent of the students disagreed with this statement.

Table C-17 displays the data for question 17: "The weekly number of class sessions should be decreased."

TABLE C-17

WEEKLY NUMBER OF CLASSES SHOULD BE DECREASED

RESPONSE	OFFERINGS					TOTALS
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E	
Agree	38	32	30	26	47	33
Disagree	62	68	70	74	53	67

(CS = 3.85 SL = .43)

SIGNIFICANCE LEVELS: p =

Offering					
ASD 82A	---				
ASD 82B	.74	---			
ASD 82C	.55	.99	---		
ASD 83A	.44	.79	.94	---	
ESD 82E	.59	.28	.18	.15	---
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E

Sixty-seven percent of the students felt the number of sessions should not be decreased.

Table C-18 displays the data for question 18: "The room was conducive to learning. (Consider size, location, noise control, seating, work space, etc.)"

TABLE C-18

ROOM CONDUCIVE TO LEARNING

RESPONSE	OFFERINGS					TOTALS
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E	
Agree	86	91	39	73	67	69
Disagree	14	9	61	27	33	31

(CS = 38.72 SL = .00)

SIGNIFICANCE LEVELS: p =

Offering					
ASD 82A	---				
ASD 82B	.78	---			
ASD 82C	.00	.00	---		
ASD 83A	.28	.08	.00	---	
ESD 82E	.13	.03	.04	.79	---
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E

ASD 82C students did not like the classroom, but the overall percentage was 69% in favor of the classroom used.

Table C-19 displays the data for question 19: "My attendance was voluntary to gain information, voluntary for being career mandatory, involuntary to fill allocated quota, or involuntary for being career mandatory."

TABLE C-19

COURSE ATTENDANCE WAS VOL/INVOL

RESPONSE	OFFERINGS					TOTALS
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E	
Vol Info	43	34	33	19	52	35
Vol Career	32	50	50	47	24	43
Invol Quota	11	5	4	3	8	6
Invol Career	14	11	13	31	16	16

(CS = 17.90 SL = .12)

SIGNIFICANCE LEVELS: p =

Offering					
ASD 82A	---				
ASD 82B	.38	---			
ASD 82C	.28	.99	---		
ASD 83A	.05	.14	.17	---	
ESD 82E	.85	.21	.17	.03	---
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E

Seventy-eight percent of the students were volunteers for the course with 43% of them in the course for career reasons.

Table C-20 shows the data for question 20: "My supervisor expected me to maintain my normal workload while I was a student."

TABLE C-20

SUPERVISOR EXPECTS NORMAL WORKLOAD

RESPONSE	OFFERINGS					TOTALS
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E	
Agree	32	18	26	18	24	24
Disagree	68	82	74	82	76	76

(CS = 3.14 SL = .54)

SIGNIFICANCE LEVELS: p =

Offering					
ASD 82A	---				
ASD 82B	.22	---			
ASD 82C	.66	.50	---		
ASD 83A	.25	1.00	.52	---	
ESD 82E	.67	.79	1.00	.79	---
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E

About three-fourths of the students disagreed with this statement.

Table C-21 shows the data for question 21: "The course was well suited to the delivery system."

TABLE C-21

COURSE SUITED TO DELIVERY SYSTEM

RESPONSE	OFFERINGS					TOTALS
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E	
Agree	39	66	44	44	24	46
Disagree	61	34	56	56	76	54

(CS = 10.44 SL = .03)

SIGNIFICANCE LEVELS: p =

Offering					
ASD 82A	---				
ASD 82B	.03	---			
ASD 82C	.76	.06	---		
ASD 83A	.84	.09	1.00	---	
ESD 82E	.35	.00	.14	.19	---
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E

Students from the ASD 82B offering were the only ones to agree with this statement. The other four offerings and the total percentage indicated that the students believed the course was not suited to the TVIDS.

Table C-22 shows the data for question 22: "The interaction between the facilitator and the course director appeared to be good."

TABLE C-22

INTERACTION GOOD BETWEEN FACILITATOR & COURSE DIRECTOR

RESPONSE	OFFERINGS					TOTALS
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E	
Agree	72	79	79	64	48	71
Disagree	28	21	21	36	52	29

(CS = 10.44 SL = .03)

SIGNIFICANCE LEVELS: p =

Offering					
ASD 82A	---				
ASD 82B	.66	---			
ASD 82C	.61	1.00	---		
ASD 83A	.61	.22	.18	---	
ESD 82E	.10	.02	.01	.36	---
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E

Seventy-one percent of the students felt that the facilitator and course director had good interaction. Only the ESD 82E class disagreed with the statement.

Table C-23 displays the data for question 23: "The videotape delivery system is an acceptable learning medium."

