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ABSTRACT

The University of Colorado developed a modular undergraduate educational psychology program. Its objective was to teach concepts critical to effective teaching in a manner consistent with the flexible scheduling of the new secondary teacher education program. Researchers isolated 12 basic topics and surveyed relevant literature. Some 27 modules were created, each having a title page, a statement of behavioral objectives and rationale, a learning sequence, probing questions, and two learning checks for each section. Objective tests were used since they provided rapid feedback. A prerequisite/optional dichotomy was utilized with core modules required early in the sequence and others being covered as the need arose. Seventy-five titles were acquired for a library-type classroom; also, a student manual, and evaluation form, a record-keeping system, and a management manual were created. The program met its objectives, for student achievement was high and the costs low. Future versions will use a diagnostic-prescriptive basis; modules will be added, more emphasis will be placed upon applied skills, subjective assessment used for optional modules, and more student-teacher interactions provided. (PB)

# Developing a Modular Educational Psychology Program - Minimal Resources

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Paper presented at the meeting of the American Educational Research Association, New Orleans, February, 1973.

Since we only have a limited amount of time, we shall skip the veneration of the ancients, also known as the review of the literature, and get right down to the nitty-gritty. Our overall goals today are: (1) tell you why we started the program, (2) explain our procedures, rationale, and errors, (3) discuss briefly some of our findings, and (4) tell you about our future mistakes.

Before going further, let me emphasize the significance of the word "minimal" in the title. Our idea was to develop a course based on limited resources not only for initiating but also for sustaining. Let's face it--a program developed because one year you had $100,000 and all the time in the world is not likely to be sustained when time and money have fled.

The decision to develop an undergraduate educational psychology modular program at the University of Colorado was based essentially on two factors. First of all, our experience as a development team director at the Far West Laboratory for Educational Research and Development convinced us this was the only way to go. Second, the Colorado faculty proposed a new secondary school program that emphasized flexible student scheduling between University and classroom, and that meant the traditional fixed-hour format was out of the question.

We began development of the program in the Spring of 1972. We made several crucial decisions right at the beginning. The first dealt with the course content. We made a systematic analysis of educational and adolescent psychology texts (our course at Colorado covers both) and came up with a list of about 10 or 12 topics which seemed most common. I know the dangers of equating commonality with validity, but it seemed like a reasonable kind of error. Topics ranged from learning and motivation, through intelligence, Piaget, psychoanalytic theory, to personality, abnormal psychology, etc. This primary list formed the content basis.

Second, we decided to develop modular content from what was commercially available. It is true we had some NSF support for this year, but we were trying to build a course which would succeed when we were on our own pitiful resources.

We recognized that we simply lacked the time and/or resources to write up our own curriculum. Indeed, given the time between the Spring '72 beginning and Fall '72 initiation it bordered on paranoia to even think we could begin to do it.

Third, we decided to employ a topic sequencing based on a prerequisite/optional dichotomy. Frequently students in educational psychology will complain that an instructor did not cover material that they found relevant in their later teacher training. Actually the topic may have been covered, but the material was not immediately relevant to the student and therefore passed into the great beyond with everything learned in the course. In order to handle this problem we decided that some of the modular work would be taken early in the student program by all students; indeed, before any kind of regular classroom interaction. These would be the prerequisite or as we called them, core modules. Other topics would reflect needs that arose as a result of classroom interaction, and could best be handled by having the student come back. These we called optional modules.

Fourth, we would set up a library type classroom and either purchase or have the students purchase the texts for the required modules. The materials for the optional modules were to be placed in the classroom.

Of course, all decisions were made in light of the following (1) students enter this program with backgrounds ranging from no psychology to almost a major, (2) there were actually two groups of students with somewhat different programs, (3) we had no idea how many students or how much time they would have and (4) we had no idea what others in the program were doing. The fact that we even got started is a monumental tribute to the principle of masochism.

Nonetheless, in order to get started, we decided to make use of graduate students in an advanced educational psychology course. We had one break--graduate students are still properly cowed by authority. I might point out that many of the R & D skills learned by these students would probably prove to be more useful in their careers than the usual conceptual mishmash.

