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ABSTRACT

Intended to help developers of home study courses and their directors of education create good correspondence courses, this document updates the 1980 edition and was developed by members of the National Home Study Council's Research and Educational Standards Committee. The document begins with photographs and biographies of its authors. The chapters and authors are "From Theory to Practice" (Fowler); "Naming the Parts" (Lambert); "Developing the Modern Home Study Course" (Frenzel); "Supervising Course Authors" (McKeown); "Preparing Instructional Objectives" (Evans); "Working Magic with Manuscripts" (Marshall); "Managing Text Readability" (Hughes); "Writing Examinations" (Loftus); "Motivation through Interaction and Media" (Dasenbrock); "Designing a Home Study Course" (Foltz); "Managing Course Production" (Clark); "Completion Rate Studies" (Whittington); and "Financial Analysis" (Godfrey). The document contains 27 references. (CML)

Home Study

Course Development Handbook

Second Edition

National Home Study Council

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Edited by

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The National Home Study Council (NHSC), a voluntary association of accredited home study schools, was founded in 1926 to promote sound educational standards and ethical business practices within the home study field. The independent NHSC Accrediting Commission is listed by the United States Department of Education as a "nationally recognized accrediting agency." The Accrediting Commission is also a recognized member of the Council on Postsecondary Accreditation (COPA).

Contents

Editor's Note:

In writing material for this Handbook the editors and authors have chosen to use the word "he" in all references, as is fitting for writing on a descriptive level. "He" is defined by WEBSTER'S NEW COLLEGIATE DICTIONARY, eighth edition, as "used in a generic sense or when the sex of the person is unspecified." Therefore, in the following articles, "he" also indicates "she."

Introduction

The National Home Study Council's HOME STUDY COURSE DEVELOPMENT HANDBOOK, first published in 1980, is now in its second edition. This second edition is completely revised and includes both new and updated chapters. The first edition proved to be an indispensable blueprint in helping guide hundreds of home study course writers and developers to create good correspondence courses.

One of the National Home Study Council's main goals is to conduct and promote research for the advancement of correspondence education. This Handbook is a collection of current, practical, and essential guides on how to develop a correspondence course. It presents the vital skills and knowledge developers of home study courses need for success. The Handbook attempts to cover the complete range of topics on course development, from market research to the final printing.

This Handbook is the work of the members of the NHSC's Research and Educational Standards Committee. It is intended for use by new home study Directors of Education, course authors, or anyone interested in home study course development.

The authors are practicing home study educators and experts in the correspondence study field. The National Home Study Council is deeply indebted to them and expresses gratitude for their fine contributions to the advancement of the home study field.

We hope that you will find this new edition of the Handbook useful and we welcome any suggestions and comments.

William A. Fowler
Executive Director
National Home Study Council
March 1988

Introducing the Authors

William A. Fowler is the Executive Director of the National Home Study Council. He joined the Council in 1961 as Assistant Director and was named to his current position in 1972.

Michael P. Lambert is the Associate Director of the National Home Study Council. He joined the Council staff as Accrediting Program Coordinator in 1972. He became Assistant Director in 1977 and was named as Associate Director in 1987.

Louis E. Frenzel is President of Teknowledgy Sources Inc. in Oakton, Virginia. His company specializes in the development of self-instructional materials for home study schools, associations, industry, and publishers. He has over 20 years of experience in the home study industry.

Mary E. McKeown joined the American School, Chicago, Illinois, in 1942 as an Instructor. In 1958 she was named High School Principal, and today she serves as Vice President and Educational Director.

Marianne J. Evans is Executive Director of the Catholic Home Study Institute in Leesburg, Virginia. She is a founding member of the CHSI Board of Directors and was Educational Director from 1982-1985.

Dr. Charles B. Marshall is the Vice President and Dean of the Hadley School for the Blind in Winnetka, Illinois. Before that, Dr. Marshall was the Vice President of La Salle Extension University. He is also a former member of the Accrediting Commission of the National Home Study Council.

H. Lee Hughes is the Director of Education and Operations at the U. S. Marine Corps Institute (MCI) in Washington, D. C. He joined MCI in 1964. Mr. Hughes is a former Chairman of the NHSC Research and Educational Standards Committee.

John T. Loftus is the Executive Vice President and Director of Education for USA Training Academy in Newark, Delaware. Mr. Loftus has worked in the field of home study education for over 35 years. He has also served ten years as a member of and Chairman of the Pennsylvania Board of Private Correspondence Education.

Dr. David Dasenbrock is the Director of Business Programs for McGraw-Hill Continuing Education Center in Washington, D. C. He also worked as the Editor-In-Chief of CREI (a division of McGraw-Hill).

Dennis Foltz is the Director of Operations at Gemological Institute of America in Santa Monica, California. His is an active member of the NHSC's Research and Educational Standards Committee.

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Kenneth E. Whittington is President of Superior Training Services in Indianapolis, Indiana. Before joining STS in 1971, Mr. Whittington was the Executive Vice President of MTA School from 1970-1982.

James E. Godfrey is founder and Director of the Truck Marketing Institute in Carpinteria, California. He also served as a member of the Accrediting Commission of the National Home Study Council and the NHSC Board of Trustees.

ONE

From Theory to Practice

William A. Fowler

Introduction to Article

In this first article, the philosophy of modern home study education is discussed, the principles of course development are presented and there is an explanation of how courses meet the demands of adult, self-paced learners.

The article also lists steps in course production from the selection of the course subjects through the implementation of a course revision program. A suggested list of steps to follow in the development of a course and a sample chart of accounts for budgeting for course development are included.

From Theory to Practice

William A. Fowler

One of the most experienced and knowledgeable Accrediting Commission subject specialist evaluators, Dr. Alfred K. Buchanan, remarked to a group of NHSC school staff members attending a seminar: "The most dramatic change in home study education that I have witnessed in the past 30 years is the tremendous improvement of home study course materials. There is simply no comparison between home study lessons of three decades ago and the lessons in today's courses."

That is quite a compliment coming from someone who has been evaluating home study courses for three decades. And it's true! Most home study courses today are exemplary. The texts, which bear the burden of delivering the course content (since they must serve as the teacher and the text, doing both in an interesting way), make use of just about every known innovation of media technology available.

The principles of text design, development and production are touched on briefly here, and are fully explored in the subsequent articles in this handbook. Let's begin with some theory and conclude with some thoughts on how to apply the theory to text design and development.

Theory of Learning by Correspondence

Educators are still at a loss to explain exactly how the learning process takes place in the chemistry of the brain. There has been woefully little conclusive research on how adults learn, and there has been even less published research on correspondence theory.

Yes, we make attempts to describe what we do, and maybe

even why we do it. But we are hard pressed to give a discreet, understandable, and accepted description of the theory behind the success of home study methodology.

Let us approach this topic by describing some of the basic beliefs or axioms commonly held by home study educators:

-- Learning takes place everywhere, and most of it outside the classroom.

-- Home study learning theory is based on the concept of independent, mature learners studying formally prepared materials in a given subject. The learners are motivated primarily by the interest they have in the subject they are studying.

-- The theory espouses the concept of "captaincy of self," wherein the individual student assumes responsibility for activating and sustaining the learning process. The teacher (or more properly tutor) plays a supportive role by guiding the learner, giving encouragement, and providing periodic feedback and, hopefully, external motivation.

Using these concepts and knowing in advance that the vast majority of home study students are in the 28-40-year-old group, we should look closely at problems facing the independent adult home study learner:

-- The student may lack confidence in the ability to learn, especially if there is little contact with other students working on the same course.

-- As a result, the student may be fearful of not doing well and feeling there will be a loss of face if all work is not perfect. This, then, may result in a delay in submitting work for the tutor's comments and guidance.

-- The student is anxious about how to combine or reconcile study and family demands and demands of friends, neighbors, the boss, workmates, and the myriad of other things to do. There may be a guilty feeling about spending time "shut up alone with the books."

-- Then too, the student may quite simply feel too tired after a hard day's work to settle easily to mental effort.

As they ponder course design and weigh these factors, home study course developers should recognize other traits in adult learners:

-- The adult student has more experience, more knowledge and, above all, more motivation, than most school-age students. Many have lost the innocence that lets youth imagine that time stretches endlessly ahead. Most adult students know that if there is to be a more rewarding job or a more fulfilling role in life, there is little time to waste. A strong sense of purpose can more than make up for being out of practice.

-- While the adult student's memory for facts may not be as good as that of the younger student, the ability to grasp and analyze underlying principles and the relationships between facts is better. This kind of understanding is far more valuable in higher education than is mere knowledge of facts.

-- Experience in educational programs based on correspondence study suggests that adult students learning at a distance can do just as well as younger students working in a classroom.

-- Correspondence courses offer new ways to use free time creatively: kits, experiments, outside lectures on tapes, etc., all providing a multi-media approach that can effectively compete with TV watching.

Now let's look at how home study course developers can meet the challenges and successfully teach learners at a distance. Since most courses use text materials as the primary information source, we will concentrate on how correspondence learning theory is applied in the writing of good text materials.

Test Design

Over the years home study school educators have accepted some basic principles of course and text design. Important among these are:

1. The home study text is not like the typical college text; it must do more than just provide information.

2. Home study courses must teach, explicate, anticipate questions and, in general, serve as teacher, facilitator, classroom mate, motivator, and be the source for needed information.

3. Good courses must come with built-in readings, assignments, evaluative instruments and inspiration for students to continue. They must challenge the fast

learners and still hold the attention of, and teach, the less gifted.

4. Home study courses must teach the essential, current body of knowledge, skills and attitudes to meet course objectives using media that are economically feasible and educationally effective.

5. Home study instructors serve primarily as evaluators of achievement and responders to technical queries. Their role as dispensers of information, "lecture givers," is minimal. Their role as motivators of learners, via written or oral commentaries, is an important function.

The system of teaching by correspondence can be broken down into the following functions:

Function	Discussion[1]
Information Delivery	Materials are based on specially written texts and written for a specific audience. Home study authors and editors have a detailed profile analysis of their prospective students.
Elaboration and Explanation	Study guides and texts are uniquely designed for the special needs of thousands of students. Analysis of areas where students need additional information assists editors in making material more relevant.
Motivation	Motivation is consistently incorporated in home study text materials. It is also expanded by personal comments on graded assignments along with helpful model answers. Motivational letters are sent regularly.
Reinforcement	The student writes a question and sends it to the school. Each question receives a personal, detailed reply. Self-quizzes in study guides provide written answers for permanent reference and review.

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[1] Courtesy: Dr. Charles Marshall, The Hadley School for the Blind.

Evaluation	A series of written examinations, evaluated personally and supplemented with model solution replies, are used frequently enough to measure learning. The student is not allowed to progress through any substantial amount of the course without a complete understanding of the material already covered.
Learning Completion	Making use of the graded test, learning should continue until the student attains a thorough grasp of the material. Review of the returned, graded paper and understanding the model solutions are intrinsic parts of the studies.
Application of Learning	The home study student frequently applies on the job what has been learned the night before. "Learn it today, apply to tomorrow," is a major motto of correspondence educators. Because most home study programs have specific career or vocational goals, learning tends to relate specifically to the job and may be applied immediately.

Finally, home study text design is predicated on these assumptions:

-- The learner chooses to study on his own.

-- The learner is capable of independent, self-directed study without the props of peer group or continuous teacher interaction.

-- The course is geared toward the general background, reading ability and interests of the broad range of enrollees.

-- The course objectives match closely the learner's objectives, as well as match the promises of the school's advertising.

-- The learner must feel able to "transcend the bondages of space and time" and learn effectively by mail. The system, therefore, must appear to be individually designed for the learner and it must be clear that personal attention is readily available.

-- The course must be able to be taught effectively by correspondence.

Considering all of these concepts, the home study educator proceeds to construct course materials that meet the specific needs of mature, independent, self-directed learners. Modern home study courses are the result of decades of development of a rather practical, results-oriented approach to education. The principles, beliefs, theories and axioms above are the results of years of collective thinking of home study educators.

Steps in Course Preparation

The steps in course preparation vary from school to school, and no one method is universally followed. However, some general guidelines are observed and these are outlined below.

A skeletal outline of the major steps in course development includes these steps in which home study developers:

1. Determine the subject matter to be presented: in depth market research can be helpful, but don't ignore the importance of intuition, imagination and enthusiasm.

2. Determine the educational objectives for the course, the expected outcomes for graduates, and list the skills, knowledge and behavior changes to be imparted.

3. Prepare specially written correspondence lessons.

4. Develop supplementary material such as how to study booklets, motivational tapes, study aids, etc. Study guides tell what the reading assignments are and how to proceed. Supplementary items should include encouragement letters, practice exercises, student projects, explanations of material not covered in the texts or lessons and, possibly, experimental kits.

5. Develop examinations for each study unit. These are generally designed as open-book examinations. They should teach a well as test. Furthermore, the examinations should be designed to facilitate correction and evaluation in an economical way. Above all, examinations should measure the extent to which the objectives of the course have been mastered.

6. Design, print, package, and store the course for use.

Appendix A at the end of this chapter is a flow chart showing the steps followed in developing a typical course. Appendix B provides sample budget items to be considered in developing a course.

This Handbook includes articles which explain the "how to" of each of the major steps listed above.

Course Writing Techniques

In the actual writing of course texts, schools use one of these three methods:

First, the use of in-house specialists who, depending on the size of the school, may double as instructors. This technique is especially effective for revisions. Because of time priorities and the difficulty of keeping up in the field, this technique may not be practical for major rewrites or for new course development.

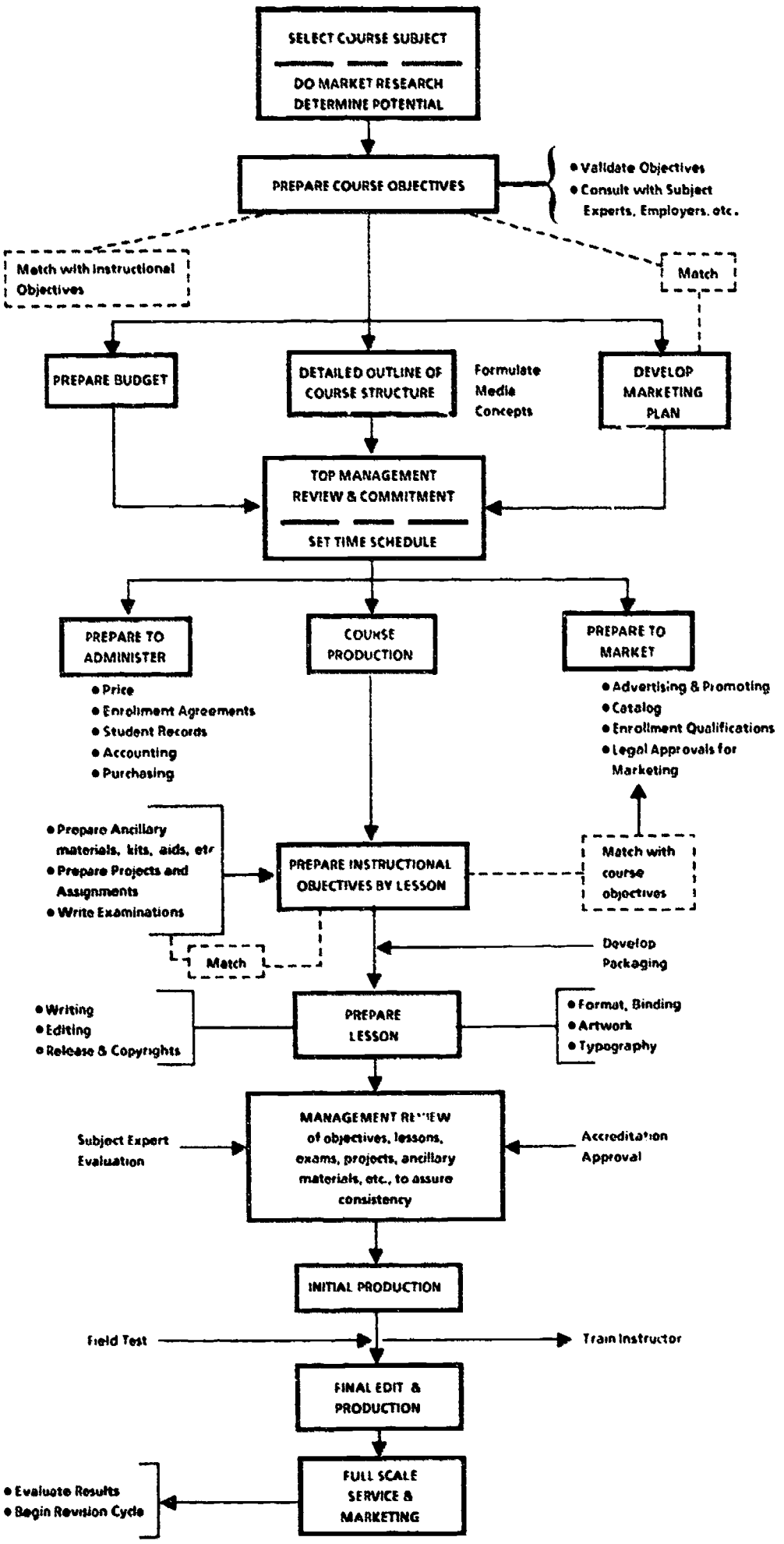
Second, and probably the most popular method, is the use of an "outside" subject matter specialist working closely with the school's educational director. When such specialists can be found, this method can be most effective. However, due to the extensive coordination, review and editing required, it can also be inefficient, not to mention frustrating. The amount and method of renumeration are important factors in the arrangements made with outside writers.

The third method is the use of a publishing or consulting firm, under contract, to prepare a complete course or program. Although a popular and frequently used method, we have seen only a few good courses prepared in this way. Experience, cost, coordination, time, and availability of qualified "contractors" are factors which greatly limit the use of this method.

For the purposes of this Handbook, the authors have assumed that the readers intend to develop, or actually are developing, their own texts (options one and two above). By understanding the principles of home study text design, Directors of Education and other school executives are better able to work with and control the quality of the courses developed using any of the above methods.

APPENDIX A

STEP-BY-STEP DEVELOPMENT OF A TYPICAL HOME STUDY COURSE



APPENDIX B

SUGGESTED CHART OF ACCOUNTS FOR SAMPLE HOME STUDY COURSE BUDGET*

1. Market Research -- Testing the market, feasibility, and determining scope of course.

2. Fixed Costs

   Salaries
   - Professional, Education Director
   - Clerical

   Overhead
   - General and administrative
   - Equipment, office
   - Supplies, office
   - Other direct costs

3. Course Development Costs

   Research
   - Publications
   - Travel
   - Consultants, Advisors
   - Laboratory and Design work

   Writing
   - Writers
   - Contracts costs

   Editing
   Subject Review/Field Test
   Typing
   Art/Graphics/Photography

4. Ancillary Materials Costs

   Kits
   Tapes
   Equipment
   Other (Diplomas, Envelopes)

* This is not intended to be a proposed budget for every course, but a general guide to important budgetary line items to be considered.

5. Reproduction Costs

Layout and Design
Printing
Packaging
Binding

6. Legal Costs

Copyright permissions
Trademarks
Course/Catalog approvals

7. Marketing Costs

Detailed breakdown determined by marketing methods used.

TWO

Naming the Parts

Michael P. Lambert

Introduction to Article

The previous article examined the basic theories which are employed in home study course design. This companion article lists and explains the various components which constitute a course . . . the naming of parts. A profile of the modern home study course and a glossary of terms are included.

Naming the Parts

Michael P. Lambert

Many home study educators use the word "product" interchangeably with the word "course" when they are talking about their correspondence offerings.

Indeed, correspondence educators have long been product oriented: they employ many business terms in this fashion because it suits what they are about.

While there is a mystique about correspondence education which defies quantitative analysis, it is useful for those approaching the subject of home study course development for the first time to know the names of all of the parts. Appendix A is a glossary of essential terms on home study course materials and the balance of this article attempts to label the many parts of the home study experience.

The Typical Course?

There is certainly no one prototype or "typical" correspondence course. Courses vary from school to school.

Some schools feature "hands-on" learning kits. Others use audio cassette tapes for instructor comments. Still others rely heavily on non-print media for instruction. Some employ video cassette tapes on a limited scale. The combinations of media are numerous. This feature, creativity of product design, helps make home study an exciting method of teaching and a challenging career field.

In a 1985 survey of the National Home Study Council's member schools, the following profile emerged from the data provided by the 55 institutions which responded. These 55

institutions offered over 1,500 courses to over one million students.

Here is the profile:

-- The average number of courses offered is 12

-- Courses have an average 25 assignment/submissions, take students 12 months to complete, and have a 61% completion rate

-- The average non-start rate is 12%

-- The majority (64%) of courses offered are developed by both in-house staff and outside authors

-- The majority (80%) of examination questions are objective in style

-- Courses typically contain an average of 38 pages, 13 illustrations/charts, and 5 halftones/photos

-- Each exam contains an average of 29 questions

-- Schools grade and return lessons within 3 days

-- Only 18% of schools offer mandatory resident training

-- 45% of the courses are 8 1/2 x 11-inch loose-leaf bound; only 7% of the courses are hard-bound published texts (Note: In 1988, the percentage of loose-leaf courses has declined to about 30%; more courses are saddle-stitched or perfect bound.)

-- 85% of the schools have instructors who write comments on submissions; 78% of school instructors write personal letters to students

-- 47% of the schools use toll-free telephone service for educational purposes

-- 82% of the schools use pre-printed motivation letters

-- Almost three-fourths of the schools (71%) own their own computer

-- Over half of the schools (53%) publish a newsletter for students

The Major Components of a Course

Basically, we can divide the home study product into three very broad categories:

-- Instructional Materials Group -- texts, lesson material, etc.

-- Ancillary Materials Group -- kits, request for help forms, etc.

-- Educational Services Group -- evaluation and instructor comments

Appendix B is a listing of the components of each of these three groups for a sample c[illegible]e. The balance of this article will focus on the Instruc[illegible]l Materials and Ancillary Materials Group, i.e., t[illegible] parts of the home study product.

The Instructional Materials Group

Within this group we have the bulk of the lesson materials. For example, 8 1/2 x 11-inch lesson texts, binder, hard-bound texts, examination booklets, etc., any thing which contains subject matter knowledge to be imparted to the learner. The media employed to deliver the knowledge or information varies from school to school and even from lesson to lesson, but the missions remain unchanged for each lesson or study session:

-- present the instructional objective(s)

-- present the information, knowledge or skill

-- have the study apply the knowledge or skill, or facilitate the desired behavioral change

-- evaluate the learning achieved or behavior change

-- motivate the student to continue to the next lesson

Within the Instructional Materials Group, the core element is the lesson text itself. The text may be 8 1/2 x 11-inch sheets bound in a vinyl binder, or it may be a 6 x 9-inch booklet, saddle-stitched. Below is a description of the major formats and materials in use today:

Loose-leaf vinyl binders were once a widely used format by schools providing materials on a lesson-by-lesson basis. The advantages of ease of revision and versatility

of reproduction technique are evident. At the same time, the student has a consolidated volume, or volumes, of all material at the end of his course. Also, new materials and techniques may be introduced immediately into the courses. However, the expense of mailing binders, the inconvenience of holding the binder to read it and the increasing popularity of desktop publishing are sealing the eventual demise of loose-leaf binding.

Specially written paper-bound booklets are once again becoming popular today due to the wonders of desktop publishing technology which allow for cost-effective, low volume printing runs and quick revision capability. No longer are three-ring binders required for revision work. Each booklet contains a single lesson/study assignment, either 8 1/2 x 11-inch or smaller sizes, side-or saddle-stitched. The concept was developed in the 1890s by Thomas J. Foster, founder of International Correspondence Schools, and still appears in the original pocket-size form, or in interesting variations. Such materials are easy to store, package, and ship to the student. Individual lessons may be easily revised since they can be printed in limited quantities and replaced without undue budget strains. And the same lessons may be used in many different courses, providing versatility for schools offering programs in the same subject field at different levels or different courses with related components.

Full-sized hard-bound textbooks, formerly quite popular, are now often replaced by combination materials, such as texts plus assignment sheets of loose-leaf courses. The primary reason for the decline in the use of such books is the difficulty posed by revision. When used in fields where the basics do not change and when supplemented by other materials, this technique can be effective -- and impressive. The student has a lifetime reference library on his bookshelf as a reminder of his investment. Supplementary reference books and outside readings can be, and are, employed with courses using text materials prepared in these ways.

Standards texts, workbooks, and study guides. Some schools use standard resident school textbooks and workbooks, supplementing these with specially prepared study guides and instructions to the student. This kind of course is used most often by schools with high school programs and college level or degree awarding courses -- primarily because recognition of such courses by state and public schools officials, who are oriented to resident schools, is facilitated when standard, recognized texts are used. Study guides prepared for use

with standard texts usually include reading assignments, motivational materials, supplementary subject information, self-check quizzes and assignments, and sometimes "bound-in" examinations. These ingredients make it a home study course, and are the key to its success.

The focus of the various articles in this Handbook is on the Instructional Material Group, specifically, the "how to" of producing the above listed materials.

Ancillary Materials Group

Supplementing the texts discussed above are a variety of media and materials. The purpose of ancillary materials are:

-- to break up the tedium of the printed pages, and to add an additional dimension to the communication process (e.g., audio)

-- to provide the learner with a chance to apply his new found skill or knowledge

-- to aid in the two-way communication between school and student.

The single most popular audio-visual aid is surely the ubiquitous video cassette tape. Inceasingly, video cassette tapes are being used within defined limits of budget, talent, etc.

The major types of media include:

Kits to be assembled, with all the necessary tools and equipment, are frequently combined with text materials to enhance the effectiveness of correspondence instruction. These cover a wide gamut, as the following list indicates:

> Television and radio set kits; electronic test equipment assembly kits; and even an electronic laboratory for radio, television and electronics students; tool kits for mechanics; compressor components for refrigeration servicemen; locks, key blanks, tools, and a key-making machine for a student locksmith; and precious stones for a gemologist.

Integration with the text, assignments and examinations is the key here. Effectively used, such materials are invaluable adjuncts to the course.

Recordings are used most effectively -- together with texts -- in such courses as broadcasting and language. Most recordings today are done on inexpensive cassette tapes: small, lightweight, mailable. They are excellent audio supplements for just about any course.

Video cassette tapes are being employed more and more as developers acquire experience in cost-effective "in-house" production techniques.

Tape recorders. With the development of cassettes, tapes have become more practical than before for home study. Mass production has brought this item within the economic range of many schools. Tapes are used for two-way student-school communication, such as in a broadcasting course, and for instructor critiques of student work.

Projectors and color slides see very limited use in home study courses. The cost of producing the "software" is largely prohibitive, not to mention the costs of shipping and handling projectors.