TABLE C-23

VIDEOTAPE DELIVERY SYSTEM IS ACCEPTABLE LEARNING MEDIUM

RESPONSE	OFFERINGS					TOTALS
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E	
Agree	43	70	41	44	36	48
Disagree	57	30	59	56	64	52

(CS = 12.01 SL = .02)

SIGNIFICANCE LEVELS: p =

Offering					
ASD 82A	---				
ASD 82B	.02	---			
ASD 82C	.98	.01	---		
ASD 83A	1.00	.03	.93	---	
ESD 82E	.76	.01	.88	.72	---
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E

Only the students in ASD 82B felt the video delivery system was acceptable. The total percentages, however, show that the students felt the system was not acceptable.

Table C-24 displays the data for question 24: "The TV monitor(s) were large enough."

TABLE C-24

TV MONITORS WERE LARGE ENOUGH

RESPONSE	OFFERINGS					TOTALS
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E	
Agree	89	91	81	88	48	82
Disagree	11	9	19	12	52	18

(CS = 23.88 SL = .00)

SIGNIFICANCE LEVELS: p =

Offering					
ASD 82A	---				
ASD 82B	1.00	---			
ASD 82C	.48	.30	---		
ASD 83A	1.00	.96	.63	---	
ESD 82E	.00	.00	.01	.00	---
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E

Eighty-two percent of the students had no problems with the size of the TV monitor.

Table C-25 shows the data for question 25: "I would take another course which used this delivery system."

TABLE C-25

I'D TAKE ANOTHER VIDEOTAPED COURSE

RESPONSE	OFFERINGS					TOTALS
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E	
Agree	46	86	54	44	36	56
Disagree	54	14	46	56	64	44

(CS = 24.07 SL = .00)

SIGNIFICANCE LEVELS: p =

Offering					
ASD 82A	---				
ASD 82B	.00	---			
ASD 82C	.61	.00	---		
ASD 83A	1.00	.00	.50	---	
ESD 82E	.61	.00	.22	.75	---
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E

Three of the five groups disagreed with this statement, yet, the overall percentage indicated 56% of the students would take another course using this system.

Table C-26 displays the data for question 26: "The audio was acceptable."

TABLE C-26
AUDIO ACCEPTABLE

RESPONSE	OFFERINGS					TOTALS
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E	
Agree	86	89	87	91	92	89
Disagree	14	11	13	9	8	11

(CS = .75 SL = .94)

SIGNIFICANCE LEVELS: p =

Offering					
ASD 82A	---				
ASD 82B	1.00	---			
ASD 82C	1.00	1.00	---		
ASD 83A	.84	1.00	.84	---	
ESD 82E	.80	.98	.79	1.00	---
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E

Eighty-nine percent of the students agreed.

Table C-27 displays the data for question 27: "The absence of the instructor created a learning barrier/problem."

TABLE C-27

ABSENCE OF INSTRUCTOR CREATING LEARNING PROBLEM

RESPONSE	OFFERINGS					TOTALS
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E	
Agree	54	45	52	50	68	53
Disagree	46	55	48	50	32	47

(CS = 3.40 SL = .49)

SIGNIFICANCE LEVELS: p =

Offering					
ASD 82A	---				
ASD 82B	.58	---			
ASD 82C	1.00	.67	---		
ASD 83A	.92	.87	1.00	---	
ESD 82E	.40	.12	.30	.27	---
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E

A majority of the students believed that the absence of the physical presence of an instructor created a learning problem.

Table C-28 shows the data for question 28: "The facilitator played an important part in helping me learn."

TABLE C-28

FACILITATOR WAS IMPORTANT TO LEARNING

RESPONSE	OFFERINGS					TOTALS
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E	
Agree	73	69	65	39	64	63
Disagree	27	31	35	61	36	37

(CS = 10.17 SL = .04)

SIGNIFICANCE LEVELS: p =

Offering					
ASD 82A	---				
ASD 82B	.89	---			
ASD 82C	.55	.83	---		
ASD 83A	.01	.02	.04	---	
ESD 82E	.64	.88	1.00	.11	---
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E

Sixty-three percent agreed that the facilitator was important to learning.

Table C-29 shows the data for question 29: "Content experts were unnecessary."

TABLE C-29

CONTENT EXPERTS WERE UNNECESSARY

RESPONSE	OFFERINGS					TOTALS
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E	
Agree	34	33	35	32	48	36
Disagree	66	67	65	68	52	64

(CS = 1.94 SL = .75)

SIGNIFICANCE LEVELS: p =

Offering					
ASD 82A	---				
ASD 82B	1.00	---			
ASD 82C	1.00	1.00	---		
ASD 83A	1.00	1.00	.97	---	
ESD 82E	.42	.35	.40	.36	---
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E

Approximately two-thirds of the students felt that someone who is familiar with the course subject matter should be in the classroom.

Table C-30 displays the data for question 30: "Discussion periods were effectively conducted."