The first thing we did was to divide our dozen topics among the graduate students (N=17). They selected topics on the basis of interest and coercion, and were assigned their first problem. We asked them to survey the materials available in each area and do the following (1) select those concepts which most authorities considered critical to effective teaching; and (2) select those texts which appeared to deal with the materials in a concise/comprehensive/readable manner. They were also to assume the student had little or no background in psychology. Hence they turned to texts, books of readings, and simple journal articles. We then disbanded as a regular class.

During the next full class meeting, several weeks later, we analyzed our findings. We then decided to cluster the topics into broader areas, and formed committees to handle the areas. The committees were then asked to construct the modules, using a model derived from several sources. (I might add there was more management than this, but time is a problem here.)

Each module consisted of a title page, a set of behavioral objectives and accompanying rationale, a detailed learning sequence, probing questions for materials which were not programmed, two learning checks or objective tests per section of each module, and additional activities if needed. Most of the modules were of the cognitive type, although a few were skill-oriented. I might add here that a module could have more than one section.

We then met with the students in committees, and as individuals. Our real problem was to make this a meaningful experience for them. Hence we walked a tight rope between telling them what to do, and letting them go off half-cocked. Actually, most of them did a bang-up job, but a few, well....

At the end of the semester the group had developed approximately 40 modules of varying degrees of usefulness. It might be added that literally hundreds of manhours had been spent in developing these modules. The graduate students worked on the optional modules, while we took primary responsibility

for the core. However some of the graduate students did so well that we asked them to develop some of the core materials.

As indicated earlier, the core modules would be taken very early in the semester as a prerequisite for effective teaching, while the optional materials would grow out of student needs.

In May we assembled all the modules recognizing that we were in for some problems because the modules were in varying stages of usefulness.

You may have noticed by this time that the evaluation relied primarily on objective testing, and that seminars and audio-visual materials appeared to be lacking. Let's handle each of these issues in turn.

As far as the testing is concerned, we knew by early Spring that (1) we would get about 170 students, (2) that their time would be limited to perhaps 6-7 weeks, and (3) we would have four quarter-time TA's. In short, we would have a lot of students during a short time span. Moreover, we had not hired our TA's as yet, and had no idea of their skills. To be honest about it, to use a more subjective or in-depth type of evaluation you need people of obviously greater preparation than the usual graduate student type. In addition any individualized program to be effective needs immediate feedback. We thought that an objective evaluation system would give us insight into the effectiveness of the materials as well as give the students immediate feedback. We also hoped to have time to interact with the student <u>after</u> the testing phase.

We actually developed 110 Learning Checks, averaging 10-12 questions per check. The passing criterion was about 80%. The questions were taken from either Teaching Guides, or designed by ourselves. We must hasten to point out that each section had <u>two</u> Learning Checks. That is, if the student failed the first one, he had a second chance. Furthermore, if he failed the second, there were additional evaluation procedures. Moreover he could challenge any answer and if his response was reasonable in the light of his interpretation he would receive full credit.

During this time we also eliminated audio-visual materials because we lacked funds. Seminars were cut out because (1) we could not get a dedicated room and (2) we figured our personnel resources were already stretched pretty thin. Frankly, to get this thing off the ground we were convinced that we'd have to develop a rather simple system and modify it later.

At any rate, in May we took our 40 modules, and started through them page by page. One thing became clear almost at once, we could not purchase all the texts needed. So we cut back, combined modules, and used one text twice where we could. In addition, we edited the modules to get a uniform format. The required modules are in Appendix A, and the optional in Appendix B. The Student Manual came to 500 pages. We also wound up color-coding the pages; that is the Learning Sequence page was a different color than the Probing Question page, etc. We felt that changes in color would more readily alert students to change in process. To be grim about it, we produced 100,000 sheets of paper of varying hues and assembled them in 200 three-ring binders.

Ordering the books, around 75 titles, was a nightmare--allow yourself months in advance. Between the University Bookstore and the companies we were ready to demand some form of nationalization.

We also prepared a general type of evaluation for each module. A sample is found as Appendix C. The form calls for an assessment of objectives, text, activities, and student feelings.

We also developed a simple recordkeeping system. A sample page is included as Appendix D. This system enabled us to tell at a glance what the student had done in each module, and where he was in the module program. That is, each time a student took a Learning Check we entered the score on this form, with a check mark in front indicating it was a passing grade.

We also developed a management manual containing TA instructions and answer keys.

