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ABSTRACT

A multi-media instructional program in educational research was designed to add structure and uniformity for the presentation of course content both on- and off-campus. It was hypothesized that the program would encourage equivalent performances from the on- and off-campus students and alleviate such problems as: (1) lack of uniformity in the presentation of course content on- and off-campus; (2) four-hour class sessions; (3) lack of supporting media materials; and (4) inability of students to grasp the more abstract aspects of the course content. After one year of the program's implementation, evaluation of student performance indicated little or no difference between the on- and off-campus sections.  
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EQUATING PERFORMANCE OF STUDENTS ENROLLED  
IN ON-CAMPUS AND OFF-CAMPUS SECTIONS  
OF AN EDUCATIONAL RESEARCH COURSE

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ABSTRACT

Georgia Southern College experienced much difficulty in attempting to offer off-campus sections of an Introductory Educational Research course. The instructors for the course developed a multi-media instructional package that was revised to overcome such problems as: (1) lack of uniformity in the presentation of course content for on- and off-campus classes, (2) four hour class sessions, (3) lack of supporting media materials, and (4) inability of students to grasp the more abstract aspects of the course content. Evaluation of student performance after one year indicated little or no differences in the on-campus and off-campus sections.

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EQUATING PERFORMANCE OF STUDENTS ENROLLED  
IN ON-CAMPUS AND OFF-CAMPUS SECTIONS  
OF AN EDUCATIONAL RESEARCH COURSE<sup>1</sup>

During the past few years the School of Education at Georgia Southern College had offered a large number of courses in the graduate curriculum in off-campus settings. One notable exception to this trend had been the introductory course in educational research that was required of all graduate students pursuing a master's degree in education. The primary reason for not offering the educational research course in an off-campus setting had been a lack of library resources to adequately support the course. In addition, instructional materials employed could not be adapted to a variety of settings. These were concerns that needed to be dealt with before on-campus and off-campus instruction could be considered equivalent.

An exception to offering the introductory research course in an off-campus location was made in the Fall of 1971. At that time the course was taught at Fort Gordon, Georgia, which had been previously established as an off-campus graduate center for Georgia Southern College. The availability of a library at nearby Augusta College plus three libraries at Fort Gordon were considered sufficient support for the course.

However, results of course examinations, student projects, and course evaluations indicated on-campus student performance was better than student performance in off-campus sections of the course. The results were of an informal nature and no systematic effort

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<sup>1</sup>This project was supported in part by the Faculty Research Fund of Georgia Southern College.

had been made to examine the differences in performance between on-campus and off-campus classes.

The project described in this paper was designed to prepare a multi-media instructional program in educational research that would add structure and provide uniformity for the presentation of course content both on and off-campus. It was hypothesized that the results of these efforts would produce equivalent performances by students in both the on-campus and off-campus sections.

#### Problems to be Solved

Some of the problems to be dealt with in the project included (1) lack of uniformity in the presentation of course content for on and off-campus classes, (2) four hour class sessions, (3) lack of supporting media materials, and (4) inability of students to grasp the more abstract aspects of the course content.

#### Methods Used to Solve Problems

The solutions described in this paper evolved over a five year period. During that time many ideas were tried and incorporated in the overall instructional package; were tried and revised; or were tried and abandoned. Of importance is the notion that the process of developing solutions to the problems was lengthy and dynamic, and that the resulting procedures described in this paper are still in a state of revision.