TABLE C-30

DISCUSSION PERIODS WELL CONDUCTED

RESPONSIVE	OFFERINGS					TOTALS
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E	
Agree	76	61	74	52	64	66
Disagree	24	39	26	48	36	34

(CS = 6.40 SL = .17)

SIGNIFICANCE LEVELS: p =

Offering					
ASD 82A	---				
ASD 82B	.23	---			
ASD 82C	1.00	.25	---		
ASD 83A	.07	.60	.07	---	
ESD 82E	.48	.98	.55	.51	---
	ASD 82A	ASD 82B	ASD 82C	ASD 83A	ESD 82E

Two-thirds of the students felt that the discussion periods were effective.

End-of-course questions 31-40 are summarized in the following paragraphs. Question 31 asked, "What was the most outstanding feature of this course?" Students felt the structure of the course, the large amount of information given, and the handouts for future reference were definite advantages of the course.

Question 32 asked, "What was the most disturbing feature of the class?" Students perceived a need to have face-to-face interaction with the instructors. Some students thought there was too much information presented for the two-week course.

Question 33 asked, "Should there be any major change in the sequence of topics?" Students felt the Program Control information should be taught sooner, similar subjects such as PMRT and Turnover should be grouped together.

Question 34 asked, "Are there topics that should be compressed or eliminated." Most comments centered around compressing international logistics support. For question 35, "Are there topics that should be expanded or added," the students had very few comments, other than adding (or expanding) system safety, request for proposal and statement of work coverage. With very few comments for this question, it appeared that students felt that there was more than enough material covered in the two weeks.

"What would make the course more effective?" was question 36. Students wanted "live" instructors, and a review or summary of blocks of material or daily summaries.

Question 37 asked, "What do you consider the advantages of the delivery system?" Most of the comments concerned the low cost of the videotape presentation, classes started on time, did not require tying up instructors, and avoided unnecessary interruptions of the presenter due to student questions.

Question 38 asked, "What do you consider the disadvantages of the delivery system?" The students felt the system's one-way communication did not allow for student-instructor interaction.

The next question presupposes that students want face-to-face instruction and asks, "Other than face-to-face instruction, what would make the system more effective?" Students wanted handouts which were closely tied to lectures, shorter lectures, more class discussion, and improvement in the quality of the presenters and videotapes.

The final question asked for any other comments which would improve the course. The comments were very few and mostly covered by preceding questions. Several students stated the course was enjoyable.

The end-of-course critique comments generally showed that the students were satisfied with the course, maybe too much material was presented in the two week time period, face-to-face instruction was needed, and more summaries of material were desired.

3.3. Test Performance

Test scores. Three variables were considered: pretest scores, post-test scores, and achievement. The difference between pretest and post-test scores was defined as achievement. For each comparison group, mean test scores were calculated and a one-way analysis of variance was used to test for any significant differences.

Table T-1 displays the mean test scores and probability statistics. For the pretest, ten of the eleven comparison groups showed no statistical differences. The probability scores for the post-test show significant differences in four comparison groups, with ASD 82C students having the highest mean test score. The statistical differences in achievement show ASD 82A students with the greatest achievement.

TABLE T-1

MEAN TEST SCORES AND PROBABILITY STATISTICS

LOCATION	PRETEST	POST-TEST	ACHIEVEMENT*
All ASD	53	73	20
ESD	54	72	19
	p = .89	p = .65	p = .42
ASD 82A	52	75	24
ASD 82B	55	72	18
	p = .16	p = .19	p = .00
ASD 82A	52	75	24
ASD 82C	55	77	22
	p = .11	p = .25	p = .45
ASD 82A	52	75	24
ASD 83A	51	70	19
	p = .76	p = .01	p = .01
ASD 82A	52	75	24
ESD 82E	54	72	19
	p = .47	p = .29	p = .05
ASD 82B	55	72	18
ASD 82C	55	77	22
	p = .65	p = .01	p = .02
ASD 82B	55	72	18
ASD 83A	51	70	19
	p = .06	p = .15	p = .44
ASD 82B	55	72	18
ESD 82E	54	72	19
	p = .68	p = .98	p = .59
ASD 82C	55	77	22
ASD 83A	51	70	19
	p = .04	p = .00	p = .08
ASD 82C	55	77	22
ESD 82E	54	72	19
	p = .51	p = .04	p = .17
ASD 83A	51	70	19
ESD 82E	54	72	19
	p = .31	p = .26	p = .94

*Mean achievement may differ slightly from mean post-test minus mean pretest score because of missing test scores and rounding from decimal places.

Regression. Stepwise multiple regression models were constructed to analyze certain variables and locations in terms of potential predictors of pretest scores, post-test scores, achievement and acceptance. (Acceptance is covered in the next section.) The variables are:

a. Post-test
b. Pretest
c. Achievement
d. Acceptance
e. Grade
f. Education Level
g. Sex
h. Age
i. Years of job-related experience
j. Methodology
k. All site locations (course offerings)

Separate regression models were constructed for pretest, post-test and achievement. Table T-2 displays the data for the variables stated above.