At any rate, by the end of the summer we had developed a student manual with some 500 pages, a management manual which included the answer keys, and a recordkeeping system.

If the Summer of '72 was a cognitive/logistical crunch, the Fall of '72 was one of the wildest affective crunches. As we indicated earlier, there was really very little overall programmatic control. The result was that some people promised the impossible and made some odd decisions.

Indeed in August we knew we were in real trouble. We were given a classroom of such a size that after chairs, tables, file cabinets, bookcases, and desks were placed therein, it had all the warmth and aesthetic appeal of the Black Hall of Calcutta. We were also informed in the Fall that our time for the core modules was about a fourth less than we had anticipated. This killed off our anticipated after-testing interactions. The students were sent into the schools for two weeks, with only the vaguest of objectives, then brought back. And all hell broke loose!

In one day, all the various content and methodology areas dumped their module requirements on the students. Some students protested violently, claiming that they thought all programs were negotiable. To be honest, some of the blurbs sent to them could be so construed. Others figured that after two weeks in the schools they were professionals and competent to pass judgement on what they needed to know. Still others had overcommitted themselves in their public school classrooms. And finally the cultural shock in moving from traditional to modular program unglued quite a few.

As for us, the room was hot, noisy, and crowded. We had a tightly structured program, probably more so than anyone else, and it was just plain murder on occasion. We worked on a sun-up/sundown schedule, but changes were necessary. We responded in several ways. First we modified our system by eliminating a couple of required modules. Second, we granted time extensions to everyone who requested it. Yet we must point out that 95% of the students finished by the end

of the semester, taking an average time of 22 hours for the required modules.

In November we made our first pass at the data to see what we had accomplished. There were a number of ways to assess our system. First, we wanted to measure cognitive achievement and program efficiency. Since we gave two Learning Checks per module section, one obvious measure was the percentage passing the first check. If you will turn to Appendix E, you will see what happened. We will use the core materials as an example. The first module, entitled "General Survey" was a programmed text in which we covered research methods, intelligence, Piaget, motivation and learning. There was a clear rise in the percentage passing the first check. As one student put it grimly, "We figured you meant business." The second module on classroom applications was also programmed, and achievement was high. The third module was a non-programmed test on cognitive theorists. Students found this to be the most difficult conceptually. The fourth module on contingency management was a semi-programmed text, and student achievement was high. The fifth module on creativity was non-programmed. The overall rate was 88% passing the first check on the required modules. I might add that this rate was sustained on the optional modules.

The general evaluation form (Appendix C) gave us additional data. Without exception all objectives were seen as being met on all the core modules.

Furthermore, students seemed to generally accept the texts as being worthwhile. However, the open-ended section produced a different story. Here was where we found the flack.

Student objections were most violent on the first or survey module. They claimed irrelevance, inhumanity, rote-memorization, lousy classoom conditions, etc. in the ratio of 2:1 over positive comments such as independence, objectivity, etc. What was clearly missed was interaction between student and staff on other than Learning Checks. Moreover, a concentrated programmed format dosage appears to be murder. The earlier decision on dropping some type of interaction was a bad one.

However, as students moved into the shorter, more focused modules, the negativism decreased, with positive comments eventually equalling and exceeding negative. We suspect that as the initial shock wore off, and students learned to manage their time better, they took things more in stride. We might add we spent many hours meeting with students to explain the logistical/resource problems. Most seemed to accept the limitations.

There were a few who fought the system from beginning to end, and indeed accounted for a significant percentage of the negativism toward the end. The technical term is "nattering nabobs of negativism" we believe.

In a moment we shall present some of our proposed changes, but here are a few things worth noting. This system cost us about $3,000 for books, $1,000 for duplication, and $1,000 for additional secretarial help. In addition, we averaged over 30 office hours office hours a week during the peak season, in addition to our other teaching duties.

Well, what does the future hold? Foremost, we are moving to a completely diagnostic/prescriptive basis. All modules will be assigned on a needs basis. We are adding more modules and clustering them into areas.

Within each area we are sequencing modules from the abstract/survey type to the more applied and in-depth. Evaluation will still remain primarily objective for the earlier modules in each area which a large number of students will take, although the higher-order modules will utilize more subjective, open-ended assessment procedures.

We are adding an optional consultation activity, and a follow-up classroom application evaluation. It looks like a better system, and hopefully will achieve even better results.