The Instructional Services Group

A brief mention of a few of the components of this group should enlighten the reader:

-- Examination services, grading of papers

-- WATS line instruction, responding to student queries

-- Administrative services, job assistance, notifications of employers

-- Remedial instruction, and provision of additional information

-- Shippment and receipt of course materials

-- Other specialized student services

These are but a few of the tasks which comprise the total home study experience. These tasks and services commence after the student has enrolled. The nature of these components puts them outside the scope of this Handbook. They are, however, integral parts of the design and development of any good correspondence course.

Conclusion

Knowing the names of all the parts will not make you an expert in course design. Looking at actual course materials -- which are readily obtainable -- is a critical step.

In most cases you need only call or visit an NHSC school and request a sample lesson from the Director of Education. Attending NHSC workshops is a good way to network with your peers in home study, so that when you need information, you are likely to get it.

The other articles in this Handbook illustrate many of the components discussed above and shed additional light on just what a course is or should be. But while this Handbook is a good start, there is no substitute for actually developing a course, where necessity for action generates a great deal of practical understanding in a very short time.

APPENDIX A

Glossary of Selected Home Study Terms

ANSWER SHEET (RESPONSE FORM): A form on which a student records responses to examination or test questions. Answer sheets are submitted to the school for grading, evaluation, and comment, and then returned to the student.

ASSIGNMENT: A part of organized material to be studied and performed by the student, according to required techniques and principles; a specific task to be performed by the student and submitted to the school for evaluation and comment.

ASSIGNMENT SHEET: A written supplement telling students what material to study and in what order to study, as well as how and when to submit examinations or projects for evaluation.

COMBINATION COURSE: A course consisting of a home study portion and a residence portion. Normally, the home study portion precedes the residence portion. Residence training is offered to provide students instruction on the use of specialized equipment, learning of manual skills or the application of certain techniques under supervision (e.g., tractor trailer driving).

COMPLETION RATE (RAW COMPLETION RATE): The ratio of assignments completed to the total number of assignments contracted for in a fixed sample of matriculated students (note: not the same as graduation rate).

COURSE: A planned sequence of educational activity, leading to the acquisition of a skill or body of knowledge, usually over a predetermined period of time.

DIRECTOR OF EDUCATION: The person in a home study school organization responsible for planning and organizing courses; selecting, preparing and editing instructional texts and study guides; supervising instructional services and staff; conducting educational research; and performing other educational tasks as may be assigned.

EDUCATIONAL RECORDS: Records and files maintained by a school for each student's educational activity, which include a student's name,

address, basic education, date of enrollment, course, grades, current academic achievement, enrollment agreements and other data.

ENCOURAGEMENT PROGRAM (MOTIVATIONAL PROGRAM): Materials and procedures used by home study schools to motivate students to start a course of study, continue in the course, and graduate.

EXAMINATION (TEST, ACHIEVEMENT TEST): That part of an assignment submitted for examination service, and designed to facilitate learning and to measure achievement. Examinations may include essay, true-false, completion and multiple-choice items, case studies, problems, or may consist of a finished product (artwork, project, article, etc.) which the student submits to the school.

EXAMINATION SERVICE: The correction and evaluation of an examination, together with any necessary motivation and counseling, by an instructor.

GRADUATE: A person who has satisfied the prescribed requirements (e.g., assignments or examinations of an educational course or program) and has been awarded a certificate or diploma affirming this.

GRADUATION RATE: Percentage of matriculated students in a fixed sample of a school's course who have satisfactorily completed all of the prescribed requirements of a given course or program.

HOME STUDY COURSE (PROGRAM, TRAINING): An organized series of instructional units designed to accomplish definite objectives by the home study method.

HOME STUDY EDUCATION (CORRESPONDENCE EDUCATION, DISTANCE EDUCATION): Education designed for students who live at a distance from the teaching institution. Ordinarily, printed and/or recorded materials are sent by mail, providing the student with structured units of information, assigned exercises for practice and examinations to measure achievement, which in turn are submitted to the teaching institution for evaluation and comment and subsequent return to the student.

INSTRUCTIONAL MATERIALS: Texts, tapes, work kits, equipment, supplies, tools, and other materials used in a course to facilitate the education and training offered.

INSTRUCTIONAL SERVICE (LESSON SERVICE, ASSIGNMENT SERVICE): The advice, counsel, guidance and instruction requested by a student with an instruction-related problem and rendered by an instructor.

INSTRUCTIONAL UNIT: A section of a home study course usually consisting of an encouraging or motivating device, lesson materials and assignment, assignment or instructional service, examination and examination service.

INSTRUCTOR (TUTOR, TEACHER, FACULTY): An individual who, qualified by education, training and experience, performs assignment, examination and personal service. He may assist in course research, writing and related activities.

KIT: A collection of predominately non-textual materials included in a home study course to augment or enhance instruction. These materials may consist of tools, equipment, instruments, audio-visual aids, components, accessories, and so forth.

NON-START RATE: Percentage of enrolled and registered students in a fixed sample of a school's course or courses who did not submit any required examination or lesson assignment for grading or servicing. Non-starts: students who are disenrolled in a course after registration, after the applicable cooling-off period but prior to submission of their first required assignment.

OBJECTIVE, EDUCATIONAL: A statement of what an educational program can do for reasonably diligent students. For home study courses, objectives are goals or aims attainable through the correspondence study method, and provide a description of skills to be acquired, information to be learned, training to be received, and attitudes and habits to be changed or developed.

REVISION FILE: A file containing suggested course revisions to update instructional material, correct errors, improve quality of instruction,

clarify passages that may confuse students, and so forth.

STUDY GUIDE (TRAINING GUIDE; INSTRUCTIONAL GUIDE): A written supplement to course materials designed to facilitate study. It may include directions on how-to-study, suggested readings, research topics, self-check tests, problems and study projects, all of which are keyed to the basic course texts.

APPENDIX B

COMPONENTS OF A MYTHICAL HOME STUDY COURSE IN "GOURMET COOKING"

A. Instructional Materials Group

1. 10 lessons, averaging 12 pages each
2. 10 written examinations, averaging 20 questions each
3. 20 self-check quizzes, 5 questions each
4. 10 at home projects
5. 5 mailed in projects
6. Signatures from 3 individuals, unrelated to student, attesting that a gourmet meal (of student's choice) had been served. Menu and dinner guest's comments must accompany signatures.

B. Educational Services Group

1. 10 request for help/technical inquiry forms (pre-printed)
2. 20 pre-addressed envelopes
3. Final examination package
4. WATS line telephone card
5. Starter lesson kit: pen, menu card, envelope, etc.

C. Ancillary Materials Group

1. Premium to enroll: Cookbook
2. Stimulus to return lesson one: Apron with School logo

APPENDIX B cont'd.

3. Stimulus to return lesson five: engraved menu cards

4. Stimulus to return final exams: handsome diploma

5. 6 audio-cassettes with lectures

6. Silver-plated wine tasting cup on chain.

THREE

Developing the Modern Home Study Course

Louis E. Frenzel

Introduction to Article

Giving students a good initial impression via quality course material is critical to reducing non-starts and enhancing course completion rates. Mr. Louis Frenzel, a proponent of high quality, low cost, short home study courses, offers invaluable guidance on how to go about planning for a modern home study course.

He argues persuasively that home study courses, like modern fiction thrillers, should have a "can't put it down" quality.

Developing the Modern Home Study Course

Louis E. Frenzel

The purpose of this chapter is to summarize the key steps in developing a home study course. The focus is on creating superior printed lessons and audio tapes. It is hoped that this review will provide educational directors, course developers, and others with some new insights into course development so that the highest quality programs may be produced.

Step 1 - Perform a Needs Analysis

Course development begins by analyzing the student's needs. This research identifies the reasons for the instruction and specifically what must be taught. For example, a job analysis takes a close look at individuals employed in a specific job to determine what they do and what they need to know to perform competently. If the training is not job-oriented, then a task analysis can be conducted to determine just what the student is expected to know and be able to do upon completion of the course.

A needs analysis is generally done by interviewing employees that are doing the work or individuals who are participating in the target activities. Observation of performance is another useful technique. A research of relevant literature may also be helpful. The result of the needs analysis is a detailed list of specific activities, tasks, duties and needs. An indication of desired performance levels should be given for each. From this list, you can determine exactly what must be taught.

There is considerable evidence that most home study schools do not carry out this important part of course

development. In some cases, the schools assume that they know what must be taught, or guess. However, if the school has no experience in the field of interest, it is best to do the analysis as most often it reveals important subjects and skills that can be overlooked. The quality of the course and how well it meets the needs of the student depends upon a proper analysis. Giving the student exactly what he needs produces a more satisfied student. A needs analysis usually results in a shorter, more efficient course because only necessary topics are included. Such a well-planned course is also less expensive.

Step 2 - Develop Learning Objectives

From the needs analysis, specific learning objectives can be developed. Learning objectives are simple statements of what the student will know and be able to do once he has completed the course. The instructional objectives are derived from the information developed during the needs analysis. The objectives should be stated in behavioral terms so that student performance can be measured.

Learning objectives are covered elsewhere in this book so we will not discuss them further in this chapter. Objectives are extremely important because they are the basis of the course content. Be sure to state the objectives for the students, as everyone likes to know where they are headed.

Step 3 - Create a Course Outline

From the needs analysis and learning objectives, you can develop a comprehensive course outline. The purpose of the outline is to divide the subject matter into a number of instructional units. These instructional units may be printed lessons, lab experiments, audio tapes, or some other presentation. The outline defines the content of these instructional units and their sequence.

The initial outline is simply a listing of the main instructional unit titles. The idea is to partition the material so that the necessary subjects are covered in the right order. Once this brief outline is complete, a detailed outline of each instructional unit is constructed. Keep in mind that the content of these instructional units must match the needs analysis and course objectives.

Step 4 - Selecting the Media

At this point, you should have a good planning document to give to your course developers. This document contains any job, task or needs analysis, a set of learning objectives, and a comprehensive outline. With this material, the course developers can begin creating the instructional units. But before that happens, consideration should be given to the media in which the course will be presented. Most home study courses will use written texts. However, serious consideration should be given to using other media, such as audio or video. Audio and video tapes can greatly improve a home study course by making it more interesting, fast-paced, and enjoyable. Also, audio or video is often superior to print for presenting some types of materials.

a. Print - Printed lessons are still the best way to present virtually any kind of instructional material. Lesson texts are fast and easy to develop and considerable graphical information can be presented economically this way. Printed texts also offer random access to the subject material.

   On the other hand, we are not a nation of readers. While many learn to read in school, statistics indicate that most people are not regular readers. This is one of the reasons why many individuals do not take home study courses. They do not like to read or they read poorly. Most people get the bulk of their information by radio, TV and telephone. Despite their many advantages, printed texts are not the best way to teach some subjects, especially to audiences that resist reading.

b. Audio - The common audio cassette is widely used for music and instructional purposes. Many self-instructional programs and motivational tape sets are done entirely in audio. This is an extremely low cost and effective media. In quantity, 60-minute audio tapes can be reproduced for well less than $1. Often this is much cheaper than the printing of an equivalent text. Today, virtually everyone owns a cassette player of some sort, whether it's in a stereo receiver, a portable Walkman, or in a car. Audio tapes are interesting, highly effective, and economical way to implement or supplement a course.

c. Video - At one time video tapes were far too expensive to be used in the average home study course. Video development costs were high, but more importantly, the average individual did not have access

to a VCR. Today, the VCR is a common consumer electronic product. It is estimated that over 50% of all U.S. homes now contain a VCR. This makes home study courses in video format very practical.

Video is by far the best media for self-instruction. In fact, it has become "the" primary media for use in business, industry, government and military training. Most self-instructional materials are now put on video tape or use interactive video disks. Video is superior because it can present both audible and visual information in a compact and highly efficient manner. Most people like to watch TV; therefore, they are comfortable with video instruction. Video can also be made interactive by requiring the student to stop the tape after certain presentations to answer questions, solve problems, or otherwise become involved with the material. Good video programs are usually accompanied by a workbook that includes summaries, reviews, quizzes, and other information.

Today, few if any, home study courses use video. This is unfortunate because it is an effective instructional tool. Furthermore, there are literally thousands of available video tapes that could be used in home study courses.

Developing video learning materials is beyond the scope of this chapter, but video should certainly be considered as a viable alternative media in modern home study courses.

d. Kits - "Kit" is a generic term often used to refer to all of the hardware and other materials that schools include with a course to help teach the subject. Kits include tools, instruments, and objects to assemble, observe, or study. Many subjects are highly hardware intensive and learning comes best from actual hands-on experience. Kits make a course far more exciting, practical and realistic. And they add value, providing marketing benefits as well as making instruction more effective.

   The best way to get a student to start and complete a home study course is to get him involved. Involvement means a lot more than having him read 500 pages of text material. Many students take courses to learn new skills and techniques. This means the student wants to learn how to repair electronic equipment, take photographs, work with locks, or navigate a small boat -- not jusr read about it.

While it is not always possible to create the type of involvement required to teach the skills students want, kits offer the best opportunity.

All kits should be accompanied by kit manuals that guide the student in the use of the materials supplied. Such manuals will outline experiments or demonstrations to be performed, projects to be implemented, or activities that lead to improved knowledge and skills.

Step 5 - Creating the Written Text

The printed lesson is the mainstay of most home study courses. These lessons are extremely important because through them the student not only learns but also gains an image of the school. The quality and effectiveness of the lessons will reflect directly on the school.

Home study lessons must be written with the student in mind. He will not, in most cases, have direct contact with an instructor or classmates. For that reason, the written materials must be thorough and unambiguous. Unlike many textbooks which are written primarily to supplement a classroom course, home study texts must stand alone as the primary means of learning in a home study course.

With these important facts in mind, here are some helpful tips for writing good home study lessons.

a. The Important First Lesson

The first thing that a student sees of a home study course is Lesson #1. It should be designed to not only make a good first impression, but also to get the student off to a good start. Only a small percentage of those who enroll in a home study course ever complete it. Boring, hard-to-read lessons are responsible for many drop-outs and loss of motivation. The first lesson should give the student a good feeling so that he or she will want to go on.

The first lesson must be lively and interesting. It should focus on the main subject of interest and tease the student with things to come. Above all, the lesson should be short. Reading a lengthy tome will give the wrong impression. The first lesson is a special piece that will make or break the course. Considerable attention must be given to it.

b. Create Good Opening Copy

Use some of the techniques employed in newspaper writing and the writing of novels to help grab the student's attention. In your opening paragraphs, look for the "hook" that will stimulate the student's interest and motivate him to keep reading. All you have to do is find the topic that will create the most interest. Embellish it with an important statistic or ask a provocative question. In any case, spend some time in creating those first few important paragraphs to capture the student's interest and motivate him to keep reading.

c. Use Plenty of Headings and Subheadings

Nothing is more deadly than page after page of written text with no breaks. Continuous copy says to the student "boredom and drudgery." An easy way to avoid this problem is simply to divide the text into short segments or "chunks." Each should have a heading or a subheading telling what the segment is about. Such headings provide a superior visual impact by bre king up the continuous text. Further, the student can glan.e at the headings and sub-headings and get a good preview of what is to come. Headings and subheadings also make it easier to use the text for reference and review.

d. Use Graphics and Illustrations

Studies regarding the creation of printed material for self-instruction indicate that one of the most effective methods of teaching is through illustrations. Illustrations, like headings and subheadings, break up long strings of continuous text. In many cases, a good illustration can replace the text and communicate the desired information more quickly and effectively. Anytime you can use a photo, line drawing, chart, graph or table by all means do so. Most course developers find that it is faster and easier to write a lot of text rather than create good illustrations. It's a fact that it does take longer to develop graphical material, but its effectiveness and visual impact makes it worthwhile.

e. Use Sidebars

A sidebar is a block of text sometimes accompanied by an illustration that is set off in a shaded or outlined box but located near the main flow of the text. Magazines and newspapers use sidebars to provide supplementary information related to the main topic but set off separately. Sidebars are used to supply historical and background information, remedial and prerequisite information, examples and case

studies, and information that is nice to know rather than essential to know. Information such as this sort does not have to be in the main flow of the text. By setting it off in a sidebar, it becomes optional or special. Just as important, it has the visual impact of an illustration as it breaks up those long pages of text.

f. Keep the Lessons Short

There is nothing more depressing to a student than to have to wade through a huge text. Try to make each lesson as short as possible. Ideally, the average 8 1/2 x 11-inch printed lesson should have less than 20 pages and certainly no more than 30. Take a close look at each lesson to see if it is possible to subdivide it to create shorter, easier lessons. A student will read a short lesson before he will attempt a longer one. The student will get finished with a shorter lesson faster and will, therefore, have a better sense of movement and accomplishment. Success such as this encourages students to move on to the next lesson. Brevity is an important characteristic of a home study lesson. If you let the needs analysis and objectives guide you, you will know exactly what to put in the lesson and what to leave out. Just remember: in a home study lesson, less is usually more.

g. Writing Tips

Here is a list of some important guidelines to follow in writing the lesson.

1. Choose words carefully. Use clear, familiar words rather than long, complex and unusual words. Avoid the use of jargon unless it is pertinent to the subject matter.

2. Use short, simple sentences. Long, complex sentences are hard to read and understand. Divide long sentences into shorter ones.

3. Check the reading level. There are several systems used for testing the reading level of a text. These are described elsewhere in this book. Just remember that the lower the reading level, the faster the text is to read and the easier it is to understand. If you have used clear, familiar words and kept your sentences short and simple, then your reading level should be relatively low. By making the reading level below the 8th grade level, the subject matter will be more easily learned.

4. Use plenty of examples. When presenting information, theories and techniques, give plenty of real-world examples. Students like to hear about actual applications of the information they are likely to encounter. By giving examples and working typical problems, the student will learn faster.

5. Refer to the active, not the passive, voice in writing. The active voice is usually more lively and interesting. The passive voice comes from using any form of the verb "to be." This means that sentences using the verbs "is, are, was, were, be, being," and "been" are giveaways to the passive voice. Eliminate such verbs and the resulting text will be easier to read. The text will be more conversational and you will have a tendency to use the verb "you" which makes the text more friendly and conversational.

h. Consider Special Formats

While most lessons will be written in standard text form, unique presentations may be beneficial. Some examples are:

-- Programmed Instruction (PI) - PI is not currently popular, but it is highly effective in presenting some types of material. It is a 30-year-old technique in which difficult, tedious or technical material is presented in a continuous self-testing mode. It is perfect for home study, but usually overlooked.

-- Information Mapping - This is a highly efficient and compact method of presenting facts or knowledge. Mapping techniques help identify the important subjects and compress them into highly effective educational presentations.

-- Unusual Arrangements - Feel free to innovate. An example is a home study course where each lesson is only 4 pages long. The material is subdivided into very short lessons that are fast and easy to read.

i. Quizzes and Examinations

The thing that sets a home study lesson apart from a standard text is the significant use of self-quizzes and examinations. By providing the student with plenty of opportunity to answer questions and solve problems, he will learn faster. Self-test quizzes with answers give a student valuable feedback on his progress. Such quizzes also provide a key means of summarizing and reviewing the main information to be learned. Examinations truly improve the instruction.

Self-quizzes should be used frequently throughout the text, primarily after major sections. Almost any type of testing technique can be used. Questions can be of the true/false, completion, matching, or multiple choice variety. Essay questions are usually not good for self-instructional programs.

Each lesson will typically end with an examination. The multiple choice type is best because it is easier to grade. Multiple choice questions fit practically any type of subject matter and provide superior testing of student understanding. Attempt to create questions that force the student to apply what he has learned. Questions that have the student simply repeat facts and figures are OK, at times, but questions that require the use of the information improves understanding.

j. Include a Glossary

A glossary is a short, to-the-point listing of relevant words and terms related to the subject matter. It is not as comprehensive as a dictionary and simply provides the brief meanings of important terms. A glossary is particularly important in self-instruction when a student is learning a subject for the first time. Much of learning is associated with the understanding of new words and terminology. While most of the words and terms will be explained in the text, others may not. By providing a glossary, you give the student another resource to assist in his own learning.

There are several ways to create a glossary. New terms related to an individual lesson can be collected and placed at the end of the lesson. Otherwise, all of the relevant terms in the course can be collected and alphabetized to form a complete course glossary.

Many special dictionaries and glossaries are regularly published on a variety of subjects. A search of the literature will often reveal a book that can be used in lieu of creating a special glossary.

Step 6 - Creating Audio Tapes

Audio lessons are just as easy to create as written lessons. Most of the guidelines given earlier also apply to audio lessons. Here are some specific guidelines for creating good audio lessons:

a. Select the Audio Format

There are four basic audio formats:

- Lecture
- Two-voice narration
- Conversation/Interview
- Audio Tutorial

The lecture is probably the most common but is also the least effective and can be the most boring. For best results, only superior motivational speakers should be used.

The two-voice format uses two persons, usually a male and female, to present the material. Two voices help break the material into shorter, more lively segments. It is less boring and much more effective.

The conversation/interview format uses two or more speakers to add variety. The presentation can be more casual and conversational, thus more interesting. However, it is less efficient than a formal interview or panel discussion where the presentation can be better planned and more efficiently presented.

Audio tutorial is a formal instructional process that includes student interaction. The material is presented in short segments, usually by two voices, and asks for frequent student participation. The student stops the tape, answers questions, solves problems, or otherwise responds to the presentation. Audio tutorial is highly effective but more difficult to create.

b. Keep It Short

The average attention span of an adult student is short - 15 to 20 minutes. So keep the instructional segments short, regardless of the format. Divide the material into shorter, 5 to 7-minute segments to keep the attention level high.

c. Use Illustrations

Most audio learning programs do not use illustrations. They present word pictures instead. But for certain types of material, the presentation can be so much more effective if photos, line drawings, block diagrams, charts or other graphics materials are included. The result is a slide-tape show that really gets the message across.

d. Use Audio to Supplement the Kits

Instead of a kit manual, use audio to talk a student

through any experiments, demos, or projects. Printed materials and illustrations can be included where helpful.

e. Don't Forget Exams

Audio instruction should also have self-test quizzes and exams to be graded. These should be in print format.

f. Include a Study Guide

Since audio tapes are serial access rather than random access like a printed text, it is more difficult to locate specific segments. This can be overcome by outlining the content in detail on the tape label and in a printed study guide. Also, ask the student to use the counter on the tape player to keep track of each section.

The study guide also helps make review and reference easier as it should contain short summaries and highlights of the audio segments that will minimize the searching for and repeating of audio segments.

g. Use Professional Speakers

Many people think they have a good speaking voice. But just the opposite is true. A superior audio tape requires good voice presentation techniques. The only way to avoid bad, amateurish recordings is to use experienced professionals.

Step 7 - Package the Course Attractively

Packaging refers to how the lessons are physically implemented. Most home study schools use either loose-leaf lessons or individually printed lessons with separate covers. The most common size is the 8 1/2 x 11-inch page. Care should be taken to make these as attractive as possible. Attention should be given to page layout, type style, and illustrations. Good graphics design procedures should be used in creating a page design. It is best to use plenty of white space to avoid a heavy, cluttered look on the page.

When audio tapes are used, include a cassette holder and binder that can also contain any related study guides.

And don't forget the possibility of using color. Two-color designs are quite popular in home study courses and the extra color adds flexibility in producing clear illustrations. By using screens, the effect of multiple colors is created. The second color also makes the page

far more interesting and appealing to the reader.

Home study lessons do not have to be slick and expensive. But they should have a high quality look and feel. The student's first impression will come from visual contact with the lesson material and it must be favorable. If it is, the student will read it or listen to it. And a studying student is a paying student. High quality lesson materials will give the student the knowledge and skills he desires and will create the desired revenue and profit for the school.

FOUR

Supervising Course Authors

Mary McKeown

Introduction to Article

Mary McKeown speaks from more than four decades of home study experience working with course authors. In this article she explains the talents one looks for in an author, establishing ground rules, and how to supervise authors. A sample author's contract is displayed.

Selecting course authors is one of the most important decisions an Educational Director makes.

Supervising Course Authors

Mary McKeown

The selection of an author or authors for a home study course is one of the most important decisions that an Educational Director makes. It is not an easy task. It is a task that requires great care. Well-written courses can make the difference between success and failure for a school.

What do You Look for?

What characteristics and abilities do you look for in selecting a writer? First, look for someone with expertise in the subject matter, a person with an up-to-date knowledge of the field. Secondly, you want someone who can write in the "home study manner," who can transmit knowledge to students. You want someone who writes for his readers rather than for his peers. Thirdly, you should seek the writer who has a broad understanding of the field of home study and the special needs of home study students. Fourth, you look for someone who can organize written material in such a way as to lead students step-by-step through the course. Finally, you should select writers who have the ability to complete the manuscript on time!

How do you select a writer who has all the qualities outlined above? Home study schools that have a large staff of department heads and instructors have a ready pool of talent. The educational directors of such schools are particularly fortunate in that they are aware of the potential writer's educational background, writing skills and organizational ability. A writer selected from the staff can be expected to know the format the school uses, be aware of capabilities of the students, and be already

familiar with the principles of teaching by correspondence.

However, even in a large school there are times when it may be advisable to go outside the organization to get a suitable author. No one on the current staff may be qualified, or the persons who are qualified may be busy on other projects. Therefore, to meet time constraints the Educational Director will have to go outside the organization. The decision as to "inside or outside" authorship depends upon the circumstances (time, budget, staff competence, etc.).

Where do You Find Them?

Where do you get good writers? You have many sources. If the course you are planning is an academic one, for example, United States History for a high school program, you can contact the history department of colleges, universities or high schools in your area for possible authors. (It is usually easier, less costly, and less time consuming to engage people who are close by -- especially if you are working with more than one author.) However, since the Educational Director is experienced in home study methodology, he should not be afraid to work with an aspiring author in any part of the country if that author proves to have the qualifications desired. If an author is particularly outstanding (and the fee reasonable), it is worth the extra effort to work with an author located at some distance from the school.

If the course is vocational, you can contact the appropriate departments of vocational schools at secondary and postsecondary levels. Industry, too, is a good source for writers. Those currently employed in industry have practical experience and know the latest developments in their fields. You can advertise in trade and technical journals. Keep your eyes open. If you come across an article in a technical journal that is written in a style that will be understood by the type of student you expect to enroll in your program, contact the author. Perhaps you can hire him to write a course for you.

Multiple Authorship

For some courses it may be advantageous to have more than one author. This might be true in a course such as World History. Having several writers each of whom is a specialist in the history of a particular area would add to the scholarship of the course. The same would prove true of a course in law or taxes. Having more than one author can

also speed up the writing. Some people work better in teams and are spurred on by discussing the project with others. On the other hand, there can be disadvantages in that writing styles and lesson tone may differ widely. This difficulty can be overcome by making one of the authors responsible for reconciling the variance in styles and by having an experienced editor go over the material. In home study every course needs to be read and edited by a "central mind" to assure uniform tone, style and flow of material. Some writing teams divide the work so that one writes the lesson material and the other writes the self-check and examination questions. The division of labor should be the one that will produce the best course.