TABLE T-2

REGRESSION ANALYSIS: ALL SITE LOCATIONS (COURSE OFFERINGS)

PREDICTOR VARIABLES	UNNORMALIZED COEFFICIENT	BETA WEIGHT	SIGNIFICANCE LEVEL
	CRITERION VARIABLE: PRETEST SCORES		
*Sex	7.37	.29	.00
*Years Experience	1.96	.17	.03
Education Level	2.10	.16	.05
(Constant)	43.17	R^2 = .17	
*Not used for statistical comparisons (See Table D-6)			
	CRITERION VARIABLE: POST-TEST SCORES		
Pretest	.37	.40	.00
Education Level	2.72	.23	.00
Grade	1.82	.18	.01
ASD 82C	3.12	.16	.02
(Constant)	46.11	R^2 = .40	
	CRITERION VARIABLE: ACHIEVEMENT		
Pretest	-.62	-.66	.00
Education Level	2.72	.22	.00
Grade	1.82	.18	.01
ASD 82C	3.12	.15	.02
(Constant)	46.11	R^2 = .43	

The best prediction equation for pretest scores included the variables of sex, years of job-related experience and education level, but sex and years of experience are statistically invalid. (See discussion following Table D-6.) The best predictors for post-test scores and achievement are pretest score, education level, grade and course offering of ASD 82C. In other words, students in course offering ASD 82C, had higher pretest scores, were more formally educated and had slightly more job-related experience.

3.4 TVIDS Acceptability. End-of-course questions 23 (Table C-23) and 25 (Table C-25) were combined and analyzed by one-way analysis of variance and regression analysis. The range of scores is 6 low acceptance to 0 high acceptance. Mean or neutral is 3.0. Table A-1 shows the acceptability score for each course offering.

TABLE A-1
MEAN TVIDS ACCEPTABILITY

LOCATION	MEAN SCORES	
1. ASD 82A	3.70	
2. ASD 82B	2.50	
3. ASD 82C	3.59	
4. ASD 83A	3.59	
5. ESD 82E	3.92	
AVERAGE	3.41	p = .00 n = 192

Scores lower than 3.0 were interpreted as accepting of the TVIDS. The scores showed that only ASD 82B accepted the TVIDS. The average score indicates that students do not accept the TVIDS.

A regression analysis of the acceptance scores shows that offering ASD 82B, and age are the best predictors of TVIDS acceptance. Table A-2 shows this data.

TABLE A-2
REGRESSION ANALYSIS: ACCEPTANCE

PREDICTOR VARIABLE	UNNORMALIZED COEFFICIENT	BETA WEIGHT	SIGNIFICANCE LEVEL
ASD 82B	-1.25	-.36	.00
AGE	-.33	-.19	.013
(Constant)	4.08	R^2 = .17	

3.5 Correlation Matrix. A final analysis of data shows a relationship between certain variables. The correlation statistic has a value of -1.0 to + 1.0 or a negative correlation to a positive correlation.

TABLE M-1
CORRELATIONS

VARIABLE	STATISTIC								
ACH	.44	---							
PRE	.51	-.54	---						
ACC	-.05	.01	-.06	---					
RANK	.35	.11	.23	-.15	---				
ED	.38	.11	.24	-.00	.19	---			
SEX	.35	-.01	.34	.09	.24	.32	---		
AGE	.09	.09	-.00	-.20	.63	-.06	.01	---	
EXP	.13	-.05	.16	-.16	.34	-.08	.02	.28	---
TVIDS	-.09	-.04	-.04	.14	-.10	-.00	-.06	.04	-.15
	POST	ACH	PRE	ACC	RANK	ED	SEX	AGE	EXP

The statistical data show the highest positive correlation (.63) between the age and rank of the student which means the older a person was, the higher that person's military rank or civilian grade.

The highest negative correlation was between pretest scores and achievement (-.54) which logically indicates that a high pretest score allows a person only so many points to achieve toward 100% of the post-test. Other data show that the higher a person's rank or grade, the less accepting that person of the TVIDS. There is no relationship between age and pretest, educational level and acceptance of TVIDS, educational level and TVIDS, or achievement and acceptance.

4. FINDINGS

The first research question addressed the comparability of each class (offering) in terms of demographic data. (Demographic data for ASD 82A were not available for this report.) The four offerings were statistically comparable for grade, however, the students in offering ASD 82C had 38% field grade officers or civilian equivalents as opposed to about 19% for the other offerings. For educational level, the following were statistically different: ASD 82C and ASD 82B, ASD 82B and ESD 82E, ASD 83A and ESD 82E. ESD had more master degree holders than the students in the other course offerings. The male-female ratio was greater than 2:1 for each offering. The age of the students in each comparison group was statistically comparable. The percentage of age grouping across offerings was about equal.