Handout

# Developing a Modul r Educational Psychology Program - Minimal Resources

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Appendix A

REQUIRED MODULES

Type - Core
Area - General Survey
Code - GS-M1-S5
Title - Instructional Psychology

Type - Core
Area - Learning Motivation
Code - LM-M1-S2
Title - Educational Psychology in the Classroom - An Introduction

Type - Core
Area - Learning and Motivation
Code - LM-M2-S2
Title - Cognitive Theory

Type - Core
Area - Learning and Motivation
Code - LM-M3-S4
Title - Motivation and Contingency Management

Type - Core
Area - Learning and Motivation
Code - LM-M4-S1
Title - Behavioral Management in the Classroom

Type - Core
Area - Learning and Motivation
Code - LM-M5-S3
Title - Implications of Behavior Mod for Education

Type - Core
Area - Learning and Motivation
Code - LM-M6-S2
Title - Creativity

Appendix B

OPTIONAL MODULES

Type - Survival Skills
Area - Memory
Code - MEM-M1-S1
Title - Acquisition in Verbal Learning

Type - Survival Skills
Area - Memory
Code - MEM-M2-S4
Title - Memory - An Extended Analysis

Type - Survival Skills
Area - Measurement and Evaluation
Code - MV-M1-S3
Title - Basic Concepts in Measurement and Evaluation

Type - Survival Skills
Area - Adolescent Psychology
Code - AD-M1-S3
Title - Physical Development and Health Problems

Type - Survival Skills
Area - Adolescent Psychology
Code - AD-M2-S2
Title - Sexual Development - Normal and Abnormal

Type - Survival Skills
Area - Adolescent Psychology
Code - AD-M3-S3
Title - Personality

Type - Survival Skills
Area - Adolescent Psychology
Code - AD-M4-S1
Title - Adolescent Intellectual Development

Type - Survival Skills
Area - Adolescent Psychology Social Behavior
Code - ADS-M1-S1
Title - Behavior in Groups

Type - Survival Skills
Area - Adolescent Behavior
Code - ADS-M2-S2
Title - Interpersonal Relationships Among Adolescents

Type - Survival Skills
Area - Adolescent Psychology and Social Behavior
Code - ADS-M3-S1
Title - Family Relations

Type - Survival Skills
Area - Adolescent Psychology Social Behavior
Code - ADS-M4-S7
Title - Sociometry in the Classroom

Type - Survival Skills
Area - Atypical Child
Code - ATC-M1-S2
Title - Learning Disabilities

Type - Survival Skills
Area - Atypical Child
Code - ATC-M2-S1
Title - Emotionally Disturbed

Type - Survival Skills
Area - Atypical Child
Code - ATC-M3-S4
Title - Mentally Retarded

Type - Survival Skills
Area - Atypical Child
Code - ATC-M4-S1
Title - Gifted Students

Type - Survival Skills
Area - Social Problems
Code - SP-M1-S3
Title - Drugs

Type - Survival Skills
Area - Social Problems
Code - SP-M2-S2
Title - Juvenile Delinquency

Type - Survival Skills
Area - Social Problems
Code - SP-M3-S3
Title - Prejudice

Type - Survival Skills
Area - Social Problems
Code - SP-M4-S2
Title - The Sexual Revolution and Women in Our Society

Type - Survival Skills
Area - Social Problems
Code - SP-M5-S3
Title - Social Change

Appendix C

EVALUATION FORM

Student Name_____ Code # - SP-M1-S3
Title - Drugs

Section_____

Date_____ _____

1. Below are the objectives of this module. Put a (+) in front of each one you think you achieved or a (0) in front of each one you think you did not. If you are undecided put a (-).

   Section 1
   ___ define addiction
   ___ explain underlying psychological and physiological factors in addiction
   ___ describe symptoms, diagnosis and prognosis for opiates
   ___ describe symptoms, diagnosis and prognosis for barbiturates
   ___ describe symptoms, diagnosis and prognosis for marijuana

   Section 2
   ___ describe factors underlying marijuana addiction
   ___ describe psychological effects resulting from LSD and other hallucinogenics
   ___ describe effects of amphetamine addiction
   ___ describe the effects of barbiturates

   Section 3
   ___ locate additional information for classroom purposes

2. Below are the text(s) and/or activities assigned to this module. Put a (+) in front of each one you think we should retain or a (0) in front of each one you think we should drop. If you are undecided put a (-).