Initial steps toward developing a structured format for course presentations involved organizing the subject into content areas and writing course objectives for each content area. Course content areas and objectives were reevaluated each quarter for five years and the ten areas that were finally included in the

instructional package were:

1. The Literature, the Library, and Research
2. Introduction to Research
3. Research Problems, Hypotheses, and Variables
4. Analytical and Descriptive Research
5. Experimental Research I - Basic Designs and Concepts
6. Experimental Research II - Complex Designs
7. Measurement
8. Data Collection Techniques I
9. Data Collection Techniques II
10. Statistics

As these two tasks were being accomplished, a series of transparencies was developed to ensure the continuity and equivalence of class lectures given in different places to different groups. The use of the transparencies made it possible to present the material uniformly in the many different physical locations in which the off-campus sections of the course were required to meet. An additional benefit resulting from the use of the transparencies was a reduction in the amount of lecture time required. This reduction in time made it possible to use small group sessions and other instructional methods in the classes. The variety of instructional activities, including filmstrips and movies, helped to alleviate the weariness resulting from a four-hour class at the end of the day.

However, a problem arose as a result of the transparency supplemented lectures. Students expressed dissatisfaction with the method because of the increased demand on their note-taking ability. The increased efficiency of the lectures made it extremely

difficult for students to take notes and maintain their attention. In order to overcome this problem, copies of all the transparencies were made available to the students. In addition to the copies of all transparencies used in the course, students were provided with copies of all course handouts, key information to a motion picture and filmstrip-tapes, and student study guides. These materials were bound into a single volume that students received at the beginning of the course.

This volume of information entitled A Student Guide for Educational Research, became the focal point for the organization of the course material. Subsequent revisions of the volume were made to include course objectives, a collection of selected readings, and a cross-listing of textbooks on Educational Research with "The Guide". A copy of this cross-listing, is provided in the appendix to this paper along with a list of the texts. These revisions helped eliminate the need for a text and the book of related readings which had been used previously. Multiple copies of the texts cross-listed with "The Guide" were provided the libraries at both on-and-off campus locations. In addition, copies of reference materials related to research and the filmstrips and audio tapes used in the course were made available for student use and review. A considerable expenditure was necessary to provide the reference materials and the audio-visual equipment. A list of the media and materials used in the course are included in the appendix of this paper.

The last element in the instructional package was the evaluation system. Five, fifty-item, multiple-choice examinations were used along with critical evaluations of research articles, small group session evaluations, and a prospectus or proposal suitable

for a master's thesis. The multiple choice examinations were developed over the five-year period that the course materials were being put together. Item analysis information was obtained from approximately 1,000 subjects, and adjustments made in the tests according to the strengths and weaknesses of the items and the relationship of items to the course objectives. Internal consistency reliability estimates of the five tests ranged from .85 to .92. Three equivalent forms of the five tests were prepared in which only the order of items was varied and the same set of fifty items was used. This procedure was used to insure the security of the tests. Security of the tests was difficult to maintain due to the variety of locations in which the course was taught necessitating many different seating arrangements for students.

Only the total of the five multiple-choice examinations was used to compare the differences of the on-campus and off-campus sections of the course. It was felt that the objective examinations would be a better means of evaluation than the more subjective data obtained for the written work of the students.

#### Results of Evaluation

The comparisons of the on- and off-campus sections of the course were made over four quarters of a school year, with the comparisons being made after each quarter rather than summed over the entire year.

A plausible explanation about differences between on-and off-campus sections would be that they were not equated in aptitude at the beginning of the course. In order to determine the validity of such an argument, a comparison was made between samples of the on-and off-campus students using the Commons

Examination Score of the National Teachers Examinations as a basis for comparison. This test was used as an admission test for students in the School of Education. Scores were not available for all subjects, but the information available from the two samples indicated no significant difference in the means of the two groups. The results of the two-tailed t test used to test the difference in means are displayed in Table 1.

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Insert Table 1 about here  
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Differences in initial aptitude of students in on- and off-campus sections of the course did not appear to be the reason for subsequent differences in student performance.

During the year-long evaluation phase of the project, two different instructors taught on- and off-campus sections of the course. Because of the close association of these instructors during the course development and during the evaluation period, a relatively high level of uniformity was achieved in the presentation of the course content to all sections of the course.