The second research question looked at the comparability of student groups for entry level knowledge as revealed on pretest scores. Only one comparison group was statistically different ($p = .04$) and that was ASD 82C ($\bar{x} = 55$) vs ASD 83A ($\bar{x} = 51$).

The third research question addressed the differences in academic achievement between offerings. Four comparison groups showed statistical differences in mean achievement scores. They were ASD 82A vs ASD 82B ($p = .00$), ASD 82A vs ASD 83A ($p = .01$), ASD 82A vs ESD 82E ($p = .05$), and ASD 82B vs ASD 82C ($p = .02$). ASD 82C had one of the highest mean pretest scores (55) and the highest mean post-test score (77).

The fourth research question looked at student acceptance (combination of end-of-course questions 23 and 25) of the Tutored Videotape Instructional Delivery System. Overall, students did not accept the delivery system.

5. SUMMARY AND CONCLUSIONS

Due to the population variances of sex and years of experience conclusions based on either factor are not valid. Available data and analysis permit these conclusions to be made.

a. Students do not accept the TVIDS mode of instruction.

b. Student entry educational level affected pre- and post-test performance and subsequently achievement. That is, the greater the educational entry level, the greater the achievement.

c. The older a person, the less accepting of the Tutored Videotaped Instruction Delivery System.

d. The higher the person's military rank (or civilian equivalent), the less accepting of the Tutored Videotaped Instruction Delivery System.

e. A person's education level showed little correlation to that person's acceptance of the Tutored Videotaped Instruction Delivery System.

6. RECOMMENDATIONS

a. Specific feedback should be obtained to learn why students feel the SYS 100 course was not suited to tutored videotape delivery. Responses could also be used to indicate why tutored videotape is not considered an acceptable learning medium.

b. Investigate alternative ways to satisfy student desires for more interaction.

c. Cost data should be developed to provide actual costs for Tutored Videotaped Instructional Delivery System. These data could then be compared with resident and other non-resident instructional delivery systems.

APPENDIX A

DEMOGRAPHIC INFORMATION

GENERAL INSTRUCTIONS FOR COMPLETING THE SURVEY

Use the attached answer sheet to mark your responses. Use only a No. 2 pencil when filling out the answer sheet. DO NOT USE INK. Enter your 5 digit student number in the last five positions in the STUDENT NUMBER area. Please do NOT write your name or social security number anywhere on the answer sheet. Mark the answer sheet carefully to negate computer error. Fill in the box with a heavy mark, do not go outside the lines of the box. If you made a mistake, erase the mark completely before entering a new one.

1. My present STATUS is:

   A. Officer
   B. Enlisted
   C. Civilian
   D. Contractor
   E. Other (foreign, etc.)

2. My present RANK or GRADE is: (If you answered D or E above, please leave blank.)

	Officer	Enlisted	Civilian
A.	01 or 02	E4	GS 5-10
B.	03	E5	GS 11
C.	04	E6	GS 12
D.	05	E7	GS 13
E.	06	E8-9	GS 14

3. My EDUCATIONAL background: (Mark highest completed)

   A. High School
   B. Associate Degree
   C. Baccalaureate Degree
   D. Masters Degree
   E. Ph.D.

4. My SEX is:

   A. Female
   B. Male

5. My present AGE is:

   A. 20-25
   B. 26-35
   C. 36-45
   D. 46-55
   E. 56 or over

6. Years of EXPERIENCE in a job related to the course:

   A. 0-1
   B. 2-3
   C. 4-5
   D. 6-7
   E. 8 or more

EDV
2 of 1

APPENDIX B

V

End-of-Course Critique Questionnaire

This critique is designed to obtain feedback concerning the course you just completed. Your contribution to the improvement of this course will benefit future students.

Please answer each question to the best of your ability. Your answer sheet will be machine processed except for the questions in Part II. Additional written comments are welcomed.

Instructions

Use the answer sheet to mark your responses. Use only a No. 2 pencil when filling out the answer sheet. DO NOT USE INK. Enter your student number in the last positions of the STUDENT NUMBER area. Please do NOT write your name or social security number anywhere on the answer sheet. Select only one answer to each question. Mark the answer sheet carefully to negate computer error. Fill in the box with a heavy mark; do not go outside the lines of the box. If you make a mistake, erase the mark completely before entering a new one. Part II questions require short written responses. Use the back of the answer sheet for these.

PART I

Respond by using the options A thru D for each statement.

A. Strongly agree
B. Agree
C. Disagree
D. Strongly disagree

(These options will be repeated at the top of each page for your convenience.)