Establishing a Working Relationship

Once you have selected an author you will need to have an orientation session. The author needs to know about the students who will be taking the course. Who are they? High School dropouts? High School graduates? College graduates? Men? Women? Both? What age group? Income? What are their reasons for taking the course? The more the author understands the intended student audience, the better able he will be to write a course that will suit that audience.

Discuss course content. Set up a list of behavioral objectives for the course. Be sure to let the author know what the extent of the course is to be. For example, first year Algebra would be beginning Algebra through the solution of quadratic equations. A course in repair of small electric motors would be limited to small electric motors. It would not include gasoline motors. You do not want to have the course duplicate material in other courses you already offer.

Every home study school should have a manual for course writers. Several major NHSC member schools have for years made their course author's manuals available to others. Find out which schools have a manual and ask for it.

The manual should give the writer an idea of what is expected. It should outline the format to be used, the length of learning units, types of questions to be used in examinations, etc. It should stress the differences between classroom and home study teaching. For example, it should stress the fact that the only educational materials the home study student can be expected to have are those sent with the course. Home study courses must be self-contained. The writer has to anticipate the learning problems the student may encounter and design the course to overcome these problems. There will be no teacher there to explain

convoluted prose in the course, or to reassure the discouraged student or to supply material that has been omitted.

Once you have decided upon an author and set up the course objectives, you need to set the ground-rules. Make sure that each of you knows who is responsible for what. Have a contract for any authorship, whether it is done by a salaried employee or on the outside. It should specify who is responsible for supplying pictures, charts, and other illustrations; how and when the manuscript is to be submitted; how and when the author is to be paid; under what conditions the contact can be cancelled; and, most importantly, the timetable of when materials are due. (See Appendices A and B.)

The amount and basis for payment will, of course, depend upon the school. It may differ for various courses within a school depending upon the difficulty of getting qualified authors. One Educational Director recently said that his school paid by the finished page. A public institution paid $5,800 per lesson for a college course it developed. Others pay lump sums of anywhere from $1,500 to $20,000+ per manuscript. In short, the budget of the school, the difficulty of the course, and the credentials of the author influence the renumeration.

Supervising Authors

Now that you have the author primed to write, you need to keep his enthusiasm peaked. Drop him a note or give him a call from time to time. Set up a "tickler file" to remind yourself of when to call the author. Keep in touch with him. Maybe you will find a clipping from a newspaper or magazine which relates to his project. Send it to him.

As soon as you get the first portion of the manuscript, read it and contact the author. Feedback is as important to the author at this point as it is to the student who has submitted his first examination. You want to keep the author enthusiastic about the project. Get your evaluation to him quickly. Emphasize the strengths of his presentation. Then make suggestions for improving sections you feel are weak. Be gentle but firm. Criticize their writing and you criticize them. Be as tactful as you can. However, keep in mind that you have to have a product that meets the needs of the students and your school.

As you look over the first lesson ask yourself these questions:

1. Is it written at a level the student can understand?

2. Is it condescending? Or, on the other hand, is it stilted and heavy with jargon?

3. Is its development logical? Does it proceed from the simple to complex?

4. Does it hold your interest? If it doesn't hold yours, it won't hold the students?

5. Does it give the student practical examples that he can understand, rather than just theory?

If the reading level is too high, do not just tell the writer that the reading level is too high. Have your editors rewrite a sentence or paragraph here and there at the level you think appropriate. In technical subjects it may be necessary to tell the author to define any technical terms he uses. If the author tends to be condescending, point it out to him (in a non-condescending way, of course). If, however, the author tends to be intellectually overbearing, point that out to him too (in a non-overbearing way, of course).

The author who has not had experience in correspondence education may not realize the need for logical, sequential steps in his presentation. Show him where such omissions occur. Indicate where practical examples can be given if he has overlooked them. Suggest ways he can spark students' interest by his language and by relating his presentation to the real world.

Conclusion

Educational Directors do not have an easy job. They are often caught between other school executives who expect a course to be ready for marketing as soon as the idea for it is conceived, and procrastinating authors who often have full-time jobs and think of their course writing as secondary. You will have to follow up with the author to be sure he is meeting the time schedule you have set.

It is important to keep in close touch with the writer, meeting with him from time to time or speaking with him on the phone if he is out-of-town. Authors will differ in their work habits. What motivates one author may irritate another author. Most will stick close to the original schedule. Others will start out with enthusiasm and then reach a plateau. A note or a telephone call will usually get these folks back on the track. However, there are always the

procrastinators. They usually say that they work better under pressure. Keep after them. Most of us do not like to nag, but unfortunately nagging is often the only pressure to which certain people respond. In short, the secret of success in remotivating delinquent authors is to practice the art of making them feel guilty.

Thus, at times you will have to be a teacher, advisor, psychologist and even an ogre, but your goal -- an excellent home study course -- is well worth the effort you will need to expend.

APPENDIX A

STUDY GUIDE CONTRACT

Agreement made this_____day of_____ 19___, between_____of_____, hereinafter called the Author, and the American School of Correspondence of Chicago, Illinois.

In consideration of their mutual covenants the parties agree:

The Author:

1. Warrants that he is the Author and sole owner of an original unpublished literary composition, better described and more commonly known as a Study Guide, at present entitled_____ and of all rights appertaining thereto, and that said composition contains no matter infringing upon any copyright or right of literary property, and with respect to all the foregoing warranties he will hold the publisher harmless.

2. Hereby assigns and transfers said composition and any revisions thereof and all said rights to the publisher and its assigns, together with the exclusive publication, sale and other rights thereof throughout the World forever, regardless of whether the Publisher has the said composition copyrighted.

The Publisher agrees:

3. to pay the Author the fixed flat and final sum of $_____upon acceptance of Author's copy material for the Study Guide.

4. To give the Author_____copies of the printed Study Guide, free of charge.

IN WITNESS WHEREOF, the parties have executed this instrument, in duplicate, and affixed their respective seals, at Chicago, Illinois, this_____day of_____, 19___.

American School of Correspondence
Publisher

By:_____
President

and_____
Secretary

_____
Author

APPENDIX B

Sample course author's manuscript submission checklist -- used by authors to insure complete submissions of materials to school*

Date _____

____ OUTLINE (orig. and carb.)

For BOF: ____ PLAN OF INSTRUCTION

____ FRONT MATTER (orig. and carb.)

____ ANNOTATED STS

____ Manuscript Title Page
____ Inside Cover Page
____ Preface
____ Acknowledgment Page
____ Table of Contents

____ TEXT (orig. and carb.)
____ No. of Chapters

____ REFERENCE MATTER (orig. and carb.)
____ Bibliography
____ Glossary
____ Appendix
____ Supplementary Material

____ COPYRIGHT RELEASES (for quotations and other borrowed material)

____ "FOR OFFICIAL USE ONLY"
____ Yes
____ No

____ CHAPTER REVIEW EXERCISES (CRE) ITEMS/ANSWERS (orig. and carb.)
(Not applicable for BOF)

___ VOLUME REVIEW EXERCISE (VRE) ITEM POOL (orig. and carb.)

____ VRE Item Plan
____ Title Page
____ Items
____ MAG Cards

____ ILLUSTRATIONS (2 sets; one may be "faxed.")

____ No. of Figures ____ Total for Text ____ Total for BOF Answers, CREs, and VREs (if other than text figures)
____ No. of Foldouts
____ No. of Charts
____ No. of Tables
____ Copy for Legends: Figs.____, FOs____, Charts____, Tables____

____ HAVE ALL FORMS, TOs, MANUALS, REGs, PAMPHLETS, ETC., BEEN CHECKED FOR CURRENCY?

Course Author _____

Supervisor _____ _____

FIVE

Preparing Instructional Objectives

Marianne Evans

Introduction to Article

Objectives -- or learning goals -- are just about the most important element there is in preparing an effective home study course. Often ignored or misunderstood, learning goals are blueprints for excellence.

Sometimes what are called lesson objectives really aren't. In this vital chapter, Marianne Evans takes the mystery out of how to prepare good objectives.

Preparing Instructional Objectives

Marianne Evans

Introduction

The term "instructional objective" may sound overly technical to those of us who come from a background of traditional classroom instruction. However, once we understand why objectives are vital to good home study materials and learn the simple techniques for developing them, we will have mastered the information in this chapter and be well on our way to becoming experts in this area of course development.

The "What" and "Why"

Robert Mager in his classic book entitled Preparing Instructional Objectives, uses a fable to illustrate the importance of instructional objectives:

> There once was a seahorse who went off to seek his fortune. He encountered an eel and a sponge who each sold him a flipper and a scooter for moving faster in the water. Feeling good about his new technology, the sea horse then met up with a shark who offered to give him something, too -- a short cut through his mouth!

The moral of the fable is, "If you're not sure where you're going, you're liable to end up someplace else." The same lesson holds true when we develop course materials without using objectives.

Instructional objectives are statements that we provide for our students at the beginning of a lesson or course that

tell them "up front" what they should be able to do as a result of completing the course or lesson materials. Objectives describe results and are similar to a road map that indicates where, when and how we are to arrive at our destination.

Instructional objectives might also be compared to an architect's blueprint. Until the contractor has the blueprint, he cannot determine the materials needed, the various stages of construction, the date of completion and the equipment and subcontractors required to finish the job. The blueprint tells the contractor what the final result should be and enables him to plan the entire project. Course objectives serve the same purpose for you as the course designer and for your students taking the course.

Mager makes the following point about the need for objectives: "Instructors make contracts with their students...those who don't clearly specify their instructional objectives, who don't describe to the best of their ability what they intend the learner to be able to do after their instruction, are certainly taking unfair advantage of their students."

Good instructional objectives are especially critical for home study learners. The typical home study student sitting at the kitchen table must have a clear idea what is expected of him. He has no way of compensating for any vagueness or confusion, and must rely only on the printed materials provided him. As Gordon C. Bennett, an educational expert for the U.S. Army has stated, "The correspondence course writer therefore must become an unquestioned expert at writing objectives."

Learn by Doing

In order to illustrate the value of using instructional objectives, the material in this chapter will be presented using a home study format that begins with instructional objectives. You will be cast in the role of your students and learn firsthand the method you will be using. (No doubt when you finish this lesson on objectives, you will want to make improvements on my objectives!)

At the end of this lesson on preparing instructional objectives, you will be able to do the following things:

-- write a one-sentence definition of an instructional objective

-- state in three sentences or less why home study lessons must use instructional objectives

-- given three sample objectives, label correctly the performance, the conditions and the criterion of acceptable performance when any or all those characteristics are present

-- using Appendix A, Job and Task Analysis, list in order three steps in the development of objectives

-- identify from a sample of five instructional objectives, which ones are measurable (good) and which ones are not measurable (poor), with an accuracy of 80% or higher

-- given twenty verbs, label each one as either good (G) or poor (P) for use in writing instructional objectives, with an accuracy of 90% or higher

-- list two reasons for sequencing instructional objectives

-- explain the recommended sequence for preparing home study materials and give one reason for this sequence and

-- score 80% or higher in ten minutes or less on the self-check test at the end of this chapter

The Three Parts of a Good Instructional Objective

The purpose of instruction is to change behavior. As teachers we measure learning by asking our students to do something that indicates not only that learning has taken place but the degree of learning based on standards we have established under certain specified conditions.

We do this usually by giving an examination or by asking for certain skills to be performed such as taking a road test for a driver's license or preparing a meal if we are teaching home economics. In otherwords, mastery of knowledge can only be measured by observing performance or behavior. Therefore, good objectives must be stated in words that describe behavior and require some form of action.

The best objectives are those that clearly state the results you wish to obtain. In order to be clear you need to be specific and use words that describe actions since you are measuring performance and not describing a mental attitude such as "appreciation" or "understanding."

The clearer your objectives are stated, the easier you can measure success. This is especially true for your

home study student who is seated at the kitchen table with only the printed page, while the instructor or course designer are possibly hundreds of miles away.

Be Specific

There are three parts to a good objective: (1) the performance or what you expect the learner to be able to do, (2) the conditions (if any) under which you expect the learning to take place, and (3) the criterion or standard of performance, indicated either in terms of time or accuracy.

A good objective does not have to contain all three parts; however, the more specific you can be, the easier you will make it for the learner to accomplish the goal.

1. PERFORMANCE

Let's look at an example of what we mean by performance. Remember we just said that performance describes a behavior that can be measured. What about the following objective -- "The learner will understand how to use paragraphs in learning to write an essay." How do we know that the learner "understands" how to use paragraphs? Does this objective state a performance? Is it measurable?

The verb "understand" does not describe actions and cannot be observed. Why not rephrase this objective by describing a behavior that will indicate that the learner does "understand" how to use paragraphs to write essays.

For example, how about this -- "Given a topic familiar to the learner, the learner will write three paragraphs on the topic. Each paragraph will contain a minimum of three sentences and include a topic sentence and a concluding sentence. The paragraphs will be written in a logical sequence." Now the learner is asked to do something that can be measured and which indicates that the learner does "understand" how to use paragraphs.

2. CONDITIONS

An objective does not necessarily have to describe more than the performance. However, there are times when an objective will be vague if conditions are not specified. For example, an objective could read, "The learner will be able to quote three passages from the New Testament that support the Church's doctrine on infallibility." Will the learner be able to use a Bible as a reference or must it be done from

memory? Conditions describe all the aiding and limiting factors by which the task must be performed. Conditions also include special equipment, charts, resources, supplies, facilities and environmental factors, such as weather or temperature. (For example, "The boy scout will list all the equipment needed to complete a ten mile hike in the rain, in mountainous terrain." The underlined portions describe the "conditions" of the objective. You can see that without including conditions this objective would be too vague.

3. CRITERION

The criterion tells the learner how well he is expected to perform the task. The performance is measured against an outside standard if, for example, we are talking about taking the bar exam to practice law in Virginia. On the other hand, the criterion could be a range of successful answers (four out of five) or a percentage of correct answers that the teacher has determined to be acceptable. Criteria can be expressed in terms of time limit or accuracy. For example, an objective could be to parallel park a car. That objective could be accomplished by a good driver in less than five minutes or by a poor driver in thirty minutes. Without specifying the criterion, the objective does not identify the good driver from the poor driver.

How are Objectives Developed?

Where and how do we start in the process of developing good objectives?

If we are writing course materials to train someone to do a job, then we must start with the job itself and analyze the skills or tasks required to do the job. (See Appendix A.) Then we develop objectives from the "task analysis" to make sure that the course will actually teach our students the skills necessary to do the job. Figure 1 lists the various steps for performing this analysis.

If we are teaching an academic subject such as Remedial English, then we begin by asking ourselves what skills the students must learn in order to be competent in Remedial English. The skills are listed, grouped and sequenced. Then we are ready to develop objectives from the list of skills.

It is time to test your skill at identifying good objectives from poor ones. Remember that good objectives describe results that can be observed and measured.

Read the following five objectives and write P (poor) or G (good) next to each one. Then we will discuss the correct answers.

1. Employees will not take more than 15 minutes to clean their equipment each day.

2. Employees will recognize the value of being punctual.

3. Employees should be loyal.

4. Seams will be sewn using thread #10753 on all cloth of 14 ounces or more.

5. The learner will be able to answer seven out of ten questions correctly in the chapter review at the end of the lesson.

You are an expert if you had the following answers:

1. Good. It describes an observable, measurable behavior.

2. Poor. You cannot measure "recognizing values." Better to have said, "Employees will arrive at 7:45 AM every work day." That is one way to measure punctuality.

3. Poor. How do you measure "loyalty"? Better to say for example, "Employees will not be permitted to discuss confidential information about the company to other employees or to those outside the company unless directed to do so by their supervisor." That behavior is an indication of loyalty to the company.

4. Good. It is clear and to the point.

5. Good. It is observable and measurable.

How did you do? Remember, the key to a good instructional objective is to focus on what you can see the learner do. The performance should be specific, measurable and observable.

Use Action Verbs

To ensure that you are describing a task or behavior that can be measured, use action verbs. Ask yourself what it is you are asking the learner to do. If your objective does not require action, then you need to rewrite your objective. Here is a list of good action verbs to use as well as some "slippery" verbs (Mager's term) to avoid.

Good Action Verbs:

drill	record
explain	devise
develop	summarize
paint	dictate
label	describe
state	type

"Slippery Verbs": (avoid)

know	appreciate
believe	understand
enjoy	grasp
realize	feel
have	sense

Remember to choose verbs that do not leave any room for interpretation by your students. As Mager points out, "When we are interested in abstract states such as knowledge or attitudes, we can only know whether we have succeeded by observing students doing something that represents the meaning of those abstractions."

Sequencing Objectives

Sequencing objectives means that you arrange your objectives in a logical sequence. There are several ways to arrange the sequence.

For example, you could arrange a sequence of objectives according to the level of difficulty of the subject matter, beginning with the simplest concepts and gradually introducing more difficult concepts. In a unit on punctuation you would begin with periods and commas and later introduce semicolons and colons.

You could sequence objectives according to logical steps. In a course on cooking you would list objectives on taking liquid and dry measurements before listing an objective that requires the making of a chocolate souffle.

If your course materials are designed to teach a job skill, you would want to sequence the objectives in the order that best prepare the students to perform the job successfully in the real world.

If you are teaching a method of doing something such as operating a processing program on a personal computer, then the objectives should be sequenced in the order that the learner should follow when operating the computer.

The Sequence of Good Course Development

Unless you have been associated with course development in the military, you may not be familiar with an approach to course development called Instructional Systems Design (ISD). Good instructional objectives are part of this method but the entire sequence of course development may seem to be turned around in comparison to traditional methods.

Once we have written our objectives, the next step in course development is . . . not the text (!) but the examination. The examination should test the objectives and be based on them. The exam should also reflect the weight or importance of each of the objectives and their sequence.

After the exam is written, then the text is written. Using this sequence, we are assured that the text material will contain the information stated in the objectives and not extraneous material that may confuse the students. Since we have already developed the exam, we know what material must be included in the text. Text writing will flow more easily because the objectives will serve as the blueprint.

As supervisors of course development, it is clear how important good objectives become. It is essential to evaluate the objectives before any additional work is undertaken by course authors. The objectives become the standard of measurement in evaluating the exam and the written text. This switch in the sequence of course development will enable you to keep tight control over course content and produce materials that accomplish the stated objective.

Conclusion

If you have accomplished the objectives stated at the beginning of this chapter, congratulations! You are no doubt convinced of the importance of providing well-written

instructional objectives whenever you produce course materials. Perhaps this chapter offered a review of skills previously learned or gave you some tips for overseeing certain areas in your course development department.

I would like to leave you with a list of eight questions developed by Gordon Bennett that you may wish to answer yourself or share with your staff who are involved in developing instructional objectives. Good luck!

1. Have I stated precisely what the student will be able to do as a result of successful completion of the course?

2. Have I stated the standard to which the student must be able to carry out the desired performance?

3. Is it possible to measure exactly that the student can perform to the standard required?

4. Have I indicated what the student will be allowed to use and not use in demonstrating attainment of the objectives?

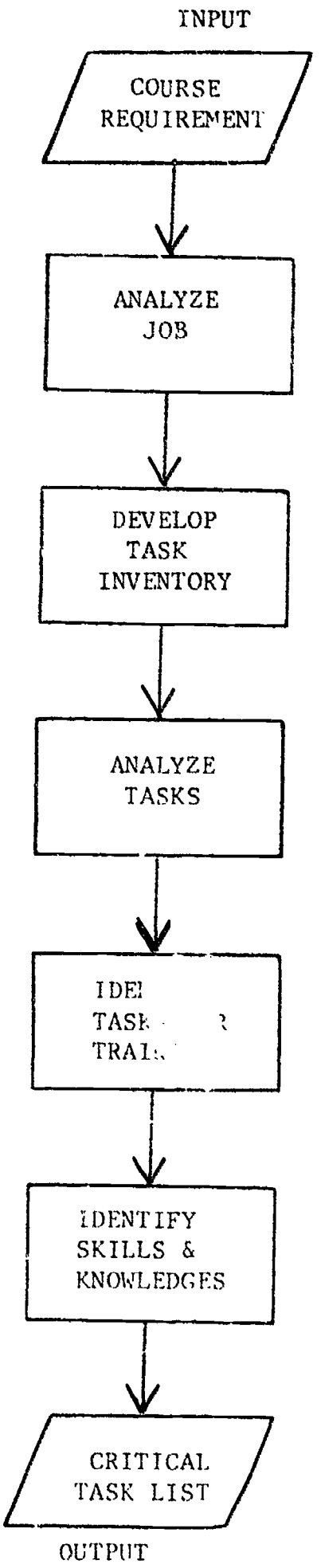
5. Are the objectives stated in clear, concise, specific, and measurable terms?

6. Have I properly grouped and ordered the objectives?

7. Have I tested the objectives to make certain that they accurately and completely communicate to the student the learning to be achieved?

8. Have I provided in the course package all the resources needed by the student to assist in attaining the objectives?

APPENDIX A


INPUT
COURSE REQUIREMENT
ANALYZE JOB
DEVELOP TASK INVENTORY
ANALYZE TASKS
IDE
TASK
TRA
IDENTIFY SKILLS & KNOWLEDGES
CRITICAL TASK LIST
OUTPUT

Self-Check Test

DIRECTIONS: Choose the correct answer for each of the following ten multiple choice questions. Refer to the following five sample objectives to answer the test questions. Good luck. Use the answer key to check your results.

Sample Objectives

1. Given a list of thirty-five vocabulary words, the student will be able to identify the definitions of at least thirty without using a dictionary.

2. Given all the required tools, the student will be able to change a tire on a car in twenty minutes or less.

3. Given the document Mysterium Fidei to read, the student will grasp the significance of the term, "transubstantiation."

4. Given all the ingredients, equipment and recipe, the student will be able to make a chocolate souffle.

5. The student will be able to play "Jingle Bells" on the piano.

---

1. In objective #1, which item below states the conditions?

   a) identify the definitions
   b) without using a dictionary
   c) thirty out of thirty-five

2. In objective #4, which item below states the criterion?

   a) no criterion stated
   b) given all the ingredients
   c) make a chocolate souffle

3. In objective #3, which term is "slippery"?

   a) significance
   b) term
   c) grasp

4. Using objective #5, which item below identifies the performance?

   a) on the piano
   b) play "Jingle Bells" on the piano
   c) neither of the above

5. Referring to all the objectives, which one below is not measurable and observable?

   a) 3
   b) 5
   c) 2

6. Which item below is not a reason for sequencing objectives?

   a) presents skills developmentally
   b) teaches a method
   c) lowers reading level

7. Which verb below is not appropriate for use in writing an instructional objective?

   a) list
   b) illustrate
   c) appreciate

8. Identify below recommended ISD sequence for course development.

   a) objectives, examination, text material
   b) objectives, text material, examination
   c) examination, objectives, text material

9. Identify below the correct sequence for doing a job and task analysis.

   a) analyze tasks, develop task inventory, identify skills and knowledge

   b) analyze job, analyze tasks, identify skills and knowledge

   c) identify skills and knowledge, analyze tasks, analyze job

10. Which statement below does not describe an instructional objective accurately?

a) A meaningfully stated objec ve succeeds in communicating your intent.

b) An objective always says what a learner is expected to be able to do.

c) An objective must consist of a single sentence.

Answer Key

1. B 2. A 3. C 4. B 5. A

6. C 7. C 8. A 9. B 10. C

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Measuring Instructional Intent
Goal Analysis
Analyzing Performance Problems
Developing Vocational Instruction

SIX

Working Magic with Manuscripts

Charles B. Marshall

Introduction to Article

Dr. Marshall provides some valuable insights on how one can transform the rough copy of authors' manuscripts into workable home study lessons.

He presents a clear case for good first lessons, and quips that "home study education manuscripts are far too important to be left to writers."

His checklists provide practical guides for insuring successful lesson materials. Twenty-five years of solid home study experience have been condensed into this blueprint for home study copy editing.

Working Magic with Manuscripts

Charles B. Marshall

The key to turning rough copy prepared by authors into workable home study material lies mainly in defining the elements of first rate correspondence study offerings.

Over the years I have devised a formula which may be helpful to our colleagues in the home study field. While one must always be careful to avoid the suggestion that he has some little "magic black box" which will work at all times for all purposes, nonetheless, one can accumulate experience to the extent that experience can almost be codified into a set of general rules.

As one who reads a number of manuscripts prepared by subject area specialists, who often know their subject intimately but may not be familiar with home study materials, I have measured the work product of authors. To do this, I employ a series of checklists. These checklists, developed by over 25 years of home study experience, have enabled me to evaluate manuscripts with a certain consistency that, at best, allow me to convert the manuscript into first rate material and, at worst, eliminate obvious errors.

The First Lesson

Because one of the most essential parts of home study is a successful first lesson, I spend almost as much time on the manuscript for the first lesson as I do on such major items as writing course objectives and examinations. Over the years, I have devised a few general rules concerning the characteristics of a good first lesson.

In a good first lesson the home study student needs the following things:

1. He needs to be resold. Part of our educational role is to reassure him that we are what our representative or advertising said we were -- a reputable home study school which can help the student to raise his income or otherwise improve his personal life.

2. He needs to be inspired. He must be shown that what lies ahead is fun as well as work.

3. He needs success and renewed self-confidence. He may have failed before; now, we must let him succeed. To do this, we must give him something which he can conquer, so as to re-establish his faith in himself.

4. He needs clerical help. He is lost with forms, second sheets, staples, paper clips, "fold here," and the search for an 8 1/2 x 11-inch paper.

To fulfill these needs, I devised a formula which tends to work so as to achieve high response. These are the characteristics of a good first lesson:

1. It is brief -- no more than 20 printed pages.

2. It builds in a "resale" by briefly reiterating the benefits of the course, career potentials, and the school's credibility.

3. It inspires, which usually implies very carefully selected artwork and supportive copy.

4. It contains a deliberately easy self-quiz, so that even before submitting the first examination, the student clearly sees he can do this work. In effect it sets up a "series of successes" (S.C.S.) which logically follow from a first step.

5. It gives the student everything he is never asked to "on a plain piece of paper . . ."

6. It is clerically self-contained. The student is never asked to staple, clip, or attach anything. All forms are preprinted for him.

7. It does not involve essays or projects which require literary or artistic skill. These "high-diving" challenges should come only after the student has found he really can "swim" successfully.

8. Exam instructions are made obvious: it is literally impossible not to understand what is to be done with it.

9. The first lesson clearly explains what the student is to do after he makes his first submission. In placement, this information is structured so as to be read after the student has mailed his first submission to us.

10. Because some students might possibly be offended by an overly simple first lesson, there should be a courteous disclaimer frankly advising the student that this is a "warm up" exercise and that we shall shortly present him with more challenging materials.