   ___ Noyes and Kolb - Modern Clinical Psychiatry
   ___ Powell and Fredericks - Readings in Adolescent Psychology

3. Below are the other modules assigned to this area. Check those you have taken in the space provided in front. For those you have taken put a (+) in the rating column if you think this module was more helpful (in terms of value to your teacher preparation), (0) if less helpful and (-) if equally important.

| | | | Rating Column |
|---|---|---|---|
| ___ | SP-M2-S2 | Juvenile Delinquency | ___ |
| ___ | SP-M3-S3 | Prejudice | ___ |
| ___ | SP-M4-S2 | The Sexual Revolution and Women in Our Society | ___ |
| ___ | SP-M5-S3 | Social Change | ___ |

4. Add any additional comments or suggestions you have.

_____

_____

_____

_____

_____

Appendix D

STUDENT RECORD SHEET

GS-M1-S5
Educational Psychology

| Section 1 | Section 2 | Section 3 | Section 4 | Section 5 |
|---|---|---|---|---|
| ___ LC 1 ___ | ___ LC 1 ___ | ___ LC 1 ___ | ___ LC 1 ___ | ___ LC 1 ___ |
| ___ LC 2 ___ | ___ LC 2 ___ | ___ LC 2 ___ | ___ LC 2 ___ | ___ LC 2 ___ |

___ Evaluation

Additional Notes

_____

_____

_____

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LM-M1-S2
Educational Psychology in the Classroom - An Introduction

| Section 1 | Section 2 |
|---|---|
| ___ LC 1 ___ | ___ LC 1 ___ |
| ___ LC 2 ___ | ___ LC 2 ___ |

___ Evaluation

Additional Notes

_____

_____

_____

**********

LM-M2-S2
Cognitive Theory

| Section 1 | Section 2 |
|---|---|
| ___ LC 1 ___ | ___ LC 1 ___ |
| ___ LC 2 ___ | ___ LC 2 ___ |

___ Evaluation

Additional Notes

_____

_____

_____

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Appendix E

COGNITIVE ACHIEVEMENT

Table E-1
Module: General Survey

| Module Section Number | Passing First Check | Passing Second Check | Failing Both Checks | % Passing First Check |
|---|---|---|---|---|
| Sec 1 | 109 | 39 | 9 | 70 |
| Sec 2 | 122 | 31 | 1 | 80 |
| Sec 3 | 136 | 11 | 2 | 91 |
| Sec 4 | 130 | 13 | 1 | 90 |
| Sec 5 | 133 | 9 | 2 | 92 |
| Overall | 630 | 103 | 15 | 84 |

Table E-2
Module: Educational Psychology in the Classroom--An Introduction

| Module Section Number | Passing First Check | Passing Second Check | Failing Both Checks | % Passing First Check |
|---|---|---|---|---|
| Sec 1 | 144 | 2 | 0 | 98 |
| Sec 2 | 127 | 12 | 1 | 91 |
| Overall | 271 | 14 | 0 | 95 |

Table E-3
Module: Cognitive Theory

| Module Section Number | Passing First Check | Passing Second Check | Failing Both Checks | % Passing First Check |
|---|---|---|---|---|
| Sec 1 | 117 | 19 | 4 | 80 |
| Sec 2 | 111 | 14 | 4 | 86 |
| Overall | 228 | 33 | 8 | 82 |

Table E-4
Module: Motivation and Contingency Management

| Module Section Number | Passing First Check | Passing Second Check | Failing Both Checks | % Passing First Check |
|---|---|---|---|---|
| Sec 1 | 113 | 9 | 0 | 93 |
| Sec 2 | 111 | 8 | 0 | 93 |
| Sec 3 | 115 | 3 | 0 | 97 |
| Sec 4 | 99 | 15 | 1 | 86 |
| Overall | 438 | 35 | 1 | 92 |

Table E-5
Module: Creativity

| Module Section Number | Passing First Check | Passing Second Check | Failing Both Checks | % Passing First Check |
|---|---|---|---|---|
| Sec 1 | 106 | 12 | 6 | 85 |
| Sec 2 | 119 | 5 | 0 | 96 |
| Overall | 225 | 17 | 6 | 90 |