1. The course objectives were made clear either orally or in the instructional aids.

2. The course appeared well-structured.

3. The course structure permitted questions to be asked and answered satisfactorily.

4. There were adequate handout materials. (If none, darken E.)

5. The course was the right length.

6. My time could have been better utilized elsewhere.

7. I will be able to do my job better as a result of this course.

8. Required reading, exercises, and other outside class activities were excessive. (Darken E if none.)

6-82
EDV

OVER

A. Strongly agree
B. Agree
C. Disagree
D. Strongly disagree

9. Throughout the course, there was adequate transition between the various blocks of instruction in terms of tying in and relating materials to course objectives.

10. The simulation/case studies/integrating problem exercise(s) aided in the total learning experience. (Darken E if not applicable.)

11. Discussion of the tests helped me learn. (Darken E if no discussion of the tests.)

12. The tests were given at proper intervals. (Darken E if no tests were given.)

13. There was ample opportunity to interact with the facilitator during class.

14. I liked the hours the course was offered.

15. The time of day when my class met was acceptable.

16. Class duration (hours per day) should be increased.

17. The weekly number of class sessions should be decreased.

18. The room was conducive to learning. (Consider size, location, noise control, seating, work space, etc.)

19. My attendance was:

a. Voluntary (to gain information)

b. Voluntary (course was career mandatory)

c. Involuntary (to fill allocated quota)

d. Involuntary (course was career mandatory)

20. My supervisor expected me to maintain my normal work load while I was a student.

21. The course was well suited to the delivery system.

22. The interaction between the facilitator and the course director appeared to be good.

23. The videotape delivery system is an acceptable learning medium.

A. Strongly agree
B. Agree
C. Disagree
D. Strongly disagree

24. The TV monitor(s) were large enough.

25. I would take another course which used this delivery system.

26. The audio was acceptable.

27. The absence of the instructor created a learning barrier/problem.

28. The facilitator played an important part in helping me learn.

29. Content experts were unnecessary.

30. Discussion periods were effectively conducted.

PART II

Please answer the questions on the back of your answer sheet.

V

31. What was the most outstanding feature of this course?

32. What was the most disturbing feature of this course?

33. Should there be any major change in the sequence of topics?

34. Are there topics that should be compressed or eliminated?

35. Are there topics that should be expanded or added?

36. What would make the course more effective?

37. What do you consider the advantages of this delivery system?

38. What do you consider the disadvantages of this delivery system?

39. Other than face-to-face instruction, what would make the system more effective?

40. Please provide any other comments, suggestions, or criticisms which will improve the course.

Return questionnaire and answer sheet to the class leader or his/her designate.

APPENDIX C

DATA BASE

CURRENT DATA BASE

1137	22312222034623222210233312103333	449	599	519	649	0	0
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1121	02312202249023333200031 0111121 2	509	679	639	869	0	0
1120	00001301249101113200111110112021	479	559	559	879	0	0
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1128	11122221214111112311214311111021	719	959	679	0	0	0
1107	33233032320112333023132331211211	0	0	0	0	0	0
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1125	02221122220220232210021111102211	579	759	639	829	0	0
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1111	22113300110100322011211111111021	429	599	519	709	0	0
1109	22233031221221221023231321122	419	599	679	789	0	0
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1136		519	719	639	849	0	0
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1122		619	839	339	909	0	0
1126		429	0	599	759	0	0
1112		579	549	599	789	0	0
1105		459	379	679	869	0	0
1132		629	719	679	849	0	0
1119		519	679	639	749	0	0
1117		459	679	759	899	0	0
1101		519	879	379	839	0	0
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0393002100	1123130214012003362312322001112	569	759	579	869	0	0
0328130112	1131212224112112230222323220222	529	719	639	879	0	0
0350002100	0111221114012012221211212121111	579	559	799	809	0	0
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0306002100	1112111214011113213211111112211	639	759	679	909	0	0
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0342023120	1111120214011033321221111111111	629	639	759	869	0	0
0345013110	1011121214111113231211111112111	619	719	739	859	0	0
0313222112	0013121224213112220214111112022	539	799	679	889	0	0
0338223110	1312330024010003320320211112011	459	719	799	699	0	0
0343223130	1101120201410003311221112120 30	559	719	579	779	0	0
0334	1111212014111213231221212112222	639	919	719	849	0	0
0351	2111321214112113211211211112111	469	479	359	599	0	0
0327	1122321014212113110222211212222	479	719	799	799	0	0
0310	1121121111111003321231313211131	429	549	539	619	0	0
0321	113212122 1221122222212111111322	509	839	719	899	0	0
0315	1100020324020000211011111311121	509	799	639	909	0	0
0345	0110121211101111221321112111121	169	719	639	909	0	0
0326	1111221112111112213211111112111	419	759	799	829	0	0
0330	1221112114112112211221312112221	739	959	799	939	0	0
0334	1133120014002113221331212101101	449	839	839	959	0	0
0347	1122321114012210211011212111121	449	839	719	929	0	0
0355	1131121222101211321022121211121	769	799	799	969	0	0
0324	1111130211111111221011111112121	359	479	519	559	0	0
0357	0123031004021003332320101101320	209	839	839	879	0	0
0336	1111221014111112213211111112111	349	519	399	689	0	0
3333	1121221124112112211212111112 2	393	799	799	939	0	0
0335	1122121221313113331221111112233	553	919	759	899	0	0
0349	0011121211001003311322112112221	369	799	839	819	0	0
0353	0121121214111112221224211111121	579	799	599	749	0	0
0311	111412 2140111121493211 122 1	529	679	559	739	0	0
0328	1111212314211203001221202112111	439	439	639	729	0	0
0348	1112120214011113210211111112111	589	9591000		959	0	0
0329	0123130124013113311313111111321	359	799	599	829	0	0
3322	1110121124010113210311112212221	469	559	799	859	0	0
3320	1112221111111111310211111112111	379	759	799	839	0	0
3351	1122132221 1111122102112121212121	469	559	519	879	0	0
3336	1113122241121122112121112221	499	839	879	869	0	0
3341	1223321124112112132121312111112	509	599	959	839	0	0
3340	1111111111111111111111111111111	549	719	799	959	0	0