11. The text starts with something familiar to the student, so that he is led from the known to the unknown.

12. It uses simple English.

13. The language recognizes the nature of the estimated reading level of the audience.

If we made up a checklist of the above, we would then measure every first lesson against these points:

	YES	NO
1. Is the reading under 20 pages?	X	
2. Is it properly broken up with motivational art?	X	
3. Is there at least a paragraph or two of resale?	X	
4. Is it generally nontechnical and inspiring?	X	
5. Does it contain a confidence-building self-quiz?	X	
6. Does it provide the student with the actual sheet of paper on which to submit the exam?	X	
7. Is the examination sheet one page, so as to eliminate stapling, clipping, etc.?	X	
8. Are all forms preprinted so that only name and student number need to be filled in?	X	

	YES	NO
9. Are both the lesson reading materials and the examination sheet physically obvious in the first package?	X	
10. Is the examination free from essay assignments, projects, or artistic demands?	X	
11. Is there a disclaimer as to the ease of the first lesson and a pledge of some challenging material to come?	X	
12. Is there, immediately after the first submission, a very clear "where do we go from here" road map?	X	
13. Does the text go from the known to the unknown?	X	
14. Are all instructions crystal clear?	X	
15. Is the English simple?	X	
16. Does it relate to the student's reading level?	X	

A careful application of these principles to a revised first lesson for one NHSC school recently resulted in reducing a 42% non-start rate to a 17% rate. Considering that tuition collection is directly related to lesson submission, this application of the checklist was both good scholarship and good business.

Capitalizing on the Good First Lesson

Assuming we've now managed to achieve the good first lesson, we must now follow the first lesson with an "aftermath of excellence." What is an "aftermath of excellence?" Generally, we have found that the characteristics of subsequent lessons should follow these general guidelines:

1. Each lesson is just slightly more difficult than the preceding lesson; the increase rarely exceeding 10% in length.

2. At a certain point the course attains its standard level of complexity so that, after a handful of comparatively easy initial submissions, the student faces a body of work that is approximately uniform in its challenge.

3. Whenever new terms are used, there is a careful explanation of those terms buttressed by examples of the use and application of the terms.

4. Although it is a vice in residential teaching, purposeful repetition is a virtue in home study, where the best courses repeat, rephrase, reiterate, re-emphasize, restate, etc., on the theory that reinforcement is hard to overdo in home study. Hence, a point made in lesson 2 might be restated in lessons 3, 7, and 32 with benefit to the student.

5. A certain degree of "comic relief" should be built in, wherein, on occasion, the material involves a bit of humor or a "fun project." Home study need not be grim. As former President Eisenhower once put it, "You can smile, yet still be a serious person." Courses with 40% completion rates frequently smile.

6. Exam questions are "fair and findable," as one scholar put it. No question should be deliberately inserted "to separate the men from the boys." Nor should any question ever be "unfindable." In home study, the answer to every examination question should be found in either the text or a reasonable inference from the text. At no time, for example, should test number 14 ask a question not covered until lesson assignment number 19. Exam questions should be in sequence. If exam question 12 is based on page 42, number 13 should be on page 42 or after 42, but never before page 42.

7. Examinations, like lessons, must follow the pattern of mild graduation of complexity. They should not, for example, "leap" from ten true and false questions to eight demanding essay questions.

8. Once again, as in starter lessons, the instructions should be clear. One home study author said this best: "Do not merely write instructions that can be understood. Rather, write instructions that cannot possibly be misunderstood."

9. There should be a solid review of the past lesson as a foundation for the current lesson.

10. There should be a "preview" of what lies ahead.

11. Most important of all, every lesson must seem "doable," that is, each lesson and examination must be of such a size and complexity that the student should feel he can complete it in the very near and foreseeable future

(e.g., tonight, Saturday, or this weekend). Lessons which require work that may take a student several months to complete, simply, as a matter of home study reality, rarely get done.

12. If there are illustrations or other artwork, they should be directly supportive of the instructional objective. Further, all supportive art should support. To do this, it should be consistently near the text it illustrates.

13. Lastly, the student should be supplied with everything he needs. He should not be asked to scurry about to find paper, staples, crayons, etc. Nothing should require him to get up from his desk or table when he sits down to study a well-prepared lesson.

If we were to make these formulations into a checklist, our document might look something as follows:

	YES	NO
1. Is each of the early lessons slightly harder and longer than the prior lesson, but not more than 10% more challenging?	X	
2. Is there a standard level of complexity at a certain point in the course?	X	
3. Are new terms properly prefaced and explained?	X	
4. Are there adequate reinforcement methods?	X	
5. Does the course "smile" occasionally?	X	
6. Are test questions "fair and findable?"	X	
7. Are the questions in proper sequence?	X	
8. Do tests follow the pattern of graduated complexity?	X	
9. Are instructions absolutely clear?	X	
10. Is there an adequate review of prior lessons?	X	
11. Is there an inspiring preview of what is coming?	X	
12. Are every lesson and every test "doable?"	X	

	YES	NO
13. Does artwork support text?	X	
14. Is artwork located close to the text it illustrates?	X	
15. Lastly, do we supply the student with everything he needs?	X	

How to Achieve High Graduation Rates

Let's assume that we now have achieved a first rate opening lesson, followed by subsequent lessons which meet most of the characteristics on the previous checklist. What can we then do to achieve high graduation rates?

Although it may sound inane, short courses produce graduates; long courses don't. We continue to produce overly long courses mainly because of an honest Puritan ethic that instills in most authors and editors a sincere desire to make each course truly authentic. Can you have brevity and quality? Yes -- and here is how.

Home study is, after all, independent study. Our problem is that we often tend to: (1) give the student more than he needs to know to achieve the stated course objective, and (2) over-test him to make sure he knows his materials. Once again, both author and editor have the highest ethical motivations: "We'll enrich his course so it has everything," and "Our examinations will be frequent and so hard that our diploma will be indisputable."

However, when we go astray on these tangents, we forget that every student is also a customer: he doesn't want to know everything and he doesn't want to convince everybody. Rather, he wants to learn enough to get a job and to convince one employer to give him a chance.

If we remember our basic student commitment, our courses, while of the finest quality, should be spartan where frills are involved. Optional materials may abound for the ambitious student, but they should not be forced upon the student who wants to "learn and to earn" soon. Hence, our courses must constantly relate to stated objectives in such a way as to exclude all extraneous items. Our examinations should be such as to assure that, before a diploma is issued, the student has indeed learned enough to meet his stated goal -- and no more.

The net result is that, short of a magic "black box," a few rudimentary checklist questions evolve by which authors and editors should measure every lesson and every course.

Converting these characteristics into a checklist for completion rates, we might insist that every manuscript should either contain or be edited to contain conformity to the following six points:

	YES	NO
1. Do we have a clearly stated course objective in mind as we create this course of instruction?	X	
2. Is this lesson material necessary to achieve the stated objective?	X	
3. Is each examination necessary to demonstrate if the student knows enough to attain the stated objective?	X	
4. Are there enrichment and optional materials? (These must be, however, clearly designed as beyond the scope of the stated objectives.)	X	
5. Is this course truly devoid of "busy work" submissions and projects so that nothing stands in the way of an expeditious submission of truly necessary examinations?	X	
6. Over the long haul, is motivation built into each lesson?	X	

A recent case application of these guidelines to a multi-curriculum school resulted in increased completion and graduation rates for five consecutive years.

Conclusion

While there may very well be manuscripts which do not conform with all of the points raised in the checklists presented above, it would be very difficult for any manuscript, which has been brought into conformity with these checklists, to go too far astray from meeting the demands of the home study student in a highly satisfactory form.

As one diplomat has commented, "War is too important to be left to generals." By the same token, home study education manuscripts are far too important to be left to

writers. When the manuscript comes to the home study school, it is one of the cardinal duties of the Education Director and his editorial associates to take the raw material, which may well be substantially sound, and convert it into home study material that will reflect favorably on the school, the profession, and the method of instruction, while bringing the maximum possible benefit to the home study student.

Having worked in both for profit and not-for-profit institutions, I have found that these checklists work as well in one realm as in the other. This is perhaps because they embody a type of curricular Golden Rule: "Write unto others as you would have them write unto you."

SEVEN

Managing Text Readability

H. Lee Hughes

Introduction to Article

Another essential skill required of home study educators is the ability to do reading level checks of all course material submitted for student use. Too often, ignoring the reading level of a course, or mismatching a target student audience with an inappropriate reading level in texts, has led to student frustration and excessively high course drop outs.

Mr. Hughes has selected for discussion from nearly 50 reading level formulas four which are useful for home study. He also provides practice examples for us to apply the various reading level tests.

Mr. Hughes argues that text readability cannot be determined from intuitive judgment alone, and that home study students deserve to be able to read what they are buying from schools.

Managing Text Readability

H. Lee Hughes

> Imagine, if you can, what your life would be like if you could not read or if your reading skills were so meager as to limit you to the simplest of writings, and if for you the door to the whole world of knowledge and inspiration available through the printed word had never opened.
>
> For more than a quarter of our population this is true. For them education, in a very important way, has been a failure, and they stand as a reproach to all of us who hold in our hands the shaping of the opportunity for education.
>
> These individuals have been denied a right -- a right as fundamental as the right to life, liberty and the pursuit of happiness -- the right to read.

With these words, the late James E. Allen, U.S. Commissioner of Education, launched a campaign against the blight of illiteracy which, paradoxically, thrives within the most highly educated and technologically advanced civilization in the world. One man writes of his walk among the craters of the moon; another of his countrymen is unable to read about it! (Sticht 1975)

This is the setting in which we education directors exercise our skills. We seek to teach students by the written word, when a great portion of our target population either cannot read or has a difficult time reading. At the same time, we are producing excellent course materials which have been written by highly qualified subject matter

experts. These experts who are writing about their areas of knowledge tend to write at the level of their own proficiency. Many of the basic concepts are taken for granted or considered to be common knowledge, when in fact they may be mind-boggling to a beginner and even worse to a beginner who has a reading problem. It is a difficult task for a writer with an advanced degree of knowledge in a particular subject area to write about that subject at the elementary entry level that may be required. It is also difficult to tell someone how to write so that the material can be read and understood by a particular target population.

When writing for students with low reading levels, simply using short words and short sentences does not insure readability. Because most reading level formulas use sentence length and number of syllables as key factors in the determination of the numerical grade level, obviously the smaller numbers derived from short sentences and short words will produce a low grade level. However, all occupations have their own language or vocabulary that is usually readily understood by persons in the occupational field. Much of the vocabulary may be three-syllable words which are common terminology and may be more easily identified and understood than a contrived sentence designed to eliminate polysyllabic words. A ready example of this is in the automotive field where words such as "transmission" and "differential" are common to any mechanic, but because of the number of syllables such terms greatly inflate the computed reading level of the written material which contained these words.

Clearly there exists a general problem of matching course materials to average reading grade levels of students. The materials should be as basic as possible to appeal to the average student, but not so over-simplified that the students are insulted by the feeling that you are "talking down to them." The comic book approach, for example, does not appeal to everyone, especially when used for instructional purposes.

It appears that the "best" method of writing to a particular grade level is to have the authors periodically test samples of the course materials as they are being written with a reliable reading grade level formula. A review of the literature shows the existence of over 50 formulas for determining reading grade level. They range from the sublime to the ridiculous in their ease of use (based primarily on the mathematical rigor or counting procedures involved.) Many of the formulas have high reliability when compared to others. Some have poor reliability.

The problem of selecting the best formula for your situation then becomes a matter of personal preference. For whatever reason you select a formula, stick with it and rely on it as an indicator. Do not regard it as the sole judge of readability and don't skip from formula to formula just to find something to validate your opinion of the readability of instructional materials.

Some schools refuse to use a formula. They dismiss reading difficulty or the assessment of reading levels as not being a problem. They state that they intuitively know that their courses are matched to the reading levels of their intended students. Although this may be true, it is a cavalier attitude that is difficult to substantiate if one analyzes completion and graduation rates. Readability of materials may be a reason for low graduation rates in courses. You owe it to your school and your students to at least sample your materials. Each formula has its advantages and disadvantages. Make some comparisons and then select one that is suitable for your situation.

Application of four readability formulas will be demonstrated using an article from the WASHINGTON POST. The four readability methods are:

1. FLESCH
2. DALE-CHALL
3. FOG INDEX
4. FORCAST

Flesch Reading Ease Score

Rudolf Flesch is no stranger to correspondence study. A one-time member of the Famous Writers School Guiding Faculty, he also assisted the Federal Trade Commission in making its trade school rule more readable to prospective students. Together with Gunning's Fog Index, the Flesch score is perhaps one of the most popular checks on readability.

The Flesch score involves a formula and a table which is provided below. The formula is: Reading ease score = 206.835 - [1.015 (average sentence length) + .846 (syllables per 100 words)].

To use the formula, you first select a passage and count 100 words. Next, divide the 100 words by the number of sentences comprising these 100 words. Insert this figure in the formula as the "average sentence length." Next, count the number of syllables (as spoken) in the 100 words. Insert the result in the formula. By performing the

mathematics involved in the formula you will obtain the reading ease score. The grade level for the passage is obtained by referring to the table provided below:

Score	Interpretation	Grade Level
90-100	Very Easy	5
80-89	Easy	6
70-79	Fairly Easy	7
60-69	Standard	8-9
50-59	Fairly Difficult	10-12
30-49	Difficult	13-16
0-29	Very Difficult	College Graduate

To determine the grade level of this article which appeared on the front page of the WASHINGTON POST, first count 100 words.

President Carter said yesterday the nation's $21 billion welfare system should be 'scrapped entirely' for a program that would guarantee an income for all who were unable to work and a job for those who could.

To gain those objectives, the President made clear at a briefing in which he gave a broad-brush outline of his plans, the administration was prepared to make the government what amounted to an employer of last resort through the creation of as many as 2 million public service jobs.

Mr. Carter said there would be 'a heavy emphasis on jobs' in the new welfare program.

The White House plans to use the program outlined by Mr. Carter to at least partially offset mounting criticism from blacks and labor that the President has abandoned his full-employment goals.

Democratic congressional leaders have told Mr. Carter he has until May 31 to come up with a full-employment program of his own before they allow hearings to begin on the controversial Humphrey-Hawkins full-employment bill.

The one-hundredth word is new in the third paragraph. There are three sentences in the 100 words. This gives an average sentence length of 33.3 The next step is to count the syllables in the 100 words. There are 142 syllables. Insert this data in the formula and compute.

Reading case score = 206.835 - [1.015(33.3) + .846(142)]
= 206.835 - [33.799 + 120.132]
= 206.835 - 153.931
= 52.90

Reference this score to the table above and you get a reading grade level of 10th to 12th grade.

The next formula is the Dale-Chall formula. In order to use it you must have the Dale List of 3000 Familiar Words which is included at the end of this article (Appendix A).

The formula is: Raw score = $.1579\ x_1 + .0496\ x_2 + 3.6365$

x_1 = Percent of words not on Dale list of 3000 common words

x_2 = Mean sentence length in words.

Using the same article from the WASHINGTON POST, let us compute the reading level using the Dale-Chall formula.

The first step is to count 100 words which was done for the Flesch formula ("new" in the third paragraph). The next step is to determine how many of the 100 words are not on the Dale list. Proper names are not counted.

> President Carter said yesterday the Nation's $21 billion welfare system should be 'scrapped entirely' for a program that would guarantee an income for all who were unable to work and a job for those who could.
>
> To gain those objectives, the President made clear at a briefing in which he gave a broad-brush outline of his plans, the administration was prepared to make the government what amounted to an employer of last resort through the creation of as many as 2 million public service jobs.
>
> Mr. Carter said there would be a 'heavy emphasis on jobs' in the new welfare program.
>
> The White House plans to use the program outlined by Mr. Carter to at least partially offset mounting

criticism from blacks and labor that the President has abandoned his full-employment goals.

Democratic congressional leaders have told Mr. Carter he has until May 31 to come up with a full-employment program of his own before they allow hearings to begin on the controversial Humphrey-Hawkins full-employment bill.

There are eighteen words not on the Dale List and the average (mean) sentence length is 33.3 words. Insert these figures in the formula and compute.

$$\begin{aligned} \text{Raw score} &= .1579\ x_1 + .0496\ x_2 + 3.6365 \\ &= .1579\ (18) + .0496\ (33.3) + 3.6365 \\ &= 2.842 + 1.652 + 3.6365 \\ &= 8.1305 \end{aligned}$$

Reference the raw score to the correction table on the last page of the Dale Word List at Appendix A of this article. The raw score of 8.1305 is equivalent to an 11 - 12th grade reading level.

Fog Index

Again using the same article, here is an example of determining reading grade level by the use of Fog index. The steps are listed below:

1. Select sample passage of approximately 100 words.
2. Assign a value of one to all one- and two-syllable words.
3. Assign a value of three to all remaining words.
4. Determine Fog count by adding the values.
5. Divide the Fog count by the number of sentences.
6. If the average Fog count is over 20, divide by 2 to obtain grade level.
7. If the average Fog count is under 20, subtract 2 and then divide by 2 to obtain grade level.

President	Carter	said	yesterday	the	nation's	$21
1	1	1	3	1	1	1

billion welfare system should be 'scrapped entirely'
1 1 1 1 1 1 3

for a program that would guarantee an income for all
1 1 1 1 1 3 1 1 1 1

who were unable to work and a job for those who could.
1 1 3 1 1 1 1 1 1 1 1 1

To gain those objectives, the President made clear at
1 1 1 3 1 3 1 1 1

a briefing in which he gave a broad-brush outline of
1 1 1 1 1 1 1 1 1 1 1

his plans, the administration was prepared to make the
1 1 1 3 1 1 1 1 1

government what amounted to an employer of last resort
3 1 3 1 1 3 1 1 1

through the creation of as many as 2 million public
1 1 3 1 1 1 1 1 1 1

service jobs.
1 1

Mr. Carter said there would be 'a heavy emphasis on
1 1 1 1 1 1 1 1 3 1

jobs' in the new welfare program.
1 1 1 1

The White House plans to the use program outlined by Mr. Carter to at least partially offset mounting criticism from blacks and labor that the President has abandoned his full-employment goals.

Democratic congressional leaders have told Mr. Carter he has until May 31 to come up with a full-employment program of his own before they allow hearings to begin on the controversial Humphrey-Hawkins full-employment bill.

After assigning the values to the 100 words, add the values. The total or Fog count is 122. Dividing this by three gives 41. Because this is over 20, you must then divide by 2 to obtain the grade level. This would be 20 or college graduate level. As you can see, the Fog index does not equate well to the other two formulas on this passage.

This is primarily because of the length of the sentences.

FORCAST

One more formula will be used to determine reading grade level. Called Forcast, it is an acronym of the names of the three men who devised the formula. Forcast was developed primarily for use with military, technical publications but has applicability to other technical material. It takes into account the use of polysyllabic words that are known to the reader because of their use in his occupation. It is an exceptionally rapid means of determining reading grade level if it is applicable to your school's materials.

$$\text{Reading grade level} = 20 - \left[\frac{\text{no. of one-syllable words in 150}}{10}\right]$$

Using the same newspaper article, count the first 150 words. Note that the other formulas used 100 words. The 150th word is with in the last paragraph. Now count the number of one-syllable words in the 150-word sample.

> President Carter said yesterday the nation's $21 billion welfare system should be 'scrapped entirely' for a program that would guarantee an income for all who were unable to work and a job for those who could.
>
> To gain those objectives, the President made clear at a briefing in which he gave a broad-brush outline of his plans, the administration was prepared to make the government what amounted to an employer of last resort through the creation of as many as 2 million public service jobs.
>
> Mr. Carter said there would be 'a heavy emphasis on jobs' in the new welfare program.
>
> The White House plans to use the program outlined by Mr. Carter to at least partially offset mounting criticism from blacks and labor that the President has abandoned his full-employment goals.
>
> Democratic congressional leaders have told Mr. Carter he has until May 31 to come up with a full-employment program of his own before they allow hearings to begin on the controversial Humphrey-Hawkins full-employment bill.

There are 97 one-syllable words. Insert that figure in the formula and compute the grade level.

$$\text{Reading grade level} = 20 - \frac{97}{10}$$
$$= 20 - 9.7$$
$$= 10.3$$

This is between the 10th and 11th grade which equates to the scores of the Flesch and Dale-Chall formulas.

As you can see from the four examples, the length of sentences and the number of syllables are the key determiners of reading grade level when you are using a formula. Theoretically then, short sentences and words should produce a low reading grade level. The four formulas just demonstrated will be used again to determine the reading grade level of the following paragraph.

> This is a plea for the use of more short words in our talk and in what we write. Through the lack of them our speech is apt to grow stale and weak, and, it may be, hold more sham than true thought. For long words at times tend to hide or blur what one says.
>
> What I mean is this: If we use long words too much, we are apt to talk in ruts and use the same old, worn ways of speech. This tends to make what we say dull, with no force or sting. But if we use short words, we have to say real things, things we know; and say them in a fresh way. We find it hard to hint or dodge or hide or half say things.
>
> For short words are bold. They say just what they mean. They do not leave you in doubt. They are clear and sharp, like signs cut in a rock.

Flesch

Count 100 words. The 100th word is we in the middle of second paragraph. Because "we" is only the third word in the sentence, back up to the word "sting" and use a 97-word sample.

Next, count the numbers of sentences. Including the colon, there are 6 sentences. This produces an average sentence length of 16. There are 97 syllables in the 97 words. Insert these figures in the formula and compute.

$$\text{Reading ease score} = 206.835 - [1.015(16) + .846(97)]$$
$$= 206.835 - [16.240 + 82.062]$$
$$= 206.835 - 98.302$$
$$= 108.533$$

Refer this to the table and you get less than a 5th-grade reading level.

Dale-Chall

Using 100 words, refer to the Dale List of 3000 Familiar Words. There are 10 words not on the list or 10% of the passage.

> This is a plea for the use of more short words in our talk and in what we write. Through the lack of them our speech is apt to grow stale and weak, and, it may be, hold more sham than true thought. For long words at times tend to hide or blur what one says.
>
> What I mean is this: If we use long words too much, we are apt to talk in ruts and use the same old, worn ways of speech. This tends to make what we say dull, with no force or sting. But if we use short words, we have to say real things, things we know; and say them in a fresh way. We find it hard to hint or dodge or hide or half say things.
>
> For short words are bold. They say just what they mean. They do not leave you in doubt. They are clear and sharp, like signs cut in a rock.

The mean sentence length is 16 words. Insert these figures in the formula and compute the raw score.

$$\begin{aligned}\text{Raw score} &= .1579\ x_1 + .0496\ x_2 + 3.6365 \\ &= .1579(10) + .0496(16) + 3.6365 \\ &= 1.579 + .7936 + 3.6365 \\ &= 6.009\end{aligned}$$

Refer to the correction table at the end of the Dale Word List (Appendix A) and you get a reading grade level of 7th and 8th grade.

Fog Index

In this passage, all words have a value of one. This produces a Fog count of 100.

1. Select sample passage of approximately 100 words.

2. *Assign a value of one to all one- and two-syllable words.

3. Assign a value of three to all remaining words.

4. Determine Fog count by adding the values.

5. Divide the Fog count by the number of sentences.

6. If the average Fog count is over 20, divide by 2 to obtain grade level.

7. If the average Fog count is under 20, subtract 2 and then divide by 2 to obtain grade level.

*For titles such as president, general, governor, admiral, etc., use a Fog value of one. The same applies to all common titles such as Maryland, California, Sacramento, Albany, etc., and for addresses and numbers.

Divide the Fog count by the number of sentences to obtain the average Fog count.

100 divided by 6 = 16.6

Because the average Fog count is under 20, subtract 2 and then divide by 2 to obtain the grade level.

16.6 - 2 = 14.6
14.6 divided by 2 = 7.3

The grade level according to the Fog index is between 7th and 8th.

FORCAST

Remember that when using Forcast you must use a 150-word sample. This includes the word "you" in the next to the last sentence. There are 150 one-syllable words in the sample. Insert this figure in the formula and compute the reading level.

$$\text{Reading level} = 20 - \left[\frac{\text{no. of one-syllable words in 150}}{10}\right]$$

$$= 20 - \frac{150}{10}$$

$$= 20 - 15$$

$$= 5\text{th grade}$$

For this passage made up of short sentences and one-syllable words, the four formulas produce a range from 4th- to 8th-grade reading levels.

Conclusion

As you can see, the formulas are not infallible measures for testing reading difficulty. This is especially true of technical writing where technical words build up the Fog count because of their length.

Neither a low Fog count nor a high Flesch score guarantees clear meaning. Nor does a high Fog count or low Flesch score always create difficult reading.

The formulas should never be permitted to take the place of judgment. However, using a formula to aid in making a judgment is a more valid method of determining reading grade level than relying solely on intuition. Dismissing the use of the formulas without experimenting with them to get a feel for their applicability to your course materials is tantamount to ignoring a national problem. Everyone does not read at the same rate or at the same grade level. Your students deserve to be able to read what they are buying from you.

Sticht, Thomas, ed., Reading for Working: A Functional Literacy Anthology, Human Resources Research Organization, Alexandria, Virginia, 1975.