Results of the year-long evaluation comparing student performance in the on- and off-campus sections of the course indicated that there was no significant difference. The results of the two-tailed t test used to test the difference in means are contained in Table 2. No significant differences were

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Insert Table 2 about here  
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detected over the four quarters of the evaluation. These results indicated that student achievement on the total of the multiple-choice examinations was essentially the same, and that the efforts to equate on-campus and off-campus performance were successful.

A less formal part of the evaluation dealt with the attitudes of students toward the course, the quality of student written work, and the ability of students to grasp some of the more abstract concepts of the course. Subjective data that were gathered indicated that in all three of these areas on-campus and off-campus sections were equivalent. Additionally, the sections involved in the year-long evaluation were improved over the groups of students who had enrolled in the course prior to the effort to improve instruction. That is, written work was improved, attitudes toward the course were more positive, and student performance on the more abstract topics of experimental design, measurement, and statistics was better. A major contributor to the change in attitude was the more efficient and effective use of the four-hour class periods. Careful attention to the presentation of course content during the developmental period enabled the instructors to present abstract ideas in a more concrete way. Structuring and sequencing of the course material seemed to contribute to the improved quality of student written work. Again, these outcomes were more subjectively evaluated and are subject to the bias of the instructors.

### Conclusions

A limiting factor to the results of this study is that the procedures were developed specifically to solve a localized problem. Therefore, the combination of materials that made up

the instructional package may not be as effective in other situations. The effort made to provide solutions to the problems of the type mentioned in this paper were extensive and, to some degree, expensive. However, it seems evident from the results that a highly structured approach to instruction, such as the one described in this paper, is not likely to be affected by variation in class location. A high degree of equivalence in instruction can be maintained despite less than optimum conditions.

Another consideration is that instruction is dependent to a greater or lesser degree on the instructor(s), and this factor may make replication of the results contained here difficult to obtain. It is not a contention of the authors that the procedures described in this paper are not subject to variation among instructors of the same subject. Rather, a great deal of cooperation among instructors is necessary to effectively carry out the type of program described here.

Finally, the fact that this attempt in equating performance of on-campus and off-campus sections of an Educational Research course was successful does not mean that all such attempts may meet with success. It merely demonstrates that it can be done, and that these results might encourage others faced with similar problems to attempt similar solutions.

TABLE 1

COMPARISONS OF NTE COMMONS SCORES  
FOR ON- AND OFF-CAMPUS STUDENTS

	N	$\bar{X}$	S. D.
On-Campus	104	616.24	53.13
Off-Campus	78	624.14	51.93

Diff = 7.90 t = 1.00 (ns)

TABLE 2  
 COMPARISON OF ON-CAMPUS AND OFF-CAMPUS  
 SECTIONS OVER FOUR QUARTERS

Quarter	On-Campus			Off-Campus			Diff	t
	N	X	S.D.	N	X	S.D.		
1	47	188.49	22.07	40	179.68	24.53	8.81	1.76
2	45	194.16	19.52	18	183.83	22.94	10.33	1.80
3	39	191.10	19.69	36	190.39	22.77	.71	.14
4	30	184.17	16.54	43	184.30	25.58	-.13	-.02

APPENDIX

## LIST OF MATERIALS USED IN THE RESEARCH COURSE

### 16mm Film:

Kanouse D. and Wickens, T. Statistics At a Glance, New York: John Wiley, 1972.

### Filmstrips:

Set of 3 filmstrips on ERIC:

ERIC What it is and How to Use it.

1. Introduction to ERIC.
2. Learning to Use Resources in Education.
3. Doing an ERIC Search.

Available from: National Audio Visual Center (GSA)  
Washington, D. C. 20409

Set of 4 filmstrips on Statistics:

1. Graphic Presentation
2. Descriptive Statistics
3. Inferential Statistics
4. Correlation, Reliability, and Validity

Available from: Westwood Educational Productions  
701 Westport Road  
Kansas City, Missouri 64111

Popham, W. J. Experimental Designs for School Research  
Popham, W. J. Modern Measurement Methods

Available from: VINCET Associates  
P. O. Box 24714  
Los Angeles, California 90024

### Books:

Mathies, Lorraine. Information Sources and Services in Education, Phi Delta Kappa Fastback #16, Bloomington, Indiana, Phi Delta Kappa Educational Foundation, 1973.