0434	2221.2123+12111323.211111112212	5+4879	839	750	0	0
0402	023+22122+1111131103323133333	819	939	959	919	0	0
0442	11311.121911111222113231310233	879	939	879	959	0	0
0405	01224 1129122211223222 22221222	809	919	759	919	0	0
0408	11330301140011003233311000021111	459	799	759	599	0	0
0419	01301211340011133103221023 1221	559	739	839	859	0	0
0409	11213210140123132103211111111	419	799	759	859	0	0
0456	11312211341313131312312231022 2	599	799	959	889	0	0
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0454		199	559	719	729	0	0
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0416		509	799	719	759	0	0
0431		5591000		759	959	0	0
0432		539	639	879	819	0	0
0413		719	879	879	939	0	0
0430		529	799	759	859	0	0
0414		449	719	839	739	0	0
0401		489	719	759	919	0	0
0439		569	759	559	769	0	0
0425		629	879	799	929	0	0
0499		500	719	599	639	0	0
0423		399	399	639	589	0	0
0407		699	919	839	929	0	0
0432		500	759	879	819	0	0
0440		0	719	639	509	0	0
0730002100		619	839	839	779	0	0
0730002100	112312112+1191132113323121221	569	559	599	739	0	0
0742002300	011012221411111221121111112222	529	599	519	769	0	0
0720002100	112022014411111223121222212211	479	559	399	789	0	0
0724212101	231131102+11211211322131212222	359	719	599	809	0	0
0746202000	122121122+12111221122121211221	419	559	559	809	0	0
0711223010	212112122+11121221 211111112212	479	599	599	679	0	0
0743013110	112132122+11211321122321211323	549	759	919	849	0	0
0736002100	111121112+11212311133 31312 22	589	679	799	879	0	0
0747002100	111013011401111221131111112121	629	839	799	869	0	0
0739222110		459	0	0	0	0	0
0704202100		509	599	519	829	0	0
0705002100	122132102+12111221122121211122	549	799	599	839	0	0
0752002101		519	599	799	839	0	0
0721002100	123+2022+2233330330333333220223	539	639	559	709	0	0
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0732222130		439	479	679	569	0	0
0733012110	113001121+11300331101221112111	589	839	759	849	0	0
0745002111	0110033111101132221311111132131	500	679	759	849	0	0
0756210003	112012021+011113331211111112121	439	639	759	739	0	0
0706032100	231022122+1111113133321111112211	539	679	559	949	0	0
0719202100	110112121130011132002111	399	479	359	609	0	0
07490 3112	113112111221311122102231211221	500	719	759	709	0	0
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0713222121	123132102+21121230133130310222	639	879	719	929	0	0
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0751002100		539	679	839	779	0	0
0709002000	300212122+1111122.123131211222	439	879	579	429	0	0
0746212111		429	439	719	609	0	0
0727013110	113103024+11221122112321 11323	539	679	759	879	0	0
0722202110		339	349	559	599	0	0
0713012110	2211401222112212211223213131222 1	469	559	379	750	0	0
0726120120	033110331341303222.3311111313334	559	599	799	789	0	0
0737302110	2322201144411.2131134131313.3121	369	559	759	389	0	0
0705204010	3333[illegible]3333333333