APPENDIX A

DALE LIST OF 3000 FAMILIAR WORDS

a
able
aboard
about
above
absent
accept
accident
account
ache (ing)
acorn
also
across
act (s)
add
address
admire
adventure
afar
afraid
after
afternoon
afterward (s)
again
against
age
aged
ago
agree
ah
ahead
aid
aim
air
airfield
airplane
airport
airship
airy
alarm
alike
alive
all
alley
alligator
allow
almost
alone
along
aloud
already
also
always
am
America
American
among
amount
an
and
angel
anger
angry
animal
another
answer
ant
any
anybody
anyhow
anyone
anything
anyway
anywhere
apart
apartment
ape
apiece
appear
apple
April
apron
are
aren't
arise
arithmetic
arm
armful
army
arose
around
arrange
arrive (d)
arrow
art
artist
as
ash (es)
aside
ask
asleep
at
ate
attack
attend
attention
August
aunt
author
auto
automobile
autumn
avenue
awake (n)
away
awful (ly)
awhile
ax
baa
babe
baby (ies)
back
background
backward (s)
bacon
bad (ly)
badge
bag
bake (r)
bakery
baking
ball
balloon
banana
band
bandage
bang
banjo
bank (er)
bar
barber
bare (ly)
barefoot
bark
barn
barrel
base
baseball
basement
basket
bat
batch
bath
bathe
bathing
bathroom
bathtub
battle
battleship
bay
be (ing)
beach
bead
beam
bean
bear
beard
beast
beat (ing)
beautiful
beautify
beauty
became
because
become
becoming
bed
bedbug
bedroom
bedspread
bedtime
bee
beech
beef
beefsteak
beehive
been
beer
beet
before
beg
began
beggar
begged
begin
beginning
begun
behave
behind
believe
bell
belong
below
belt
bench
bend
beneath
bent
berry (ies)
beside (s)
best
bet
better
between
bib
bible
bicycle
bid
big (ger)
bill
billboard
bin
bind
bird
birth
birthday
biscuit
bit
bite
biting

bitter
black
blackberry
blackbird
blackboard
blackness
blacksmith
blame
blank
blanket
blast
blaze
bleed
bless
blessing
blew
blind (s)
blindfold
block
blood
bloom
blossom
blot
blow
blue
blueberry
bluebird
bluejay
blush
board
boast
boat
bob
bobwhite
body (ies)
boil (er)
bold
bone
bonnet
boo
book
bookcase
bookkeeper
boom
boot
born
borrow
boss
both
bother
bottle
bottom
bought
bounce
bow
bowl
bow-wow
box (es)
boxcar
boxer
boy
boyhood
bracelet
brain
brake
bran
branch
brass
brave
bread
break
breakfast
breast
breath
breathe
breeze
brick
bride
bridge
bright
brightness
bring
broad
broadcast
broke (n)
brook
broom
brother
brought
brown
brush
bubble
bucket
buckle
bud
buffalo
bug
buggy
build
building
built
bulb
bull
bullet
bum
bumblebee
bump
bun
bunch
bundle
bunny
burn
burst
bury
bus
bush
bushel
business
busy
but
butcher
butt
butter
buttercup
butterfly
buttermilk
butterscotch
button
buttonhole
buy
buzz
by
bye
cab
cabbage
cabin
cabinet
cackle
cage
cake
calendar
calf
call (er)(ing)
came
camel
camp
campfire
can
canal
canary
candle
candlestick
candy
cane
cannon
cannot
canoe
can't
canyon
cap
cape
capital
captain
car
card
cardboard
care
careful
careless
carelessness
carload
carpenter
carpet
carriage
carrot
carry
cart
carve
case
cash
cashier
castle
cat
catbird
catch
catcher
caterpillar
catfish
catsup
cattle
caught
cause
cave
ceiling
cell
cellar
cent
center
cereal
certain (ly)
chain
chair
chalk
champion
chance
change
chap
charge
charm
chart
chase
chatter
cheap
cheat
check
checkers
cheek
cheer
cheese
cherry
chest
chew
chick
chicken
chief
child
childhood
children
chill (y)
chimney
chin
china
chip
chipmunk
chocolate
choice
choose
chop
chorus
chose (n)
christen
Christmas
church
churn
cigarette
circle
circus
citizen
city
clang
clap
class
classmate
classroom
claw

clay
clean (er)
clear
clerk
clever
click
cliff
climb
clip
cloak
clock
close
closet
cloth
clothes
clothing
cloud (y)
clover
clown
club
cluck
clump
coach
coal
coast
coat
cob
cobbler
cocoa
coconut
cocoon
cod
codfish
coffee
coffeepot
coin
cold
collar
college
color (ed)
colt
column
comb
come
comfort
comic
coming
company
compare
conductor
cone
connect
coo
cook (ed)
cook (ing)
cooky (ie) (s)
cool (er)
coop
cooper
copy
cord
cork
corn
corner
correct
coat
cot
cottage
cotton
couch
cough
could
couldn't
count
counter
country
county
course
court
cousin
cover
cow
coward (ly)
cowboy
cozy
crab
crack
cracker
cradle
cramps
cranberry
crank (y)
crash
crawl
crazy
cream (y)
creek
creep
crept
cried
croak
crook (ed)
crop
cross (ing)
cross-eyed
crow
crowd (ed)
crown
cruel
crumb
crumble
crush
crust
cry (ies)
cub
cuff
cup
cupboard
cupful
cure
curl (y)
curtain
curve
cushion
custard
customer
cut
cute
cutting
dab
dad
daddy
daily
dairy
daisy
dam
damager
dame
damp
dance (r)
dancing
dandy
danger (ous)
dare
dark (ness)
darling
darn
dart
dash
date
daughter
dawn
day
daybreak
daytime
dead
deaf
deal
dear
death
December
decide
deck
dead
dee..
deer
defeat
defend
defense
delight
den
dentist
depend
deposit
describe
desert
deserve
desire
desk
destroy
devil
dew
diamond
did
didn't
die (d) (s)
difference
different
dig
dim
dime
dine
ding-dong
dinner
dip
direct
direction
dirt (y)
discover
dish
dislike
dismiss
ditch
dive
diver
divide
do
dock
doctor
does
doesn't
dog
doll
dollar
dolly
done
donkey
don't
door
doorbell
doorknob
doorstep
dope
dot
double
dough
dove
down
downstairs
downtown
dozen
drag
drain
drank
draw (er)
draw (ing)
dream
dress
dresser
dressmaker
drew
dried
drift
drill
drink
drip
drive (n)
driver
drop
drove

drown
drowsy
drug
drum
drunk
dry
duck
due
dug
dull
dumb
dump
during
dust(y)
duty
dwarf
dwell
dwelt
dying
each
eager
eagle
ear
early
earn
earth
east(ern)
easy
eat(en)
edge
egg
eh
eight
eighteen
eighth
eighty
either
elbow
elder
eldest
electric
electricity
elephant
eleven
elf
elm
else
elsewhere
empty
end(ing)
enemy
engine
engineer
English
enjoy
enough
enter
envelope
equal
erase(r)
errand
escape
eve
even
evening
ever
every
everybody
everyday
everyone
everything
everywhere
evil
exact
except
exchange
excited
exciting
excuse
exit
expect
explain
extra
eye
eyebrow
fable
face
facing
fact
factory
fail
faint
fair
fairy
faith
fake
fall
false
family
fan
fancy
far
faraway
fare
farmer
farm(ing)
far-off
farther
fashion
fast
fasten
fat
father
fault
favor
favorite
fear
feast
feather
February
fed
feed
feel
feet
fell
fellow
felt
fence
fever
few
fib
fiddle
field
fife
fifteen
fifth
fifty
fig
fight
figure
file
fill
film
finally
find
fine
finger
finish
fire
firearm
firecracker
fireplace
fireworks
firing
first
fish
fisherman
fist
fit(s)
five
fix
flag
flake
flame
flap
flash
flashlight
flat
flea
flesh
flew
flies
flight
flip
flip-flop
float
flock
flood
floor
flop
flour
flow
flower(y)
flutter
fly
foam
fog
foggy
fold
folks
follow(ing)
fond
food
fool
foolish
foot
football
footprint
for
forehead
forest
forget
forgive
forgot(ten)
fork
form
fort
forth
fortune
forty
forward
fought
found
fountain
four
fourteen
fourth
fox
frame
free
freedom
freeze
freight
French
fresh
fret
Friday
fried
friend(ly)
friendship
frighten
frog
from
front
frost
frown
froze
fruit
fry
fudge
fuel
full(y)
fun
funny
fur
furniture
further
fuzzy
gain
gallon

gallop
game
gang
garage
garbage
garden
gas
gasoline
gate
gather
gave
gay
gear
geese
general
gentle
gentleman
gentlemen
geography
get
getting
giant
gift
gingerbread
girl
give (n)
giving
glad (ly)
glance
glass (es)
gleam
glide
glory
glove
glow
glue
go (ing)
goes
goal
goat
gobble
God (g)
godmother
gold (en)
goldfish
golf
gone
good (s)
good-by (bye)
good-looking

goodness
goody
goose
gooseberry
got
govern
government
gown
grab
gracious
grade
grain
grand
grandchild
grandchildren
granddaughter
grandfather
grandma
grandmother
grandpa
grandson
grandstand
grape (s)
grapefruit
grass
grasshopper
grateful
grave
gravel
graveyard
gravy
gray
graze
grease
great
green
greet
grew
grind
groan
grocery
ground
group
grove
grown
guard
guess
guest
guide
gulf

gum
gun
gunpowder
guy
ha
habit
had
hadn't
hail
hair
haircut
hairpin
half
hall
halt
ham
hammer
hand
handful
handkerchief
handle
handwriting
hang
happen
happily
happiness
happy
harbor
hard
hardly
hardship
hardware
hare
hark
harm
harness
harp
harvest
has
hasn't
haste (n)
hasty
hat
hatch
hatchet
hate
haul
have
haven't
having

hawk
hay
hayfield
haystack
he
head
headache
heal
health (y)
heap
hear (ing)
heard
heart
heat (er)
heaven
heavy
he'd
heel
height
held
hell
he'll
hello
helmet
help (er)
helpful
hem
hen
henhouse
her (s)
herd
here
here's
hero
herself
he's
hey
hickory
hid
hidden
hide
high
highway
hill
hillside
hilltop
hilly
him
himself
hind

hint
hip
hire
his
hiss
history
hit
hitch
hive
ho
hoe
hog
hold (er)
hole
holiday
hollow
holy
home
homely
homesick
honest
honey
honeybee
honeymoon
honk
honor
hood
hoof
hook
hoop
hop
hope (ful)
hopeless
horn
horse
horseback
horseshoe
hose
hospital
host
hot
hotel
hound
hour
house
housetop
housewife
housework
how
however

howl
hug
huge
hum
humble
hump
hundred
hung
hunger
hungry
hunk
hunt(er)
hurrah
hurried
hurry
hurt
husband
hush
hut
hymn
I
ice
icy
I'd
idea
ideal
if
ill
I'll
I'm
important
impossible
improve
in
inch(es)
income
indeed
Indian
indoors
ink
inn
insect
inside
instant
instead
insult
intend
interested
interesting
into

invite
iron
is
island
isn't
it
its
it's
itself
I've
ivory
ivy
jacket
jacks
jail
jam
January
jar
jaw
jelly
jay
jellyfish
jerk
jig
job
jockery
join
joke
joking
jolly
journey
joy(ful)
joyous
judge
jug
juice
juicy
July
jump
June
junior
junk
just

keen
keep
kept
kettle
key
kick
kid

kill(ed)
kind(ly)
kindness
king
kingdom
kiss
kitchen
kite
kitten
kitty
knee
kneel
knew
knife
knit
knives
knob
knock
knot
know
known

lace
lad
ladder
ladies
lady
laid
lake
lamb
lame
lamp
land
lane
language
lantern
lap
lard
large
lash
lass
last
late
laugh
laundry
law
lawn
lawyer
lay
lazy
lead

leader
leaf
leak
lean
leap
learn(ed)
least
leather
leave(ing)
led
left
leg
lemon
lemonade
lend
length
less
lesson
let
let's
letter
letting
lettuce
level
liberty
library
lice
lick
lid
lie
life
lift
light(ness)
lightning
like
likely
liking
lily
limb
lime
limp
line
linen
lion
lip
list
listen
lit
little
live(s)

lively
liver
living
lizard
load
loaf
loan
loaves
lock
locomotive
log
lone
lonely
lonesome
long
look
lookout
loop
loose
lord
lose(r)
loss
lost
lot
loud
love
lovely
lover
low
luck(y)
lumber
lump
lunch
lying

ma
machine
machinery
mad
made
magazine
magic
maid
mail
mailbox
mailman
major
make
making
male
mama

man
manager
mane
manger
many
map
maple
marble
march (M)
mare
mark
market
marriage
married
marry
mask
mast
master
mat
match
matter
mattress
may (M)
maybe
mayor
maypole
me
meadow
meal
mean (s)
meant
measure
meat
medicine
meet (ing)
melt
member
men
mend
meow
merry
mess
message
met
metal
mew
mice
middle
midnight
might (y)
mile
milk
milkman
mill
miller
million
mind
mine
miner
mint
minute
mirror
mischief
miss (M)
misspell
mistake
misty
mitt
mitten
mix
moment
Monday
money
monkey
month
moo
moon
moonlight
moose
mop
more
morning
morrow
moss
most (ly)
mother
motor
mount
mountain
mouse
mouth
move
movie
movies
moving
mow
Mr., Mrs.
much
mud
muddy
mug
mule
multiply
murder
music
must
my
myself
nail
name
nap
napkin
narrow
nasty
naughty
navy
near
nearby
nearly
neat
neck
necktie
need
needle
needn't
Negro
neighbor
neighborhood
neither
nerve
nest
net
never
nevermore
new
news
newspaper
next
nibble
nice
nickel
night
nightgown
nine
nineteen
ninety
no
nobody
nod
noise
noisy
none
noon
nor
north (ern)
nose
not
note
nothing
notice
November
now
nowhere
number
nurse
nut
oak
oar
oatmeal
oats
obey
ocean
o'clock
October
odd
of
off
offer
office
officer
often
oh
oil
old
old-fashioned
on
once
one
onion
only
onward
open
or
orange
orchard
order
ore
organ
other
otherwise
ouch
ought
our (s)
ourselves
out
outdoors
outfit
outlaw
outline
outside
outward
oven
over
overalls
overcoat
overeat
overhead
overhear
overnight
overturn
owe
owing
own (er)
ox
pa
pace
pack
package
pad
page
paid
pail
pail (ful)
paint (er)
painting
pair
pal
palace
pale
pan
pancake
pane
pansy
pants
papa
paper
parade
pardon
parent
park

part (ly)
partner
party
pass
passenger
past
paste
pasture
pat
patch
path
patter
pave
pavement
paw
pay
payment
pea (s)
peace (ful)
peach (es)
peak
peanut
pear
pearl
peck
ɼɔek
peel
peep
peg
pen
pencil
penny
people
pepper
peppermint
perfume
pe··haps
person
pet
phone
piano
pick
pickle
picnic
picture
pie
piece
pig
pigeon
piggy

pile
pill
pillow
pin
pine
pineapple
pink
pint
pipe
pistol
pit
pitch
pitcher
pity
place
plain
plan
plane
plant
plate
platform
platter
play (er)
playground
playhouse
playmate
plaything
pleasant
please
pleasure
plenty
plow
plug
plum
pocket
pocketbook
poem
point
poison
poke
pole
police
policeman
polish
polite
pond
ponies
pony
pool
poor

pop
popcorn
popped
porch
pork
possible
post
postage
postman
pot
potato (es)
pound
pour
powder
power (ful)
praise
pray
prayer
prepare
present
pretty
price
prick
prince
princess
print
prison
prize
promise
proper
protect
proud
prove
prune
public
puddle
puff
pull
pump
pumpkin
punch
punish
pup
pupil
puppy
pure
purpose
purse
push
puss

pussy
pussycat
put
putting
puzzle
quack
quart
quarter
queen
queer
question
quick (ly)
quiet
quilt
quit
quite
rabbit
race
rack
radio
radish
rag
rail
railroad
railway
rain (y)
rainbow
raise
raisin
rake
ram
ran
ranch
rang
rap
rapidly
rat
rate
rather
rattle
raw
ray
reach
read
reader
reading
ready
real
really
reap

rear
reason
rebuild
receive
recess
record
red
redbird
redbreast
refuse
reindeer
rejoice
remain
remember
remind
remove
rent
repair
repay
repeat
report
rest
return
review
reward
rib
ribbon
rice
rich
rid
riddle
ride (r)
riding
right
rim
ring
rip
ripe
rise
rising
river
road
roadside
roar
roast
rob
robber
robe
robin
rock (y)

rocket
rode
roll
roller
roof
room
rooster
root
rope
rose
rosebud
rot
rotten
rough
round
route
row
rowboat
royal
rub
rubbed
rubber
rubbish
rug
rule(r)
rumble
run
rung
runner
running
rush
rust(y)
rye
sack
sad
saddle
sadness
safe
safety
said
sail
sailboat
sailor
saint
salad
sale
salt
same
sand(y)
sandwich
sang
sank
sap
sash
sat
satin
satisfactory
Saturday
sausage
savage
save
savings
saw
say
scab
scales
scare
scarf
school
schoolboy
schoolhouse
schoolmaster
schoolroom
scorch
score
scrap
scrape
scratch
scream
screen
screw
scrub
sea
seal
search
season
seat
second
secret
see(ing)
seed
seek
seem
seen
seesaw
select
self
selfish
sell
send
sense
sent
sentence
separate
September
servant
serve
service
set
setting
settle
settlement
seven
seventeen
seventh
seventy
several
sew
shade
shadow
shady
shake(r)
shaking
shall
shame
shan't
shape
share
sharp
shave
she
she'd
she'll
she's
shear(s)
shed
sheep
sheet
shelf
shell
shepherd
shine
shining
shiny
ship
shirt
shock
shoe
shoemaker
shone
shock
shoot
shop
shopping
shore
short
shot
should
shoulder
shouldn't
shout
shovel
show
shower
shut
shy
sick(ness)
side
sidewalk
sideways
sigh
sight
sign
silence
silent
silk
sill
silly
silver
simple
sin
since
sing
singer
single
sink
sip
sir
sis
sissy
sister
sit
sitting
six
sixteen
sixth
sixty
size
skate
skater
ski
skin
skip
skirt
sky
slam
slap
slate
slave
sled
sleep(y)
sleeve
slid
sleight
slept
slice
slide
sling
slip
slipped
slipper
slippery
slit
slow(ly)
sly
smack
small
smart
smell
smile
smoke
smooth
snail
snake
snap
snapping
sneeze
snow(y)
snowball
snowflake
snuff
snug
so
soak
soap
sob
socks
sod
soda
sofa

soft
soil
sold
soldier
sole
some
somebody
somehow
someone
something
sometime(s)
somewhere
son
song
soon
sore
sorrow
sorry
sort
soul
sound
soup
sour
south(ern)
space
spade
spank
sparrow
speak(er)
spear
speech
speed
spell(ing)
spend
spent
spider
spike
spill
spin
spinach
spirit
spit
splash
spoil
spoke
spook
spoon
sport
spot
spread

spring
springtime
sprinkle
square
squash
squeak
squeeze
squirrel
stable
stack
stage
stair
stall
stamp
stand
star
stare
start
starve
state
station
stay
steak
steal
steam
steamboat
steamer
steel
steep
steeple
steer
stem
step
stepping
stick(y)
stiff
still(ness)
sting
stir
stitch
stock
stocking
stole
stone
stood
stool
stoop
stop
stopped
stopping

store
stork
stories
storm(y)
story
stove
straight
strange(r)
strap
staw
strawberry
steam
street
stretch
string
strip
stripes
strong
stuck
study
stuff
stump
stung
subject
such
suck
sudden
suffer
sugar
suit
sum
summer
sun
Sunday
sunflower
sung
sunk
sunlight
sunny
sunrise
sunset
sunshine
supper
suppose
sure(ly)
surface
surprise
swallow
swim
swamp

swan
swat
swear
sweet
sweater
sweep
sweet(ness)
sweetheart
swell
swept
swift
swim
swimming
swing
switch
sword
swore
table
tablecloth
tablespoon
tablet
tack
tag
tail
tailor
take(n)
taking
tale
talk(er)
tall
tame
tan
tank
tap
tape
tar
tardy
task
taste
taught
tax
tea
teach(er)
team
tear
tease
teaspoon
tell
teeth
telephone

temper
ten
tennis
tent
term
terrible
test
than
thank(s)
thankful
Thanksgiving
that
that's
the
theater
thee
their
them
then
there
these
they
they'd
they'll
they're
they've
thick
thief
thimble
thin
thing
think
third
thirsty
thirteen
thirty
this
tho
thorn
those
though
thousand
thought
thread
three
threw
throat
throne
through
throw(n)

thumb
thunder
Thursday
thy
tick
ticket
tickle
tie
tiger
tight
till
time
tin
tinkle
tiny
tip
tiptoe
tire
tired
'tis
title
to
toadstool
toad
toast
tobacco
today
toe
together
toilet
told
tomato
tomorrow
ton
tone
tongue
tonight
too
took
tool
toot
tooth
toothbrush
toothpick
top
tore
torn
toss
touch
tow

toward(s)
towel
tower
town
toy
trace
track
trade
train
tramp
trap
tray
treasure
treat
tree
trick
tricycle
tried
trim
trip
trolley
trouble
truck
true
truly
trunk
trust
truth
try
tub
Tuesday
tug
tulip
tumble
tune
tunnel
turkey
turn
turtle
twelve
twenty
twice
twig
twin
two
ugly
umbrella
uncle
under
understand

underwear
undress
unfair
unfinished
unfold
unfriendly
unhappy
unhurt
uniform
United States
unkind
unknown
unless
unpleasant
until
unwilling
up
upon
upper
upset
upside
upstairs
uptown
upward
us
use(d)
useful
valentine
valley
valuable
value
vase
vegetable
velvet
very
vessel
victory
view
village
vine
violet
visit
visitor
voice
vote
wag
wagon
waist
wait
wake(n)

walk
wall
walnut
want
war
warm
warn
was
wash(er)
washtub
wasn't
waste
watch
watchman
water
watermelon
waterproof
wave
wax
way
wayside
we
weak(ness)
weaken
wealth
weapon
wear
weary
weather
weaver
web
we'd
wedding
Wednesday
wee
weed
week
we'll
weep
weigh
welcome
well
went
were
we're
west(ern)
wet
we've
whale
what

what's
wheat
wheel
when
whenever
where
which
while
whip
whipped
whirl
whisky
whisper
whistle
white
who
who'd
whole
who'll
whom
who's
whose
why
wicked
wide
wife
wiggle
wild
wildcat
will
willing
willow
win
wind(y)
windmill
window
wine
wing
wink
winner
winter
wipe
wire
wise
wish
wit
witch
with
without
woke

wolf	wouldn't	you
woman	wound	you'd
women	wove	you'll
won	wrap	young
wonder	wrapped	youngster
wonderful	wreck	your(s)
won't	wren	you're
wood(en)	wring	yourself
woodpecker	write	yourselves
woods	writing	youth
wool	written	you've
woolen	wrong	
word	wrote	
wore	wrung	
work(er)	yard	
workman	yarn	
world	year	
worm	yell	
worn	yellow	
worry	yes	
worse	yesterday	
worst	yet	
worth	yolk	
would	yonder	

CORRECTION TABLE

Formula Raw Score	Corrected Grade-Levels
4.9 and below	4th grade and below
5.0 to 5.9	5-6th grade
6.0 to 6.9	7-8th grade
7.0 to 7.9	9-10th grade
8.0 to 8.9	11-12th grade
9.0 to 9.9	13-15th grade (college)
10.0 and above	16 - (college graduate)

EIGHT

Writing Examinations

John T. Loftus

Introduction to Article

Recent studies on home study course completion rates have pointed to the critical importance of challenging examination items. Most home study courses make heavy use of objective, multiple choice examination items for evaluating student achievement.

Mr. Loftus, a believer in the theory that exams should 'teach as well as test," explains why multiple choice items are a home study educator's best measurement tool. He tells how -- by means of practical examples -- you can prepare better examinations for courses. The more challenging (and fair) the exam, the more motivated the learner becomes. Higher completion rates follow.

Writing Examinations

John T. Loftus

Purpose of this Chapter

The ultimate objective of preparing a home study course is to have the student learn. Much has been written about the learning process and still little is known about how a person learns. This chapter will not deal with the process of learning, rather it will cover the basics of measuring whether learning has in fact taken place.

The best possible way of making this determination is through an examination that teaches as well as tests. Preparing a good home study examination is the most demanding of any educational writer's skills. Consequently, the purpose of this chapter is to explore the various types of examinations which can be used, and then to offer some practical suggestions and examples on how you can prepare better examination items . . . and up your course completion rate.

Kinds of Examinations

Most modern home study courses use one or more of three basic types of examination items: objective, essay, and performance. Of the three types, the most commonly used today is the objective examination. For home study courses, objective examinations have proven over the years to be the most reliable, valid, and easy to administer form of student evaluation. Conversely, objective examinations are perhaps the most difficult, expensive, and time-consuming to prepare. Objective questions, generally speaking, are classified into four major types: (1) multiple-choice, (2) matching, (3) completion or fill-in, and (4) true-false. Of

the four objective types, the most commonly used is the multiple-choice item. It is perhaps the single most reliable and valid item. Consequently, this chapter will emphasize objective, multiple-choice examinations.

The second most commonly used examination in correspondence education is the essay examination; and, of course, the least used is the performance examination. Please note the use of the term "used" rather than "preferred." The performance examination in skills training is the most desired, but because the instructor and student are physically separated, it is the least used. However, there are types of training in correspondence education where performance examinations can be used. This will be discussed later. True-false questions, frankly, are unreliable and used mainly for self-check quizzes or to break up long, monotonous multiple-choice exams.

Essay Questions vs. Objective Questions

There are no categorical rules to tell you which type of questions or tests to use. However, it will be helpful to clearly keep in mind the characteristics of each type. Then you will be able to decide which is the most suitable for the particular purpose and circumstances of the test you are making. The summary in Figure 1 compares a few of the major characteristics of essay vs. objective questions.

Writing Multiple-Choice Questions

Much of this section of the article was taken from "A Guide to Writing Multiple-Choice Examinations," published by Intext, Inc., in 1969. Your author was one of the original writers of the Intext Guide.

A. Multiple-Choice Item: It has been found that well-constructed objective questions can test almost any subject. The preferred form of objective questions is the multiple-choice item. The reason is that a multiple-choice item can measure most of the important educational results, including knowledge, understanding, and judgment. Almost any ability or understanding which can be measured by another form of examination item, whether objective or subjective -- and whether completion, short-answer, true-false, or essay -- can be measured by a multiple-choice item.

   A multiple-choice item, furthermore, is less vulnerable to chance errors from student guessing than are other forms of objective items, such as matching or true-

	ESSAY	OBJECTIVE
Abilities Measured	Requires the student to express himself in his own words, using information from his own background and knowledge. Can tap high levels of reasoning such as required in inference, organization of ideas, comparison and contrast. Does **not** measure purely factual information efficiently.	Requires the student to select correct answers from given options, or to supply an answer limited to one word or phrase. Can **also** tap high levels of reasoning such as required in inference, organization of ideas, comparison and contrast. Measures knowledge of facts efficiently.
Scope	Covers only a limited field of knowledge in any one test. Essay questions take so long to answer that relatively few can be answered in a given period of time. Also, the student who is especially fluent can often avoid discussing points of which he is unsure.	Covers a broad field of knowledge in one test. Since objective questions may be answered quickly, one test may contain many questions. A broad coverage helps provide reliable measurement.
Incentive to Pupils	Encourages pupils to learn how to organize their own ideas and express them effectively.	Encourages pupils to build up a broad background of knowledge and abilities.
Ease of Preparation	Requires writing only a few questions for a test. Tasks must be clearly defined, general enough to offer some leeway, specific enough to set limits.	Requires writing many questions for a test. Wording must avoid ambiguities and "give-aways." Distractors should embody most likely misconceptions.
Scoring	Usually very time-consuming to score. Permits teachers to comment directly on the reasoning processes of individual pupils. However, an answer may be scored differently by different teachers or by the same teacher at different times.	Can be scored quickly. Answer generally scored only right or wrong, but scoring is very accurate and consistent.

FIG 1 Comparison of Essay to Objective Questions

false. Thus, a multiple-choice item is statistically superior to a subjective item in measuring educational achievement.

An important point to be made is that many of the principles set down here apply equally well to both other types of objective questions and to essay questions.

B. Testing Only the Important Topics: Before committing even a single multiple-choice item to the examination paper, you must decide which topics are the important ones to be tested. Far too often, the examination writer seizes upon the textbook and proceeds to write without reflection. The resulting series of items makes a motley procession down the examination page. This mixed bag of unimportant and trivial topics, largely trivial, wastes the writer's talent and the student's time.