Hoenes, Ron L. and Chissom, Brad S. A Student Guide for Educational Research, 2nd Edition, New York: Vog Press, 1975.

Available from: Brad Chissom  
1606 Barak Lane  
Eryan, Texas 77801

## USING SUPPLEMENTARY PUBLICATIONS

The figures on the next page guide you to specific chapters in the preceeding list of books which in turn provide you with information on a particular Unit or part of a Unit in A Student Guide For Educational Research.

On the left-hand column Units 1 through 10 are listed. Across the top of the page are the last names of the author(s) of each publication shown in its entirety on the preceeding page. The numbers under each author and across from each Unit represent chapters or appendixes in the author's publication. Some chapters appear more than one time as the information therein deals with more than one Unit.

### Example Of Use

Information presented in class and that appearing in the "Guide" is totally understandable by you through the first four Units. However, you find that there are a number of terms which you are not clear about in Unit V, "Experimental Research - Simple Designs." Refer to Unit V on the next page. Under each of the names at the top of the page and across from Unit V appear numbers; Best - 6; Borg, Gall - 15; Good - 8; etc. These numbers represent the chapters in each of these publications where you could secure the information you desire to further define the terms in question. Go to the library, acquire one of these publications, read the particular chapter, and get that enlightened feeling.

Instead of one textbook, you have at your fingertips A Student Guide For Educational Research, and nine textbooks.

## SUPPLEMENTARY PUBLICATIONS

A Student Guide For Educational Research is the only required publication for students enrolled in Educational Research. Due to the purpose and nature of the "Guide", at times you may feel a need for more information to clarify some point during the course. To assist you in securing this information we have listed a number of supplementary research publications below with directions on how to use them appearing on the following two pages. At one time or another most of these books have been used as a text for this course. A number of copies of each publication can be found in the GSC library, with a few copies of each on permanent reserve to insure their availability when needed by you, the student. When borrowing these books, use it and return it as soon as possible so other students may have the same benefits of acquiring essential supportive information.

R.L.H.  
B.S.C.

Ary, Donald, Lucy Cheser Jacobs, and Asghar Razavieh. Introduction to Research in Education. New York: Holt, Rinehart and Winston, Inc., 1972.

Best, John W. Research In Education. 2nd Ed. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1970.

Borg, Walter R. and Meredith D. Gall. Educational Research: An Introduction. 2nd Ed. New York: David McKay Company, Inc., 1971.

Good, Carter V. Essentials of Educational Research: Methodology and Design. 2nd Ed. New York: Appleton-Century-Crofts, 1972.

Kerlinger, Fred N. Foundations of Behavioral Research. 2nd Ed. New York: Holt, Rinehart and Winston, Inc., 1973.

Sax, Gilbert. Empirical Foundations of Educational Research. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1968.

Travers, Robert M. W. An Introduction To Educational Research. 3rd Ed. New York: The MacMillan Company, 1969.

Tuckman, Bruce W. Conducting Educational Research. New York: Harcourt Brace Jovanovich, Inc., 1972.

VanDalen, Deobold B. Understanding Educational Research: An Introduction. 3rd Ed. New York: McGraw-Hill Book Company, 1973.

AUTHORS

<u>UNIT</u>	Ary Jacobs Razavich	Best	Borg Gall	Good	Kerlinger	Sax	Travers	Tuckman	VanDalen
1	3	3	3 App A	3	-	4	-	-	4
2	1	1	1	1	1	1,2	1,2,3	1	1,2,3, App A, C, E, F, G, I
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