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0734110110                                                    [illegible] 519 679 539    0   0
0716212020                                                    419 599 679 679    0   0
0723002100          3033022111111110122132111112222111 509 519 539 739    0   0
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0707200030          11101220  1101133134111111      339 559 339 579    0   0
0750023120          0011321221411111222132112112122 679 339 919 909    0   0
0725002100                                            549 539 679 839    0   0
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0717202100                                            239 679 439 609    0   0
0744202100                                            559 599 759 759    0   0
0701023l2                                             659 759 799 799    0   0
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0793                2224122122112112142022211112222   0 339 399 519    0   0
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0722                                                  669 799 339 839    0   0
0715                                                    0 719 559 849    0   0
0701002100          3333301334213113333333303322 339 719 439 769    0   0
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0708013111          1110220224122112210113111112121 599 879 359 919    0   0
0713002000          0030303030400300300003333100000 449 479 559 829    0   0
0712013110          2321211224311112210221322121211 569 579 759 879    0   0
0711033120                                            599 539 759 719    0   0
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0715003111          1233211224121111321013421211231 599 799 879 889    0   0
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0717013120          0121211142232131103332323023 539 799 879 879    0   0
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0719200120          1222121211121112211221211112121 419 599 719 779    0   0
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0727002000          121131  241121131 2321212121111 599 719 639 719    0   0
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0725013110          3330333033233003020332011111111 399 639 759 699    0   0
0720221120          1232121214212113230011111122211 649 719 719 819    0   0
0716200011          1232321024011002110323111111011 399 839 599 829    0   0
1217002111          1121220113111211321021121310021 449 839 479 759    0   0
1216002100          0013120214101002310211112111111 109 839 799 839    0   0
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1212033133          1121212214111112211121211112124 579 799 959 969    0   0
1211033120          1121121114111112211211111112221 389 839 919 859    0   0
1210002111          1100331012110003211321111113121 469 799 799 849    0   0
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1208002100          3122302214112313012314112320ll 219 839 559 709    0   0
1207002100          2131321024111122102112121022l 169 759 759 799    0   0
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1205013110          1211121124012213223311212103111 259 879 799 829    0   0
1204013110          0131221114111111221033322221111 469 959 919 909    0   0
1203002100          0122211121111112111133131111211 449 839 379 889    0   0
1202013112          0300213204100103320211111112111 529 959 679 929    0   0
1201002100          0020120114000113213311212111111 259 679 839 759    0   0
***319 RECORDS CURRENTLY IN DATA BASE***
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 *CSB   NOS/BE L564E        L564  CMR3  1/01/83
16.14.43.ALMACOG  FROM CSA/AC
16.14.43.IP  00024575 WORDS - FILE INPUT  , DC 04
16.14.43.ALM,CM170000,T50,IO50. T820495,MILAM,AFI
16.14.43.T,EOV,55760, NEW FILE 7 CARDS
16.14.47.ATTACH,TEDS,ID=AFIT.
16.14.47.PFN IS
16.14.47.TEDS
16.14.48.AT CY= 002 SN=AFIT
16.14.48.REQUEST,TAPE2,*PF.
16.14.59.TEDS.
16.18.39.     STOP
16.18.39.     132500 MAXIMUM EXECUTION FL.
16.18.39.      5.514 CP SECONDS EXECUTION TIME.
16.18.39.CATALOG,TAPE2,TEDS,RP=999.
16.18.39.NEWCYCLE CATALOG
16.18.39.CT ID=  T820495 PFN=TEDS
16.18.40.CT CY= 002 SN=AFIT    0000002560 WORDS.
16.18.41.OP  00002380 WORDS - FILE OUTPUT , DC 40
16.18.41.MS     7744  WORDS  (     7744 MAX USED)
16.18.41.CPA       9.425 SEC.          4.719 ADJ.
16.18.41.IO        7.916 SEC.          4.480 ADJ.
16.18.41.CM      515.136 KWS.          5.002 ADJ.
16.18.41.CRUS                         14.203
16.18.41.PP       11.591 SEC.      DATE 03/24/83
16.18.41.EJ  END OF JOB, AC  T820495.
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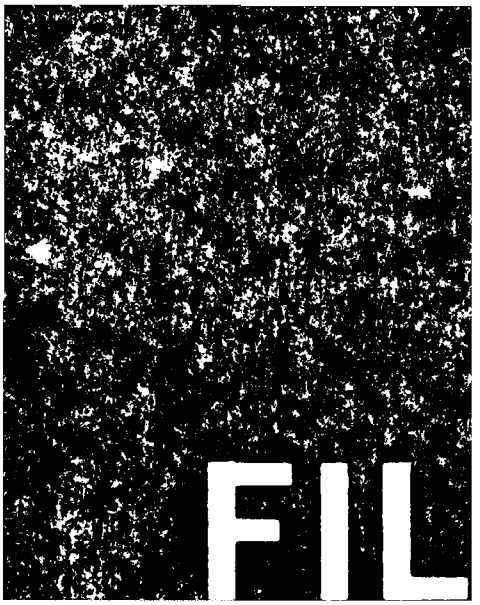
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