Therefore, you should carefully select only the important topics of the text and supplementary notes to be tested, discarding the trivial. And not only should you select important topics, you should also decide which aspects of these topics are the most desirable to emphasize in the examination items.

Furthermore, you should define in your own mind the purpose of the examination as specifically as possible. Don't be vague or ambiguous about what the examination is supposed to do. Rather, be clear and positive as to what you may reasonably expect your examination to measure, and as to what you should not expect it to measure. Thus, you will lay the groundwork for the construction of an examination that is, at the very least, valid.

C. Terms: Before we discuss the guidelines for writing multiple-choice items, let us consider several important terms we'll encounter: stem, option, key, distracter, and item.

A multiple-choice stem is an introductory question or an incomplete statement for which the student chooses a response or a completion from two or more options.

An option is a response to the stem in a multiple-choice item. Each stem requires two or more options, or responses; four is a common, workable number of options (responses).

The key is the one correct response (the one correct option) to a stem.

A distracter is any incorrect response (incorrect option) to a stem.

An item consists of the stem and all its options, or responses.

D. How to Write Multiple-Choice Items:

1. Make sure that the multiple-choice item does not parrot the wording of the text. The student should be discouraged from relying on word memory alone. The student should grasp the principle being tested, and not merely recognize a familiar word of phrase from the text.

2. Use, in your multiple-choice items, simple, unambiguous words. Avoid verbal "tricks" and words that are too colorful. The purpose of any item is to find out what the student knows, not to mislead him into making a wrong choice.

   (Correct responses in the examples below are indicated with a check mark.)

   Here is an item containing a verbal trick:

   It was Julius Caesar who uttered the famous line,

   A. "All Gaul is divided into four parts."
   B. "After me, the deluge."
   C. "Give me liberty or give me death."
   D. None of these. ✓

   In this item, the slight misquotation of Caesar's "All Gaul is divided into three parts" is designed to trick and confuse even the most knowledgeable student. Avoid such an item.

3. Be precise in working an item.

   An example of imprecision:

   The worst winters occur in

   A. Chicago. ✓
   B. New Orleans.
   C. Geneva.
   D. Sydney.

This item lacks precision in that the adjective "worst" can mean "coldest," "dampest," "longest," or even "most boring"; the precise meaning is not clear.

4. A particular item should not interlock with a previous item or a later item, thus providing a clue to the correct response. If, for example, one item asks the student to identify the nation which fought against the United States in the War of 1812, another item should not refer to England as one of the warring parties.

5. Avoid an incomplete or a too-general stem that necessitates unrelated options:

   From your studies of this economics text you have learned that

   A. monopolies are forbidden by law.
   B. communism is superior to all other economic systems.
   C. demand interacts with supply. ✓
   D. Egypt is highly industrialized.

6. A worthwhile variation on the typical item is the situation or problem item. The situation item consists of either a narrative, descriptive passage, or illustration upon which two or more items are based. For example:

   Note to student: Read the following passage before answering questions 45 and 47.

   The constitution of each state sets up the qualifications for voting, and qualified voters elect the members of both houses of the legislature. In some states, any citizen qualified to vote is also qualified to be a legislator. In other states, there are age and residence requirements. When there are age requirements, senators are usually required to be three to five years older than representatives. Some states set a minimum age; most state legislators are in their forties or fifties.

   In almost all states, legislators are nominated by direct primaries and elected at the general election by even-numbered years. In two-thirds of the states, senators serve for four years, and in one-third, for two. Forty-five states have two-years terms for the House of Representatives. Longer terms are an easy change which can improve legislatures. Since many legislatures meet for only two or three months in the

course of two years, a new legislator has little opportunity in his two years to learn the job before standing for reelection.

46. According to the preceding passage, most state representatives serve a term of

A. one year
B. two years ✓
C. four years
D. six years

47. According to the passage, the length of the representative's term should be

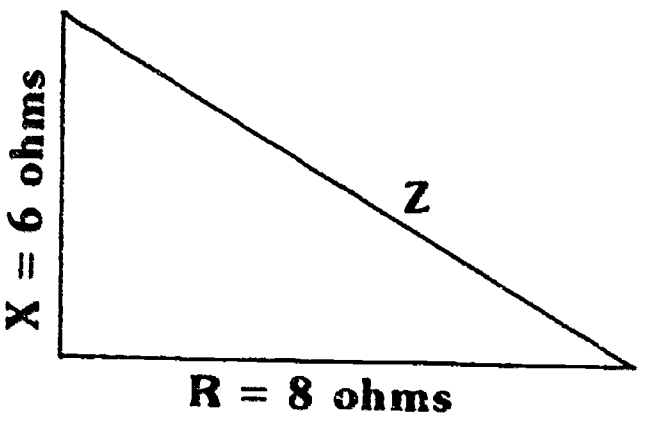
A. shorter, because each representative's private career is important, too.
B. shorter, because representatives waste too much time in their meetings.
C. longer, because representatives are now beset by the cost of too-frequent reelection campaigns.
D. longer, because each representative needs more time to become familiar with his job. ✓

In a like manner, a series of items may be based on a table, an illustration, a mathematical problem, or a complex formula to enable the student to demonstrate his full understanding of its various aspects.

An example based on an illustration:

Note: Look at Figure 2 and answer questions 48 and 49.

Figure 2



48. The diagram in Figure 2 represents

A. a current-phasor triangle.
B. an impedance triangle. ✓
C. a susceptance triangle.
D. a voltage-phasor triangle.

49. With the information taken from Figure 2, it can be determined that the value of Z is

A. 2.25 ohms.
B. 5.29 ohms.
C. 10 ohms. ✓
D. 15 ohms.

7. Avoid any item which can be answered solely by general intelligence, without any knowledge of the text material:

Which one of the following animals is the largest?

A. squirrel.
B. monkey.
C. horse.
D. elephant. ✓

8. Descent to the trivial is a tempting escape route for the item writer who fears that there are not enough important topics for the ideal number of good multiple-choice items. So he turns to less important, or even trivial, topics to "pad-out" the examination. At such a time, it is better to use other approaches, such as combinations of essay and multiple-choice items to cover the important topics only, which will reduce the otherwise desirable number of items. The number of items is not important to the good writer; rather, are all critical topics covered by an item(s).

9. Although triviality is taboo, repetition to reinforce the student's learning is useful. If a text topic is worth one item, it may be worth two or three items covering different aspects of the topic and reinforcing the student's understanding through varied repetition. The only limit to this approach is the importance of the topic and the item writer's skill and imagination.

10. The stem of a multiple-choice item should state or clearly imply the question. That is, you should supply enough information in the stem of your item to let the student know exactly what you expect from him. For example, it is not enough to say:

Christopher Columbus

A. discovered America in the year 1492.
B. etc.

Rather, you should say:

Christopher Columbus discovered America in the year

A. 1492
B. etc.

Or you can write the stem as a question:

When did Christopher Columbus discover America?

A. 1492
B. etc.

11. Try to avoid the word "not" in the stem. Its use tends to confuse the student.

12. Avoid unnecessary words or sentences in the stem:

Heat transfer is an interesting phenomenon for scientists because it affects the daily lives of many people. A typical instrument for measuring heat transfer is the . . .

The entire first sentence can be omitted from the stem because it is "window dressing" and contributes nothing to the point of the question.

13. Closely allied to guideline 12 is the need to avoid superfluous words like "currently" and "located." These words are common, but usually they serve no purpose. You should not say, for instance, "The temperature is currently 50 degrees Fahrenheit." "Currently" and "Current" are unnecessary; they add nothing. It's enough to say, "The temperature is 50 degrees Fahrenheit."

Another superfluous word frequently used is "located," as in "our office is located at South Chapel Street." It's enough to say, "Our office is at South Chapel Street."

14. An overweighted stem, also to be avoided, is somewhat like the tail wagging the dog. Too much is given in the stem and too little in the response.

Here is an example of an overweighted stem:

The game in which two opposing teams of eleven men each attempt to score a touchdown by crossing their opponent's goal line, carrying an inflated leather ball, is called

A. baseball.
B. tennis.
C. hockey.
D. football. ✓

A better question can be formulated than the preceding one, with its elaborate "stage setting" for eliciting a one-word answer.

Often, in fact, the unskilled item writer composes items which contain extremely short responses. This practice unnecessarily limits the importance and extent of the measurable knowledge and achievement. You don't have to avoid short or one-word responses altogether, but you should not allow such responses to become a large part of an examination.

Instead of working for short responses, or options, use your creative flair to "dress-up" the options with imaginative adjectives and modifiers. This will make the options more interesting and the distracters more plausible.

15. All of the options, or choices, in a multiple-choice item should be parallel both in grammar and point of view.

The careless writer might say, for example:

Students of the American Revolution remember Patrick Henry best for his

A. speaking and debates. ✓
B. horses and hunting.
C. acting and plays.
D. swordsmanship and wrestling.

It is better to say:

Students of the American Revolution remember Patrick Henry best for his

A. speaking and debating. ✓
B. riding and hunting.
C. acting and playwriting.
D. fencing and wrestling.

16. Avoid overuse of the phrase "None of these" as an option. This phrase should be used as the correct answer only when no other good answer can be supplied, or as a distracter when a good intended answer is

supplied. Do not use "None of these" as a crutch. Instead, make a serious try at rewording or replacing the question or the option to avoid abuse of this phrase.

17. Avoid giving clues in either the stem or the options that may lead the student to the correct answer:

    What were the chief causes of the American Civil War?

    A. famine in the South.
    B. slavery and state's rights. ✓
    C. the opening of the Erie Canal.
    D. interference by England.

    Here the stem calls for a plural answer, while only one of the options includes a plural. This gives a direct clue to the correct answer and automatically rules out the other three options.

18. For consistency, try to supply the same number of options in each item of an examination.

19. A common error is unnecessary repetition in the options:

    The movie "Camelot" paints a colorful picture of

    A. the court of King Tut, the young Pharaoh.
    B. the court of King Wenceslaus of the Christmas carol.
    C. the court of King Arthur and his knights. ✓
    D. the court of King Louis Phillip, the Restorer of Versailles.

    The remedy here is to put the first three words of each option into the stem with this result:

    The movie "Camelot" paints a colorful picture of the court of

    A. King Tut, the young Pharaoh.
    B. etc.

20. Distracters should not be inappropriate or ridiculous:

    Many books have been written about the fifteenth century French heroine-martyr

    A. Joan of Arc ✓
    B. Simone de Beauvoir
    C. Marie Antoinette
    D. Joan Crawford

The fourth distracter is obviously inappropriate in contrast to the second and third distracters which are plausible.

21. On the other hand, a distracter may be at least partly true (and still incorrect), as witnessed in the examples in guideline 20. One of the distracters, "Marie Antoinette," could be considered a French heroine-martyr, but of the eighteenth century.

22. An item that involves numbers or quantities should list the responses in a numerical progression.

    Note this violation of numerical progression:

    The 1960 census revealed that the population of New York City had reached almost

    A. 5 million
    B. 3 million
    C. 8 million ✓
    D. 10 million

    Responses A and B should be reversed in keeping with numerical progression.

23. Avoid options which contain the words "always" or "never" or similar words. These words are "specific determiners" and tip off the student, since a statement containing such a word is usually false.

24. Try to keep all options about the same length. A student quickly spots a response that differs significantly in length from the others. The extra length generally signals more careful formulation by the writer, and therefore, reveals itself as the key.

25. Be wary of using two opposites as options, when one of the opposites is the key. A student who guesses will very likely ignore the other options and concentrate on the opposites, thus unfairly increasing his chances of selecting the correct answer.

    For example:

    Toward the end of Napoleon's Russian campaign, the weather the French troops experienced consisted of

A. an extremely rainy spring.
B. an abnormally hot, dry summer.
C. a very severe winter. ✓
D. an unseasonably mild winter.

To improve this item, you need to have at least two remedies. You may, for instance, replace C with D and change D to "none of these," making D the key. Thus the options would read:

A. an extremely rainy spring.
B. an abnormally hot, dry summer.
C. an unseasonably mild winter.
D. none of these. ✓

Or you may elect to form another pair of opposites of A and B by changing the word "spring" to "summer":

A. an extremely rainy summer.
B. an abnormally hot, dry summer.
C. a very severe winter. ✓
D. an unseasonably mild winter.

26. The key may be the best (most appropriate) answer, or it may be the only absolutely correct answer.

If the key is the best answer from among varying appropriate options, the student must exercise judgment. Consequently, the best answer must be a defensible one. It must be demonstrably superior to the less appropriate distracters in the eyes of the knowledgeable student.

On the other hand, if the key is the only absolutely correct answer, the distracters must be incorrect, though plausible. They may not merely be less appropriate.

27. When the key is an absolutely correct answer, make the distracters (incorrect options) completely wrong, but still plausible.

The long-run musical comedy "Fiddler on the Roof" revolves around a

A. crotchety Roman emperor.
B. young American penthouse dweller.
C. lovable Jewish folk character. ✓
D. struggling French concert violinist.

28 . treating of figures or formulas, particularly in mathematics, make each distracter meaningful and not merely plausible sounding. That is, each incorrect

option should, if possible, represent a common, natural error on the student's part. For example:

If one revolution of the watthour-meter rotor represents 1.5 watthours, what will 300 rotor revolutions represent?

A. 0.2 kwhr.
B. 0.45 kwhr. ✓
C. 200 kwhr.
D. 450 kwhr.

In the example, the three distracters resulted from errors students might make by calculating incorrectly or by failing to complete all the steps required by the formula.

Here are the options with the solution from which they were derived (the student, of course, is not required to show solutions on his examination paper):

A. 0.2 kwhr (300 divided by 1.5 = 200; 200 divided by 1000 = 0.2).
B. 0.45 kwhr (1.5 x 300 = 450; 450 divided by 1000 = 0.45). ✓
C. 200 kwhr (300 divided by 1.5 = 200).
D. 450 kwhr (1.5 x 300 = 450).

Writing Matching Questions

Below is a good example of a matching question. Notice the difference in the structure of this question compared to the normal matching question:

Read the statements below, carefully paying attention to their relation to one another. Then, next to each numbered statement, mark A, B, C, or D as indicated.

A. If the statement contains the central idea around which most of the statements can be grouped.

B. If the statement contains a main supporting idea of the central idea.

C. If the statement contains an illustrative fact or detailed statement related to a main supporting idea.

D. If the statement contains an idea or ideas which are irrelevant.

1. The Roman roads connected all parts of the Empire with Rome.
2. The Roman roads were so well built that some of them remain today.
3. One of the greatest achievements of the Romans was their extensive and durable system of roads.
4. Wealthy travelers in Roman times used horse-drawn coaches.
5. Along Roman roads, caravans would bring luxuries to Rome from Alexandria and the East.
6. In present-day Italy, some of the roads used are original Roman roads.

(Answers: 1-B; 2-B; 3-A; 4-D; 5-C; 6-C)

Completion or Fill-in

This is commonly called a "supply" item, where the student must supply the answer. Notice how well thought-out these items are:

In the blank of each sentence, write the word or number which best completes the sentence:

1. If people's eyes were not sensitive to blue light, objects which now appear blue would appear _____.

(Anwser: black)

2. A game played in which 28 people participated. The average final score was exactly 78. If 21 people had scores of less than 78 and 7 people had scores of more than 78 and if only whole-number scores were given, then the highest score must have been at least _____.

(Anwser: 81)

True-False

True-false items don't have to be boring:

In the space at the left, mark whether the statement is true or false. Mark + (plus) for true and 0 (zero) for false.

_____ 1. If the Cascade Mountains were 500 miles further east, western Oregon would have an increased rainfall. (Answer: +)

_____ 2. There is no point inside a circle farther from the edge of the circle than the length of the radius of the circle. (Answer: +)

How to Improve Reliability in Scoring Essay Questions

First, the question should be stated in sufficient detail so that the student understands what is expected. Otherwise, many of them will discuss quite different aspects of a question and their answers will vary greatly in length, points covered, and general approach. Under these conditions, the instructor will find it difficult to compare the quality of the various answers and assign grades accurately and consistently.

An example of a poorly worded essay question which is too general follows:

> Describe the battle of Gettysburg during the American Civil War.

When the student answers this question, he is free to cover any aspect of that battle that he either knows well or thinks is important. The question would be better if worded as follows:

> During the battle of Gettysburg, military mistakes were made by both sides. Popular opinion is that the battle was influenced by the Union forces capitalizing on the mistakes of the Confederates.
>
> Briefly describe the military mistakes that were made by both sides in the battle. Explain whether you think these mistakes helped the Union forces win the battle or not and why you have drawn that conclusion. Your essay should be no longer than 500 words (3 or 4 pages in longhand).

Various systematic procedures have been set up to make the scoring of essay questions more reliable. These procedures are useful but, unfortunately, time-consuming. You will have to decide how conscientiously you wish to follow these procedures -- whether the increase in reliability is worth the additional time and effort.

The following method for scoring essay questions is described by Grace Graham in, "Teachers Can Construct Better Achievement Tests." It is clear cut and relatively simple. You may find it useful.

1. The teacher analyzes the points that he thinks should be made in the ideal response and assigns a numerical weight to each point. Some points may be of greater importance; hence, they would be weighted appropriately. The instructor may wish to allow extra credit for clear organization of thinking. Sometimes he may feel that he cannot develop a "scoring key" until he reads a cross-section of students' papers. Whether derived by teacher-analysis, by analysis of pupil responses, or by a combination of the two approaches, a systematic method of scoring using numerical values or percentages increases objectivity.

2. The test reader evaluates all the responses to one question before going on to score the next question.

3. As the teacher reads, he tosses the papers into five piles (high to low in quality). This procedure may be unnecessary if the instructor is satisfied with the quantitative appraisal described in 1 above; but if he also wants a qualitative estimate, he may need to re-check his classifications to determine if the papers in each pile are indeed of similar quality.

4. Anonymity is necessary for the accurate scoring of essay tests because of the ubiquitous "halo effect." The easiest way to prevent this kind of subjectivity is to ask pupils to write their names only on the back of their test papers.

Since it is difficult to grade essays reliably, you will usually be more concerned with writing comments than awarding grades. Your written comments on a paper will help the student more than a grade in understanding his strengths and weaknesses. However, if essay tests must be used for grades, reliability can be increased by basing the final grade on several essay tests rather than just one.

Performance Examinations

A performance test, simply stated, is one in which a student is required to perform or accomplish a task. A task here is defined as an act or series of acts performed by an individual in order to produce a product or achieve a specified result. In order to adequately test performance, conditions and standards for the test must be established. Conditions describe the necessary equipment and the physical setting under which the student is required to accomplish a specific task. The standard is a statement of how well the task must be performed.

The U. S. Army has done much work in performance testing, and we quote from Circular No. 351-2, United States Army Training and Doctrine Command, to more adequately define a task standard: "The standard specifies how well, completely, or accurately a process must be performed or a product produced. The standard reflects task requirements on the job. If a product standard, it is in terms of accuracy, tolerance, completeness, format, clarity, errors, or quantity. If a process standard, it is in terms of sequence, completeness, accuracy, and speed. Both product and process must be measurable."

Perhaps some will ask, how can we do this with students who are geographically removed? For those correspondence educators who use performance testing, obviously the answer is easy. For those who don't, here are some examples:

1. The school teaching photography where the student is required to take photographs and submit them to the school for evaluation.

2. The locksmithing school which requires students to make keys to specifications which can in turn open a lock.

3. The electronics school which makes the student use instruments to measure a process, take readings from the instruments and submit the answer to the school.

4. The upholstery school which requires a student to make a cushion and send it to the school for examination.

These are real examples and, in every case, the conditions and standards were established by the school so that the instructor could more objectively assess the student's performance. If you are not using performance tests, it would be wise to examine your course(s) for areas where performance should be measured.

Some Suggestions for Statistical Analysis

For some, the very word "statistics" brings on a state of panic. The fact is that practical statistics can be quite simple. As a minimum, correspondence educators should use item analysis to measure the effectiveness of a question. Item analysis will tell you two things that you should know about your question: (1) how difficult each question is; and (2) how well each question discriminates between high and low ranking students as a whole.

A simple measurement of difficulty is the percent of students who get the question right. If you just want your

test to measure whether your students have mastered a fundamental unit of study, questions should tend to be easy. In other words, a greater percentage should answer the question correctly. However, if the purpose of the test is to rank all the students in order of ability, try to use questions which are of average difficulty (only 50% of the students answer correctly).

Discrimination is measuring how effectively each question contributes to the discrimination between high scoring and low scoring students. Discrimination may be estimated as follows:

1. Arrange the tests in order of scores, with the highest score on top.

2. Take a specified number (say ten) from the tests on top and the same quantity from the bottom. Place them in separate piles called High and Low.

3. Now take each question and count the number of Highs who got it right and the number of Lows who got it right.

4. Convert these numbers to percentages. If the question is a good one for ranking students, then substantially more of the Highs than the Lows will answer it correctly.

After this estimate, you will want to carefully evaluate those questions where top students had as much difficulty as the poorer students; or worse, more difficulty. Perhaps the question is not clearly stated, or in the case of a multiple-choice item, perhaps one of the wrong options is too close to being correct. Wherever your analysis indicates a possible flaw in the question, try to rewrite the question.

Making Your Own Test or Using Published Test?

If a published achievement test covers the points you wish to measure, you may use it instead of making your own test. Sometimes, however, it is impossible to find a published test that matches what you want to measure; particularly if you want a test covering a single unit of study. In this case, you will ordinarily make your own. One important benefit of preparing your own test is that the very process of writing questions forces you to define your own teaching objectives in terms of specific skills and understandings.

However, there are many times when you may decide to use a published test. These tests offer several advantages. They have been written by specialists so the general quality of questions is high. They have been subjected to careful statistical analysis so the questions are controlled for difficulty and discrimination. They are accompanied by norms so that you are able to compare the performance of your students with the performance of a representative sample with known characteristics.

And finally, the fact that well-constructed achievement tests have been prepared by groups of experienced educators, whose competence is generally recognized, gives you a check on your judgment of what should be measured. Their consensus on skills and understandings to be covered is not necessarily better than yours. But if it is substantially different than yours, it provides a valuable supplement to your estimates of student achievement in any area. It gives some notion of how well your students can do on a test of learnings that educators in general may consider important.

A Word in Closing

The most scrupulous heed for all the cautions, admonitions, principles, and procedures discussed in this chapter will not guarantee that you will make good tests; although it may do much to prevent bad ones. Good tests cannot be written by merely following any set of "rules." There is an art to good test-writing which involves elements of originality and creativity as well as knowledge of theory. This article does not pretend to provide competence in all elements of the art. Such competence seems to thrive on practice, criticism, tryout, experience analysis, and more practice.

However, this chapter does attempt to foster an attitude and approach which has helped many teachers to improve their tests. It has presented some essential principles and some realistic illustrations to serve as guides and touchstones in your efforts to make better home study tests.

NINE

Motivational Through Interaction and Media

David Dasenbrock

Introduction to Article

Dr. David Dasenbrock is another of the most highly regarded course developers practicing the art today.

Dr. Dasenbrock knows the ins and outs of what makes for high completion rates and happy graduates. His discussion of illustrations and non-print media is invaluable. His treatment of video-based instruction gives practical advice on this still underused medium in home study.

Motivation Through Interaction and Media

David Dasenbrock

An effective home study course must contain more than just a series of textbooks. Unlike courses which are presented in the classroom, the home study student does not have constant teacher-initiated interaction or motivation. Most home study schools interact with the student only when the student requests it. Home study students are generally left alone to study at their own pace and provide their own motivation to complete their course.

Except for the highly self-motivated student, the typical textbook is dull, uninteresting and offers little incentive for the student to keep reading. As such, home study educators must develop ways to arouse the interest of the student through various motivational techniques which can be built into the curriculum. Supplementing a written text with "hands-on" interactive instructional material and other media has proven to be a very effective way to motivate home study students.

There are three very good reasons for providing supplemental text materials. First, learning is greatly enhanced. By interacting with the text materials and receiving instruction in other modes instead of just the printed word, the student grasps a greater understanding of the materials. Good interactive materials can stimulate a variety of the senses, thereby motivating the student to continue. Courses with interactive learning sequences will probably have a higher completion rate than those without.

Second, there are marketing advantages. The more items in a course, the greater its perceived value, and the more you can say about it in your advertising. The inclusion of such a simple thing as line drawings allows you to say "well-

illustrated" in your advertising. Of course, it follows that the more you can say about a product the higher the probability of selling the product. As a result, the ability to say more usually translates directly to increased enrollments.

And finally, it stands to reason that increasing the completion rate and increasing the number of enrollments will make a course more profitable.

In the remainder of this article, we will look at ways to make courses more interactive and thus provide greater motivation to your students.

Illustrations

Perhaps the simplest way to make a text more interesting and interactive is to use illustrations. Illustrations break up the monotony of the text and stimulate learning. If anything can lull a person to sleep, it's page after page of printed text, especially if the topic is dull and uninteresting. Illustrations can be used to break up this monotony, and increase the probability that the reader will continue reading. A page with illustrations, regardless of what is contained in the text itself, looks much less formidable to the reader. Illustrations also stimulate learning by offering you the opportunity to explain visually the information being provided in the written text. As the saying goes, "A picture is worth a thousand words." Often, it is almost impossible to explain in words certain concepts or procedures which can be easily illustrated.

How many illustrations should you have? The number of illustrations is directly dependent upon the subject material, but as a rule of thumb, try to put at least one illustration on every page. In some cases this may be difficult. However, following the theory that illustrations break up the monotony, using simple graphics which may or may not be related directly to the subject material can accomplish the same thing. Figure 1 is a simple graphic used in various forms to break up the text in an accounting course.

Figure 1.

12. *Smith trades in one of his automobiles that was worth $2,000, for a newer one worth $7,000. He does not wish to use any more of his securities, since they are part of his retirement fund, so he borrows the money from a finance company.*

Automobiles		Cash	
Bal. 10,000		Bal. 5,500	

Finance Co. Loan	
	Bal. 0

13. *Smith's 15-year-old house develops a leak in the roof. He calls several roofing companies for estimates, and they all advise him that patching the roof would be a waste of money. He agrees, and contracts with one of them to put a new roof on his house. The cost is $1,500. He pays $500 out of his checking account and borrows $1,000 from the bank on a personal two-year loan.*

House & Land		Cash	
Bal. 111,500		Bal. 5,500	

Bank Loan (personal)	
	Bal. 0

14. *Smith has some antique furniture that he has acquired over the years. This is reflected in Other Assets. It has never been appraised, so, as he does not know its true worth, he just keeps track of what he has invested in the furniture. At an antique club meeting he showed a roll-top desk for which he paid $300. Someone offered him $1,000 for the desk, and he decided to take it.*

Other Assets		Cash	
Bal. 16,000		Bal. 5,000	

Net Worth	
	Bal. 130,000

There are two basic types of illustrations -- line art and photographs. Line art consists of illustrations which contain areas that are either black or white. As a result, to a copying machine, line art "looks" the same as printed text, and can be easily reproduced. Some machines do have trouble reproducing large black areas, however; so beware.

A photograph on the other hand, consists of continuous tones of gray. As a result, photographs do not reproduce well on some machines. Usually, photographs must be converted to a halftone before they can be printed. In the halftone process, the photograph is converted into a series of dots, with the dark areas containing bigger dots than the gray or white areas. If you are not familiar with the process, look at Figure 2. Figure 2 is an enlargement of a small area on a halftone. Look at a photograph in a newspaper through a magnifying glass and you will see a similar dot pattern.

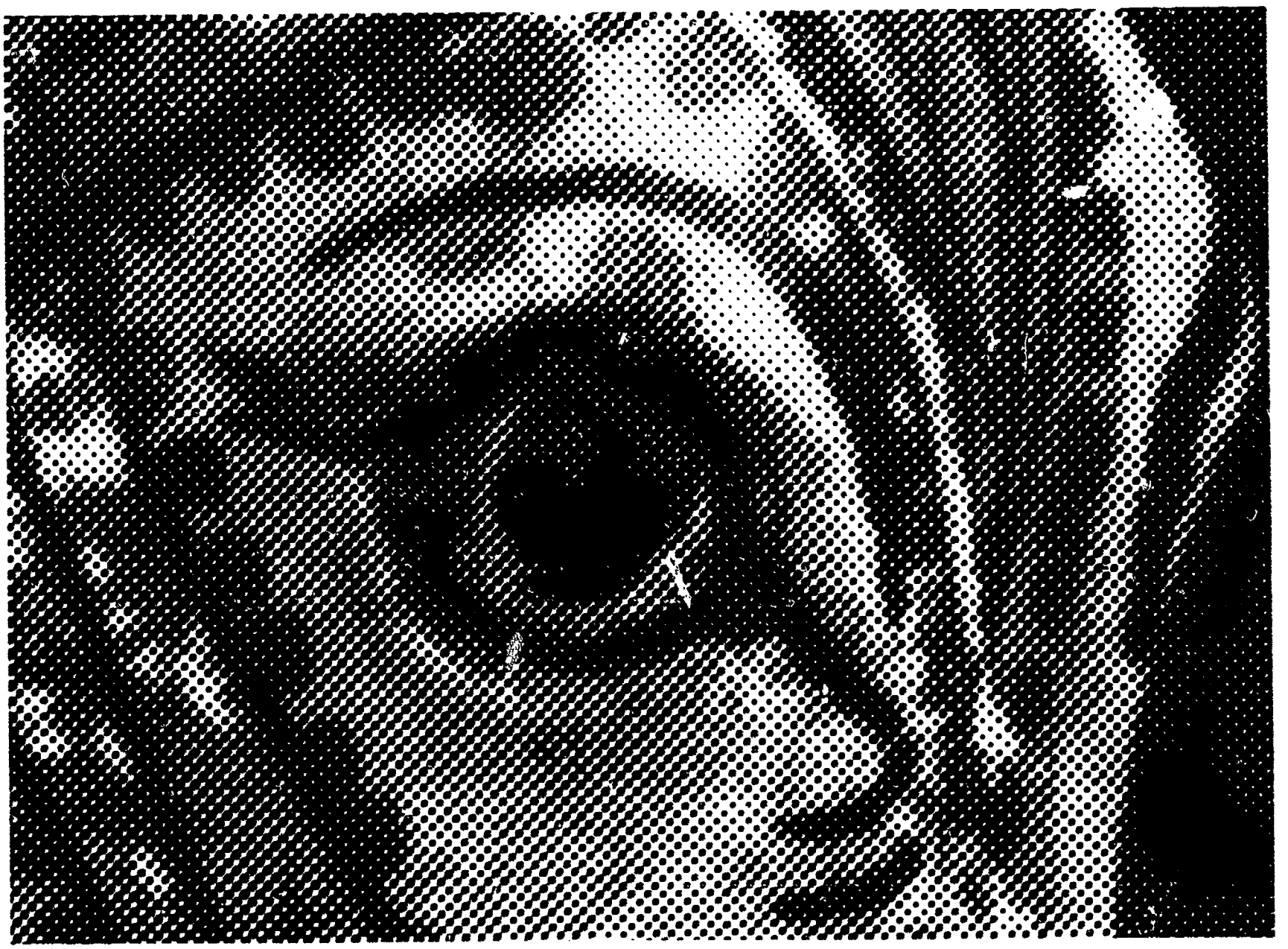


Figure 2.

Converting a photograph to a halftone is expensive, and must be done by a printer. The cost varies, but will be in the $6 - $10 range. If your text has a lot of halftones, you may be able to work a deal with a printer and get a package price.

If you plan to use four-color reproductions, the photograph must be separated into the printing process colors of cyan, magenta, yellow and black before it can be used. Such separations may cost in excess of $300. Again, it is wise to negotiate a package deal with a color separator if you have several four-color reproductions.

If a commercial printer is going to reproduce your materials and you are printing a thousand or more copies, you should have your photographs converted to halftones. However, if you are printing small quantities, there is an alternative to the halftone process. You can make a Velox. The Velox process allows you to convert a photograph into a dot pattern using a special overlay. The resulting dot pattern can then be printed as line art.

Review Questions

Another very effective way to break up the text and stimulate learning is through the use of review questions. Often referred to as self-test or self-check questions, review questions serve several valuable purposes. First, like illustrations, they break up the monotony of the text. Through the use of simple graphics, different type faces, or different line lengths, such as shown in Figure 3, the reader is forced to stop for a moment. If the reader happens to be daydreaming or reading with little comprehension of the subject matter, the questions serve as a jolt back to reality.

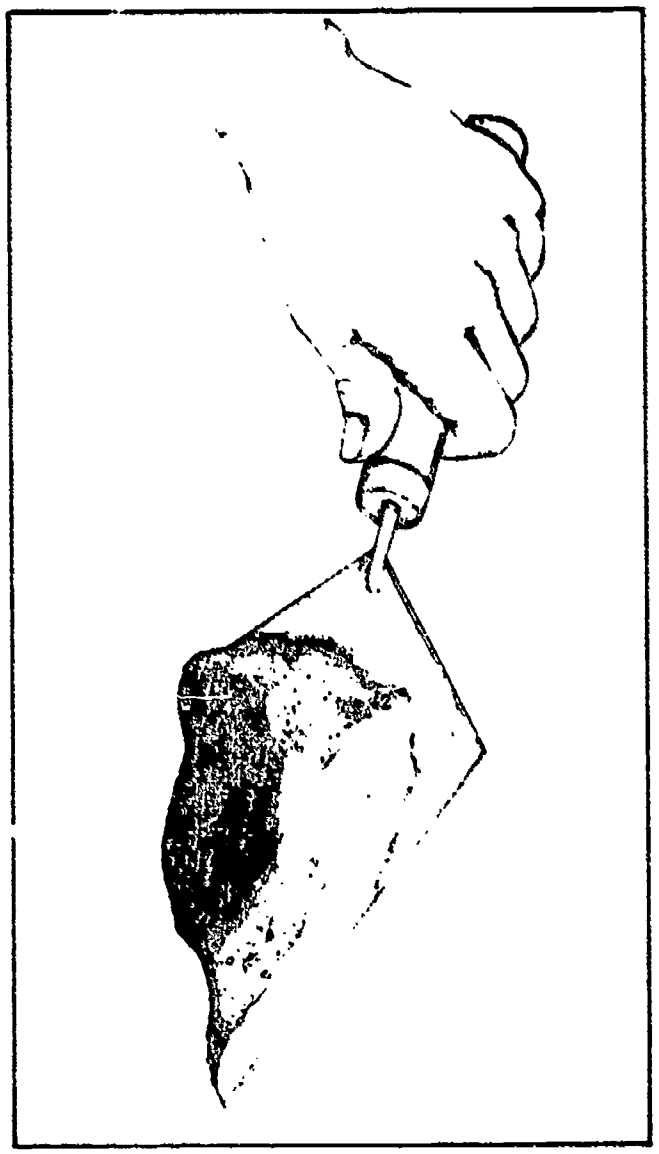


FIGURE 13 Mortar should cling to the trowel

Mortar

Mortar is the "glue" that holds blocks, bricks, etc. together. The typical formula for mortar is three parts of fine sand to one part of masonry cement, plus just enough water to form a firm but workable mix, like batter. The test for a properly mixed mortar is shown in Figure 13; the mortar should just barely stick to the trowel when you tip it upright. We'll tell you a lot more about mortar in lessons where you use it. One point to be stressed here, however, is that masonry cement, although similar to regular portland cement, is not the same thing.

Now answer the questions in the Quick Quiz. Circle "T" if you think a statement is true and "F" if you think it is false.

Figure 3

QUICK QUIZ

1. Mortar has the same ingredients as concrete. T F
2. The most commor. use of slate is for roofing. T F
3. Rubble is a term that refers to uncut stones. T F
4. Limestone is hard, while sandstone is soft. T F
5. Brick and stone are both classifed as masonry. T F

ANSWERS

1. F 2. F (It is used mostly for patios and entries.)
3. T 4. T 5. T

The questions can be used to force the student to interact with the text, especially if space to answer the questions is provided. In the example, the student is told to circle the correct answer in the text. If the student does not know the correct answer, the student is forced to review the previous material. A review is particularly helpful if the concepts are difficult or if the student did not really understand the material upon the first reading. Answering review questions stimulates learning.

In addition, review questions are also motivational. Answering correctly reinforces the concepts learned and gives the student a sense of accomplishment. Since the home study student does not have a teacher standing over his shoulder, correctly answered questions provide the student with a sense of satisfaction, much like praise from a teacher.

Ideally, review questions should be used at the end of each major topic in the typical home study lesson. This means there may be several sets of review questions in a lesson. Of course, the answers to the questions should be provided. Always try to place the answers so that the student cannot easily see the correct answer and the question at the same time. This means placing the answers at the end of the lesson or perhaps printing them upside down on the same page as the questions.

Audio Cassettes

The use of audio cassettes brings an entire new dimension to a home study course, the appeal to another sense -- hearing. Not all subject matter is concusive to the use of audio cassettes, but you may be surprised to find that there are a variety of alternatives to the monotone voice heard on many instructional tapes.

Begin by determining where in your program the use of audio is an alternative to the written text. If the subject you are teaching does not readily lend itself to an audio presentation, then don't use it. Never stick in an audio cassette simply for the sake of using audio. There should be a learning related reason for using audio.

An obvious use of audio is the simulation of conversations between people. Another is when sound effects can be used instead of descriptions. Still another is the combination of audio with a series of visuals, which will be covered in the next section.

There are several basic guidelines that should be followed when developing audio presentations. First, always work from a written script. Never go to a recording session with the idea of being able to ad-lib -- it won't work.

Of course, the tape should have an instructional objective. A single voice rambling on a cassette will also quickly lose the interest of the listener. Pick out a specific objective and develop a script towards that goal.

Always use professional recording equipment in a studio setting if possible. Never record an audio presentation using a small battery operated tape recorder. Nothing is worse than a student receiving an instructional audio cassette that sounds as though the person talking was in a tin can or in a small cubicle with a lot of background noise. Using a professional studio is essential if you are planni g to use sound effects or music.

When writing the script, keep in mind that conversational English is different than the written word. Write the script using contractions and other expressions that are common when speaking. One of the best methods in the development of a script is to read it aloud to another individual when it is finished. Determine where what you read is different from what you would normally say. Also, don't get too technical. Technical explanations are best if presented in writing.

If at all possible, use professional narrators. Using people at your school always seems to come across as an amateur production. Select your narrator as carefully as you would a new employee. Most studios can supply tapes which allow you to listen to several voices and pick the one which seems to suit your situation.

Some studios may require that you use union talent, which can be extremely expensive. If at all possible, work out a price schedule with the studio and the talent before you begin recording. Often, you can pay talent a set amount for the first hour or two, and then so much for each additional quarter hour. Studio costs are usually by the hour.

Always make sure the narrator receives the script well in advance of the recording date so that he can come to the studio prepared. This is especially important if the script is technical in nature and the narrator is unfamiliar with the proper pronounciation of terms.

Consider using two voices on your tapes. Often, two narrators with distinctly different voices can be very effective. The most frequent arrangement is to alternate male and female voices. Such presentations are more lively

and interesting and get away from the single voice, which often drones on in a monotone fashion.

If you do use a professional recording studio, shop around for prices. You may find big variations. Make sure you get confirmation of recording dates, prices and delivery times. In most cases, the time for editing or adding sound effects or music must be added to the studio time. You will also have to get prices for the cost of duplication of the cassettes once the master is made. Also, find out if the studio has subcontractors who will print the cassette labels for you or if you must supply them.

One final point regarding audio presentations. Keep them short. Never have a program which lasts over 30 minutes. Try to keep your programs in the 12-15 minute range. Programs in this range will hold the student's attention for the entire presentation.

Audio-Visual Presentations

One step up from the simple audio presentation is the audio-visual presentation. As the name indicates, this type of presentation integrates a set of visuals with an audio cassette. The visuals can be filmstrips, slides, photos, or the printed page. Each format has its own advantages and disadvantages.

The big advantage to using slides is that they can be in color, which could make them very appropriate for art courses. Also, they can be projected which makes them suitable for use by groups or allows the student to magnify the slide through projection for greater amplification and precision viewing of the visual. The big disadvantage is cost. Color slides are costly to reproduce. In addition, the student who does not already have a slide projector must be willing to buy one or some other type of viewing device.

Filmstrips are a lower cost alternative to slides, but require a special projector. There is very little most students can do with a filmstrip projector once the course is finished.

The most economical audio-visual presentation utilizes a cassette and the printed page. The student needs no special equipment to look at the visuals. They can be printed in a booklet or a special flip-chart. The student simply follows along in the booklet and turns pages when told to do so.

Each visual represents a "frame." Determine the overall learning objective and then identify the individual frames

which are necessary to achieve the objective. Write each of the frames on a card and arrange the cards in the best order of presentation. A frame need not be an illustration or photograph. Frames can also be just key words or phrases. Remember, there must be continuity between visuals.

If an outside vendor is going to be responsible for the final preparation of the visuals, make sure you are as explicit as possible as to what you want. Work as closely as possible with the people who are preparing the visuals. Frequently, they will suggest ways to improve the presentation. Listen to them. They are probably more accustomed to thinking visually. Make sure the visuals are professionally done. Don't rely on amateur photographers or use rough sketches in this type of presentation.

However, before you begin preparation of the visuals, make sure you have the script written. Use the same guidelines mentioned above under Audio Cassettes. Keep in mind that each frame should not be viewed by the student for more than 12-15 seconds. Again, make sure the total presentation never exceeds 30 minutes.

Always plan ahead. A 30-minute presentation that averages 12 seconds per frame will consist of 150 frames, which, if you use slides, is over the capacity of a carousel projector. Estimate your production costs as closely as possible so that you haven't used up your entire budget halfway through the development project.

Figure 4 is a very simple frame showing an electronic circuit. In this particular frame, the student was instructed to trace the current in the circuit shown as the instructor explained the concepts on the tape. A presentation of this type allows the student to concentrate on the visual, and not be distracted by constantly looking back and forth from the text to the illustration.

Figure 4

Frame 2

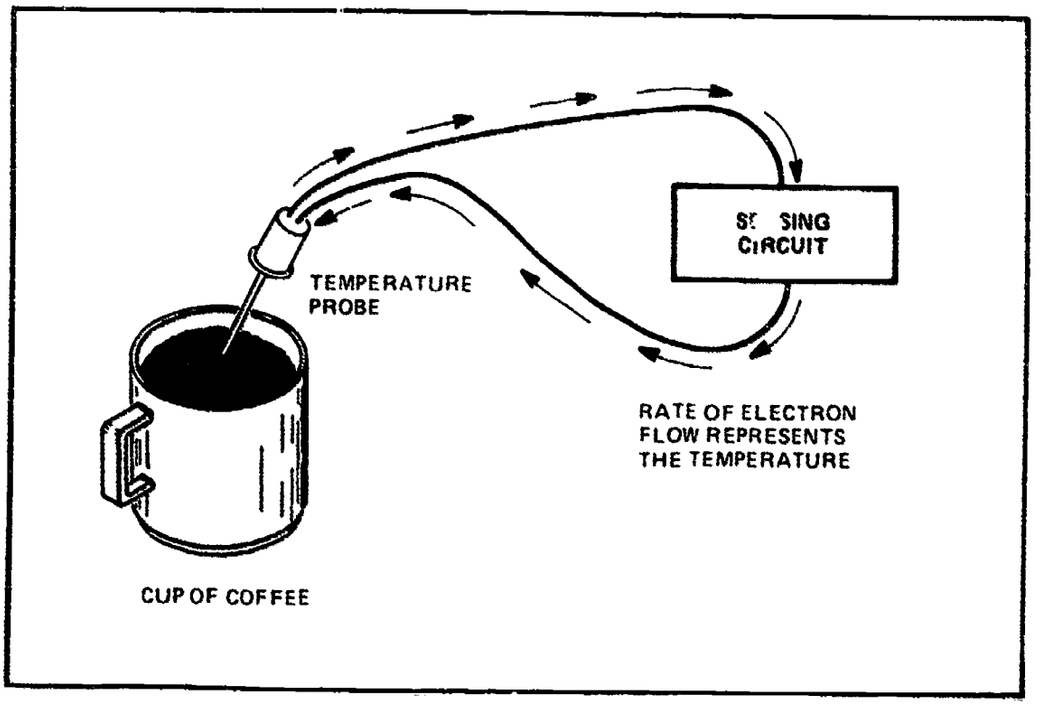
What is Electricity?

Electricity can be defined as the flow of electrons.

HOW DOES ELECTRON FLOW REPRESENT INFORMATION?

- The *rate* of electron flow can have a meaning.
- The *force* of electron flow can have a meaning.
- The *controlled manipulation* of currents and voltage can have a meaning.

EXAMPLE: A MICROWAVE OVEN



Video Cassettes

The production of video instruction on cassettes is usually outside the realm of most home study courses simply because of the cost involved. If done by professionals, a rule of thumb is to budget not less than $1000 per instructional minute. Thus, a 30 minute video tape would cost at least $30,000 to produce. The cost of duplication and the tape itself must be added to this figure.

A low cost alternative is to produce a video cassette yourself. The biggest problem with doing it yourself is the difficulty involved in making a video cassette that looks like a professional production. The next few paragraphs contain several tips to follow.

Begin by writing down the instructional objective. Then develop the instructional outline, just as you would for any other instructional sequence. Once you have the outline, you should be able to determine the major shot sequences you will need for the project.

Next, develop a storyboard. A storyboard is very similar to sequencing the frames for an audio-visual presentation. It consists of a series of frames laid out in a grid-like pattern. Each frame in the storyboard represents a shot, which could be several seconds or even minutes of tape. Don't worry about your artistic ability -- stick people and box houses are fine.

Once the storyboard is complete, go back and describe each shot in as much detail as possible. Include the purpose of the shot, what specific props or equipment are needed, the setting (lab, office, outdoors, etc.), special lighting or sound problems, and the camera angle.

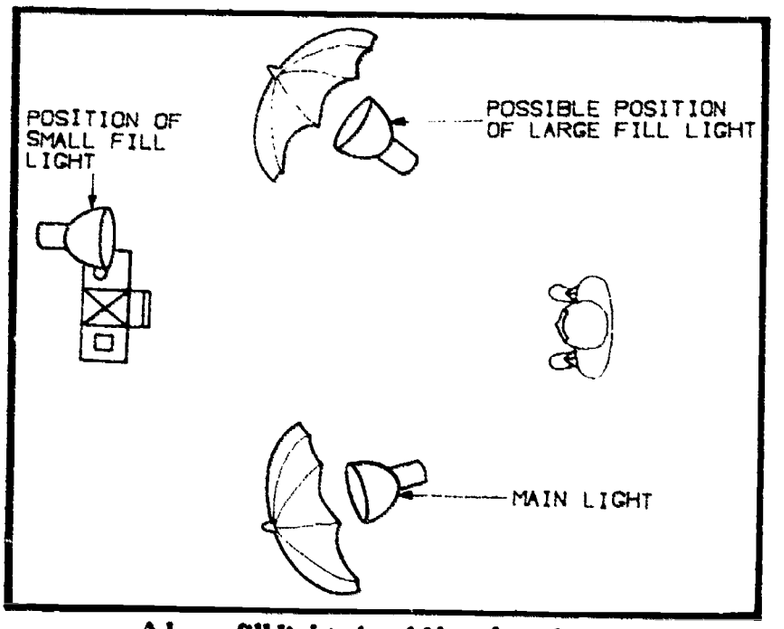
The next job is to write the script. As with audio cassettes, make sure it is written in a conversational style. Develop the script frame by frame, according to your storyboard. Remember to plan for action in each shot. Something should be moving in the majority of the shots. If you are unable to do this, then consider using an audio-visual presentation instead of a video cassette. Motion can be in the form of camera movement or movement of the subject you are filming. Include in the script as much direction as possible to indicate what is supposed to be happening.

When it comes time to shoot the program, plan a shooting schedule. If you are using narrators or people in your production, get professional talent. Make sure any talent gets the script well in advance. If you are paying them, a

shooting schedule is an absolute necessity unless you are willing to pay them for just sitting around. A schedule allows you to plan for group scenes in which the talent is needed, and enables you to release them when they are not required.

Try a dry run with your own staff first. Make sure the lighting and sound is adequate. If not, most large cities have rental outlets where you can get extra lights or microphones. As a word of caution, for most productions, existing room lighting is not adequate. Figure 5 illustrates a typical lighting setup.

Figure 5



A large fill light should be placed off to the side opposite the main light. A small fill light should be placed above and slightly in front of the camera.

In addition, a single microphone, mounted on the camera, is not sufficient, especially if the action is taking place some distance from the camera and includes several participants. Never, unless it is absolutely necessary to get the scene, use a hand-held camera. Always mount the camera on a tripod and make sure the camera movements are slow and smooth.

Plan for editing. Unless you have done everything exactly right, which is practically impossible, you will not get a tape you can just duplicate. Minor editing can be done from one VCR to another. Major editing requires professional equipment. Some large cities have studios you can rent which contain professional editing and sound-dubbing equipment.

Training Kits and Equipment

Nothing provides greater motivation than "hands-on" training. Many schools provide this type of training through the use of training kits, which supplement the instructional lessons. Kits may include tools, equipment, instruments, components, forms, accessories, audio cassettes or other types of training devices.

Training kits are usually designed to teach skills that cannot be learned solely by reading a textbook. The use of training kits in a home study course provides an opportunity to "learn by doing." Persons training for such technical areas as drafting, air conditioning, automotive repair, and television servicing, cannot perform their jobs properly without being skilled in the use of the tools of the trade.

Kits also reinforce the text material. A theory or technique can be learned more quickly and retained longer if the textbook is reinforced later by actual experiments or practice. The kit allows the student the opportunity to put theory into practice. Often, they contain step-by-step instructions so that the student is not afraid of making mistakes, as shown in Figure 6.

Figure 6

EXPERIMENT 5

Purpose: To examine current flow in a simple series circuit.

Introductory Discussion: Although the circuit you are going to study is a relatively simple one, this experiment demonstrates how current flows in all series circuits. Perform each step of the experiment carefully and you should have no difficulty answering the statement at the end of the experiment.

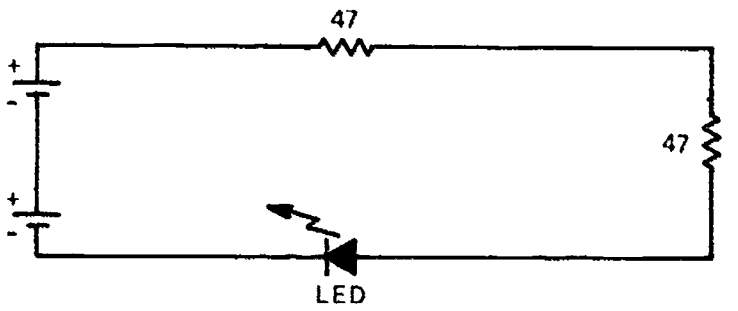


Figure 5-1. A simple series circuit.

Experimental Procedure: In this experiment, in addition to the UCM, you will need the following:

2 **1.5 V flashlight cells**
1 **Red light-emitting diode**
2 **47 ohm resistors (yellow-violet-black)**
Hookup wire

Step 1: To show that when current flows through the light-emitting diode (LED) the diode will light.

Build on your UCM the circuit shown in Fig.5-1. A drawing of this circuit is shown in Fig.5-2. Notice that there is a flat on one side of the LED. This is the cathode of the diode and it should be connected to the lead coming from the negative terminal of the flashlight cell. When you have the circuit built up as shown, the diode

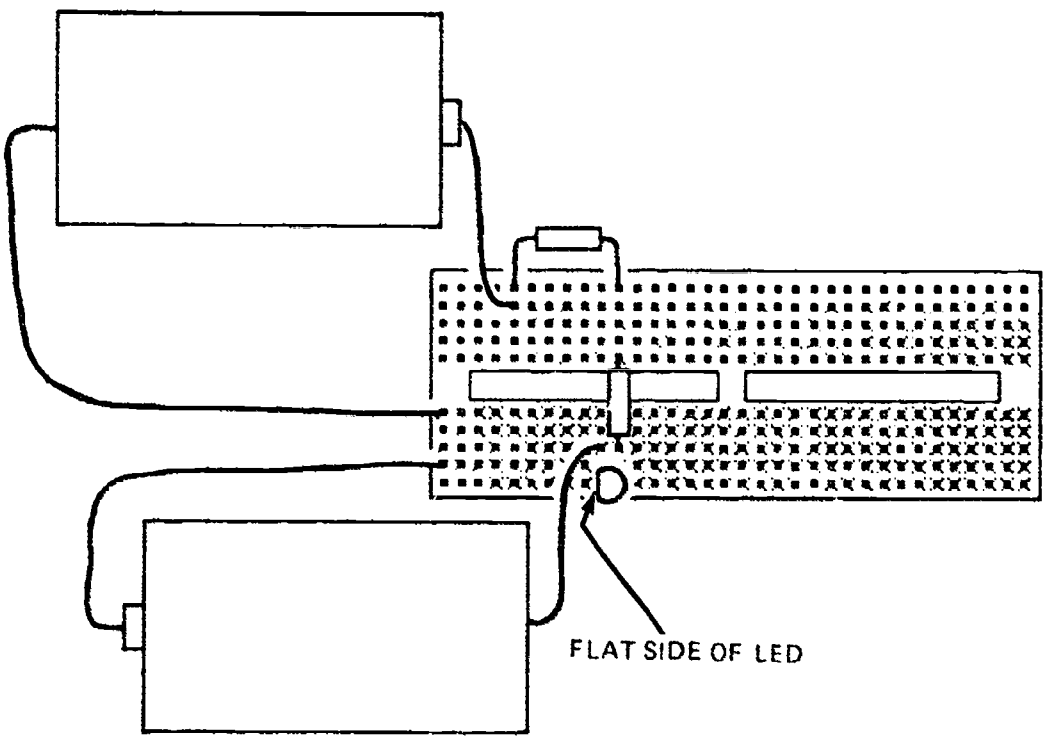


Figure 5-2. One possible layout of the circuit shown in Fig.5-1.

Training kits also help sell courses by increasing the amount of promotional material you can write about reading your training program. By their very nature, kits make a more exciting, interesting, attention-getting advertisement than a course without kits. A prospective student may be encouraged or persuaded to enroll for a course simply because of the training kits. This is particularly true if the kits can be assembled into some useful end product, or if the kit is an end product in itself, such as a microcomputer.

Kits also offer you the opportunity to increase revenue by offering auxiliary items to students and graduates. A student constructing a television set, for example, may wish to buy additional tools or test instruments so that he can perform experiments or repairs beyond the scope of those taught in the course. Selling key blanks to locksmithing students and graduates can provide additional revenue year after year.

Training kits are one of the most motivational items you can add to a home study course. Nothing beats a student's desire to get tools and equipment. With strategic placement of training kits in a course of study, students can be encouraged to continue their training and study on a regular basis - especially if you remind them of what they are about to get in the form of kit material.

Of course, training kits do have drawbacks. Kits cost money. This means you must increase the tuition of the course to cover the costs of the kits, which can lead to fewer enrollments. On the other hand, the kits can increase the perceived value of the course and costs may not be a factor.

Kits also increase the complexity of the development and handling of the course. Kit components must be ordered, stocked, packed, and shipped. The cost of keeping kits in inventory for immediate shipment to students can be substantial.

If you decide to use training kits, make sure they have educational value. Don't provide tools or equipment simply as an attempt to put hardware in the course. The kits should provide the student with experiments to perform, tests to run, data to collect, or some other type of interaction with the materials. Make the kits meaningful. Do not just provide busy work for the student to perform.

TEN

Designing a Home Study Course

Dennis Foltz

Introduction to Article

In this "overview of the task at hand" chapter, Dennis Foltz brings to bear his experience as a highly respected developer of home study courses.

Mr. Foltz is a firm believer in doing demographic research on the prospective student body. He describes how course design should be matched to students. His discussion on page layouts and the techniques of design are unique and stimulating.

Home study course developers will profit from studying this chapter closely. The inside secrets of excellence in course development await you.

Designing a Home Study Course was written by Dennis Foltz, Director of Operations at the Gemological Institute of America, with John Hummel, Manager of GIA's Course Development/Graphics Department, and Copy Chief David Avshalomov.

This discussion is presented in the format of a typical home study lesson, similar to those published by the Gemological Institute of America. The text was typeset in-house using the Ventura Publishing System, with an IBM AT personal computer and a laser printer; design and production was supervised by Jennifer Brosious, Graphics Coordinator. The text is 7557 words long; the reading level is 10th grade.

DESIGNING A HOME STUDY COURSE

I. COURSE "DESIGN" AND WHAT IT MEANS

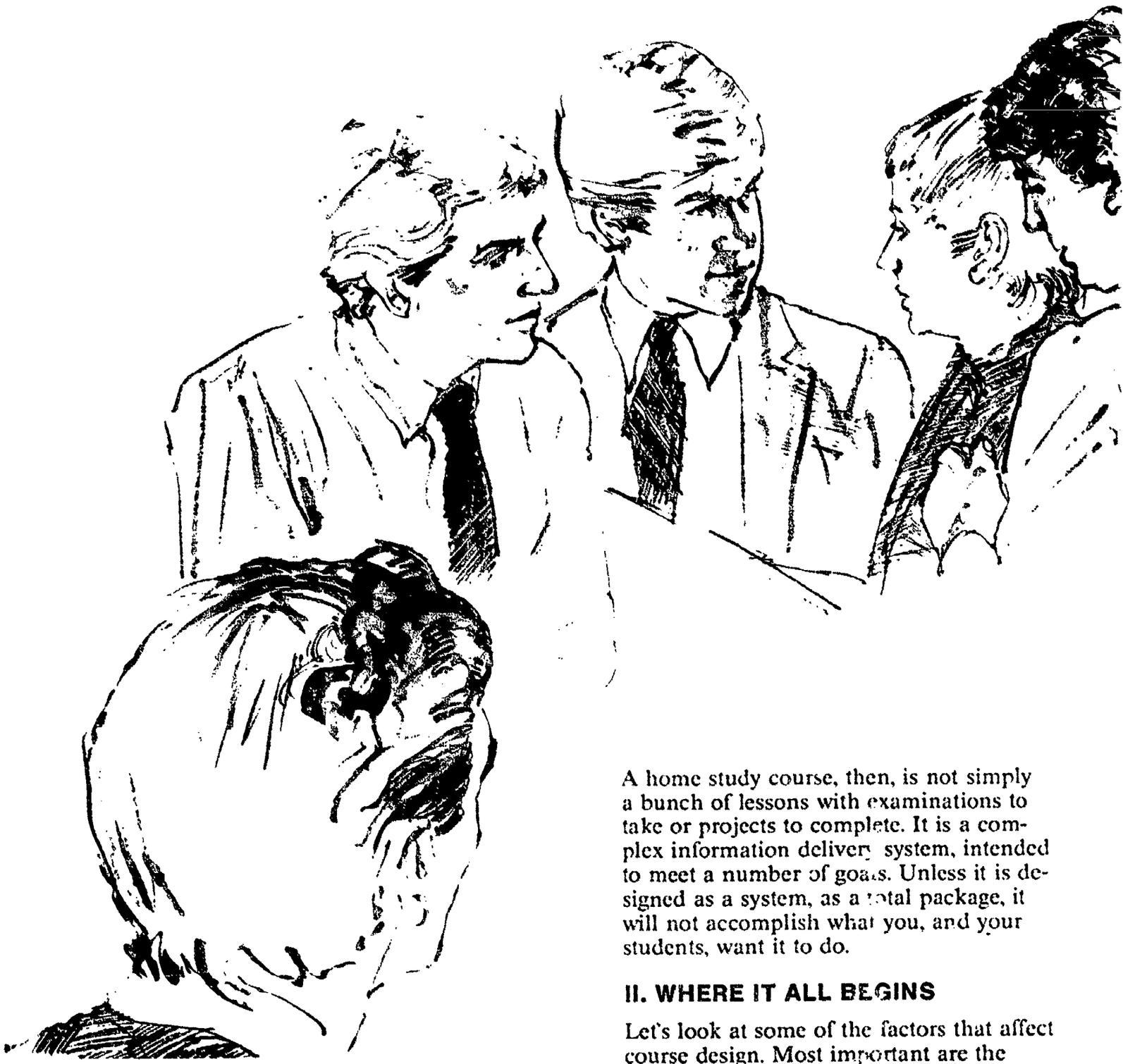
Too many home study providers think of the "design" stage as coming near the end of the course development process. The course has been written and edited, and all the illustrations have been created or collected. Now the design process can begin, right?

Wrong. Don't confuse "design" with "layout." Course *design* begins when a course is first conceived and planned. It starts with analyzing the students for whom the course is intended, and defining the educational objectives you are trying to achieve. It includes an estimate of the size of your market, and the price you intend to charge. And it requires a firm idea of how the course will be produced and printed (and by whom), a clear plan for shipping the course, and a program in place to service it.

In other words, course design is a holistic process that includes all the things that make a home study course both educationally effective and commercially successful. Obviously, this starts with the technical accuracy of the instructional material. But it is equally important to think about how students can best learn that information, how you can best deliver it to them, and how it might best be serviced.

Dennis Foltz, Director of Operations at the Gemological Institute of America, developed his understanding of home study course design through many years of experience at GIA, first as an instructor and later as manager of the Home Study Department.

This portrait was reproduced using a "PMT" or positive mezzo tint, at a cost of about $4.00. (See Section VII, "Affordable Quality.")



Course design begins when a course is first conceived and planned. It includes every aspect that makes a home study course educationally effective and commercially successful.

A home study course, then, is not simply a bunch of lessons with examinations to take or projects to complete. It is a complex information delivery system, intended to meet a number of goals. Unless it is designed as a system, as a total package, it will not accomplish what you, and your students, want it to do.

II. WHERE IT ALL BEGINS

Let's look at some of the factors that affect course design. Most important are the kinds of students you are targeting. Here are some of the questions you should ask yourself:

- What age group do you expect to enroll? This is important, because reading skills

have been declining in recent years—which means that the younger your prospect pool, the lower their reading skills are likely to be. And these skills impact literally every aspect of your course: the language level, the editorial style, the number and length of your lessons, the estimated time of completion, and the physical layout of the materials on the page.

- How much education have these prospective students had? No matter how well they read, learning is a different matter. Learning is largely a matter of practice, learning from the printed page even more so. Are they likely to be comfortable with a page of solid text, unbroken by illustrations or other graphics? Maybe. But, in general, only very sophisticated readers can handle that kind of material.
- How affluent are they, and what does your course represent to them in terms of a career, an income, a lifestyle? Course design affects cost; cost affects price. You want to create a course that is profitable, a course that your targeted market can afford (and will buy, which is not quite the same thing).
- How do you plan to get your course materials into the hands of your students? This is equally important. Are you planning to ship your materials all at once? In two or three shipments? One lesson at a time? Will your course include charts, kits, tools, special manuals, instruments? These factors are all elements of the course design.

III. GETTING STARTED

Consider the following scenario, as a kind of "case study." Suppose you are either the owner of a relatively small school with two successful home study courses in the area of automotive repair, or an experienced marine mechanic with your own business, planning your first venture into creating a home study course. In either case, you want to develop a course dealing with installing and maintaining marine engines.

In the first case, because of your experience training students for the auto repair industry, you have solid survey data on those students, past and present. You assume you will attract much the same sort of prospect to your new program.

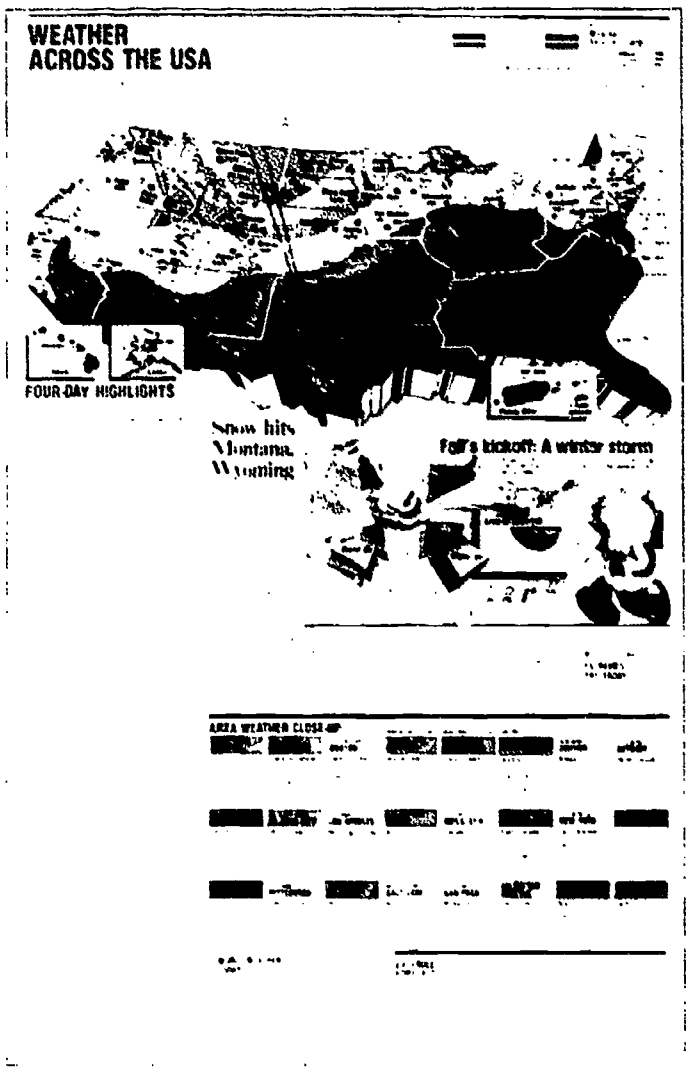
In the second case, you do not have the fairly systematic data that comes with having run a school, but you have been around the business for a long time. You have hired and fired a lot of mechanics, and interviewed even more. In effect, you have been conducting "surveys" of the employment pool most of your working life.

In either instance, you have also done some informal research talking with the owners of marine engine dealerships and repair shops, so you have a good sense of what your prospects are likely to be. Here, then, is a profile of what your prospective students will probably be like:

- Most will be males, high school graduates in the 22 to 38 year old age group.
- Most are already working, or have worked, in a field involving mechanical skills. They can use basic automotive hand tools, they maintain their own cars, and they enjoy working with their hands.
- Many own, or have owned, small powerboats.
- They are not serious readers. On surveys, they say they read the sports pages regularly, and sports and automotive magazines occasionally (but they do not subscribe). On the other hand, they watch a lot of television.
- Most have not had much training in math, and have no experience reading engineering drawings.
- Most have had no engineering theory, and have no experience with sophisticated test equipment.

All this information is useful—indeed, it is essential. It should already be on hand when you develop the first draft of your new course. It is important in relation to your writing style and the reading level you want to strike. And it will affect your marketing strategy, your pricing, and your plans for servicing the course.

But it is also information you must consider in design, in the largest sense of that term. You need an overall concept that gets your students involved in the nuts-and-bolts subject matter as soon as possible. But you also have to find a way to give them enough math, enough hydrodynamics, enough basic engineering and basic electricity to do what they will have to do.



If you need to use special charts, graphs, or drawings, their requirements will affect your layout decisions.

Furthermore, you have to do this without discouraging them. You want to produce successful graduates, and that means minimizing no-starts and dropouts. Thus, one of the first decisions in the design process is what material to present when, in what order, and how thoroughly.

IV. THE FOREST AND THE TREES

It helps if you have a good outline, and a clear idea of all the elements that will make up your course. Otherwise, you may settle on what seems a plausible scheme, only to find, later in the process, that some of the things you want to do are very difficult to accommodate within the parameters you first laid down.

Thus, for example, our imaginary marine engine course will probably call for a good many charts and reference materials—propeller selection charts, strength of materials tables, boat plans, whatever.

First of all, how sure are you that your prospective students know how to use materials of this sort? Can they read an x-y graph? Can they extrapolate full-size dimensions from a scale drawing? You will have to introduce some basics at the appropriate point, before you can expect them to use this material effectively. (We will get back to effective presentation order and the problems of no-starts and completion rates a little later on.)

Ultimately, the need for charts and graphs will affect your layout decisions, too. If you expect to present a lot of information this way, you will find it easier to do in, say, an 8 1/2" x 11" format, rather than 5" x 7". If you have already laid out a half-dozen lessons in a 5" x 7" format, you are either going to have to find a way to compress your charts and drawings, or complicate your entire production process—and, later, your warehousing, packaging, and shipping—with a variety of odd-sized materials.

AND AN ORDER OF INFO ON THE SIDE

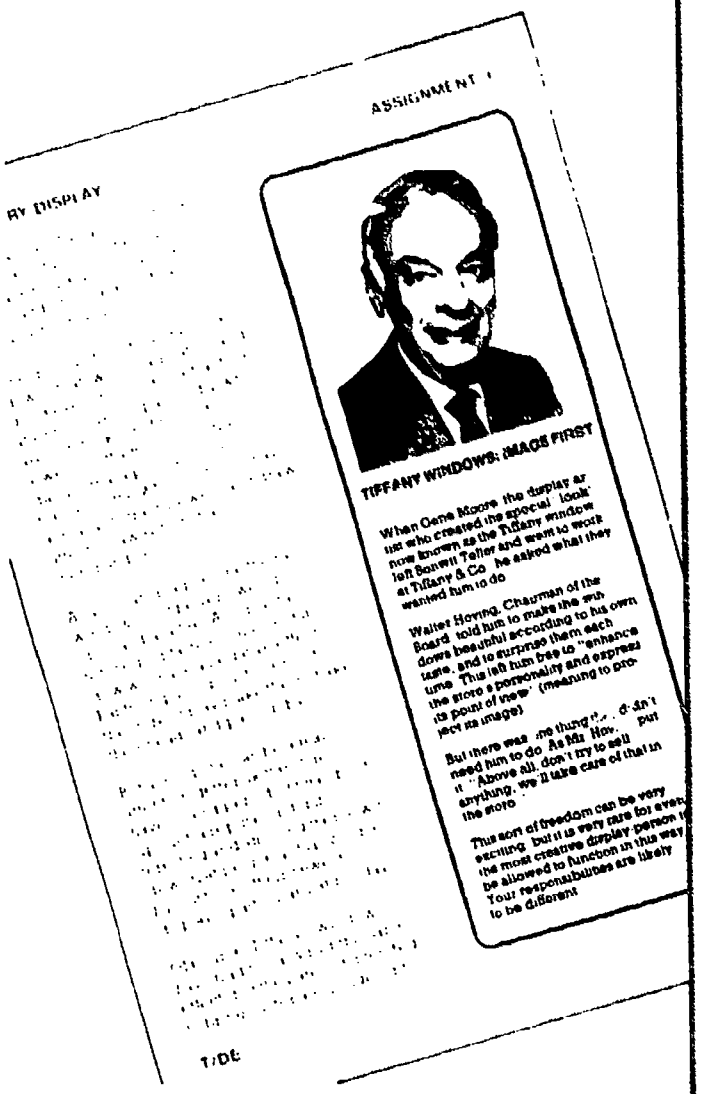
To someone in newspaper or magazine publishing, what you are reading right now is called a "sidebar." Sidebars are short discussions separated from the main text (a magazine editor would say it has been "broken out" of the text). Usually they are boxed (as this one is), and "screened" (also as this one is; screening means over-printing in gray, or in a second color.)

Sidebars are an ideal place to introduce background material. You might, to continue the example used in the text, break out a short explanation of how to read a graph, with an illustration. That way, the background material does not interrupt the flow of your main discussion. Because it is self-contained, it is convenient for reference or review. Readers for whom the information is old hat can skip it.

With this sort of sidebar, careful placement is essential. A sidebar on using an engineering rule won't do much good if it falls three pages after the spot in the main text where the student is asked to do it.

Sidebars are an excellent way of presenting motivational material, too. Success stories, cautionary anecdotes, or safety tips, for example, or short scientific or historical background pieces can enrich and enliven any course. Here placement is much less critical. You can even develop a file of such items, and use them more or less at random to solve various kinds of layout problems.

People especially like to read about other people. Even though students choose home study courses largely because of their interest in a particular vocational field, they enjoy—and respond to—short biographies of people to whom they can relate. Leaders and innovators in whatever field your course covers, success stories, anecdotes about famous people that illustrate the benefits of study—all are grist for your mill.


ASSIGNMENT 1

BY DISPLAY

TIFFANY WINDOWS: IMAGE FIRST

When Gene Moore the display ar tist who created the special look now known as the Tiffany window left Bonwit Teller and went to work at Tiffany & Co he asked what they wanted him to do

Walter Hoving, Chairman of the Board told him to make the win dows beautiful according to his own taste, and to surprise them each time This left him free to "enhance the store s personality and express its point of view" (meaning to pro ject its image)

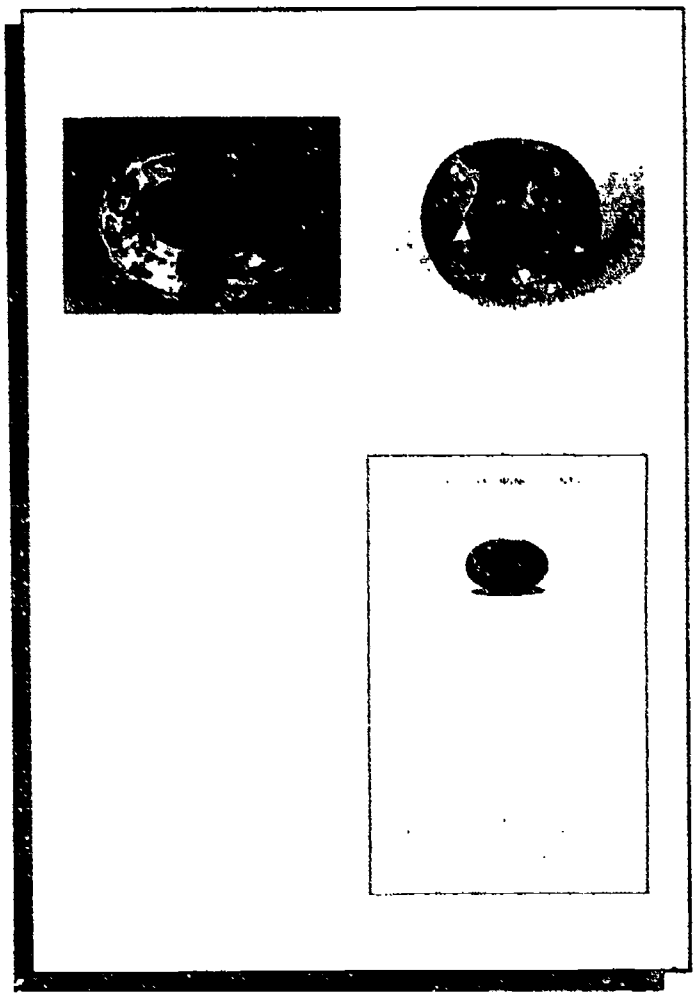
But there was one thing he didn't need him to do As Mr Hov put it "Above all, don't try to sell anything, we'll take care of that in the store

This sort of freedom can be very exciting but it is very rare for even the most creative display person to be allowed to function in this way Your responsibilities are likely to be different

T/DE

Sidebars can serve many purposes. Those about people—especially success stories in the field you teach—not only stimulate student interest, but provide motivation and inspiration.

You can find biographical information on such people in the various regional and topical editions of *Who's Who*, in encyclopedias, trade magazines, or in any library. In the case of living subjects, you can often call and do a short telephone interview. Very few people object to having their accomplishments celebrated in this fashion.



An effective text format for 8 1/2" x 11" pages used increasingly today is two columns, set flush left and ragged right.

You will soon discover that all these decisions are interdependent. The need to accommodate your charts and drawings is a pretty sound reason for going to an 8 1/2" x 11" page size. On the other hand, an 8 1/ 2" x 11" page is pretty big for educational material. Typeset, in a typical, normal size typeface, with normal margins and spacing, an 8 1/2" x 11" page might contain 1200 or 1300 words. That's a lot of text for a student audience we have already identified as inexperienced and unenthusiastic rea iers.

Furthermore, even with ample margins, a line of text on an 8 1/2" x 11" page might run 5 1/2 or 6 inches, which is far too long. Research has shown that, even for experienced readers, a 3 to 4 inch line is easier to read. This is why most magazines lay out their pages in two or three columns. What works for magazines will work for home study courses, too.

In modern graphic design, the convention of setting body type "flush left-ragged right" (instead of "justified," which means set flush on both the left- and right-hand edges) is increasingly popular. This "ragged right" format, as it is called, is actually a little easier to read, especially for inexperienced readers. It is also about 15 percent cheaper to set.

Even the choice of typefaces for various purposes requires careful thought, as we'll see next.

V. SORRY, YOU'RE NOT MY TYPE

There was a time when typesetting was all done by printers. Type was expensive, so even large job shops had only, say, five or six different typefaces. In most instances, they would not have had enough type to set your whole course at once. Instead, they would set and print perhaps four pages, then break up the type and use it to set the next four.

This is no longer the case. Today, typesetting is done photographically (hence the term "photo-typeset"). And usually it is done in a specialty shop that does nothing else. (Some typesetters offer paste-up services and broker some printing, but they are the exception not the rule.)

Gone are the big wood type cases with their dozens of shallow little drawers, too. Now, when a typesetter orders a new font, it comes on a floppy disk. Even very small shops have 30 or 40 different faces you can pick from; large type houses will have several hundred.

Type faces all have evocative names: Tiffany, Souvenir, Gothic, Cheltenham—the list goes on and on. More and more of them are also available on most of the

desk-top, PC-driven systems that are revolutionizing the publishing industry. Even the most modest systems come with a half-dozen or more faces bundled into the basic software and, like the professional typesetter, you too can order others on floppies to add to your basic set. It is all too easy to be tempted, like a kid in a candy store, by the very size of the selection. But beware: The typeface you choose will to a great extent determine the overall readability of your course.

First of all, type faces have different personalities and create different impressions. That is why a ballet program has a different aura than a circus poster does. You are producing educational material. You want your courses to be dignified without being forbidding; you want them to be attractive, and above all you want them to be readable.

Here are a few simple rules which will keep you from the most common errors:

- Keep the number of different faces you use to a minimum: two or—at most—three. And there is nothing wrong with using just one.
- Avoid sans-serif monotypes, such as the Helvetica and Avant Garde families, for body copy. There is a reason why they are used to list the ingredients on packaged foods: They are ideal for a big block of copy you do not expect (or want) anyone to read.
- The space between lines affects readability as much as, if not more than, the size of the type. Printers refer to this as "leading" (pronounced "ledding"). Ask for line spacing one point greater than your type size—*i.e.*, if you are using 9-point type, ask for 10-point line spacing, or "9-on-10".

Today a wide variety of typefaces are available on PC-driven desktop publishing systems. Choose carefully for readability; avoid sans-serif monotypes like Helvetica and Avant Garde for body type, for example.

This portrait of G. Howard Poteet was drawn by a freelance artist and reproduced using a PMT (positive mezzo tint).

G. HOWARD POTEET

Sooner or later, home study professionals are likely to encounter the work of G. Howard Poteet, or hear him speak. Poteet is an author and educator who has made home study his specialty. Educated in traditional schools (he earned a PhD. in English at Columbia University in New York City), Poteet sought out and found additional training via home study courses. To date he has completed over a dozen such programs from various home study schools.

For Poteet, it was just a short step from taking home study courses to writing them. His range is impressive, covering as it does such diverse subjects as photography, boating, and advertising. He often serves as a consultant to home study school operators too, helping them develop new programs and improve existing ones.

His book, *We Succeeded Through Home Study,* (published in 1986 by the National Home Study Council) is a compendium of stories of people whose lives were changed, often dramatically, by the career training they received in a variety of different fields. Clearly, Poteet could class himself among them.

- Keep to standard "book" fonts, and avoid the so-called "display" faces. (They are intended primarily for advertising copy.) Times Roman, Century School-book, and Garamond are all good typefaces for body copy.

Typography involves a lot of variables, and there is a lot to learn. So here is a "cookbook" recipe, based on the rules above. It will pretty much guarantee an attractive, readable course:

- For body text, use 9 point Times Roman or Century Schoolbook, set on 10-point line spacing. Go to 10-on-12 if you suspect your students to be really poor readers.

- Set the body text in a double column format, with a line length of 18 picas, or less ("pica" is a printers measure; there are 6 picas to the inch, so 18 picas is 3 inches). This will leave substantial margins, for good readability.

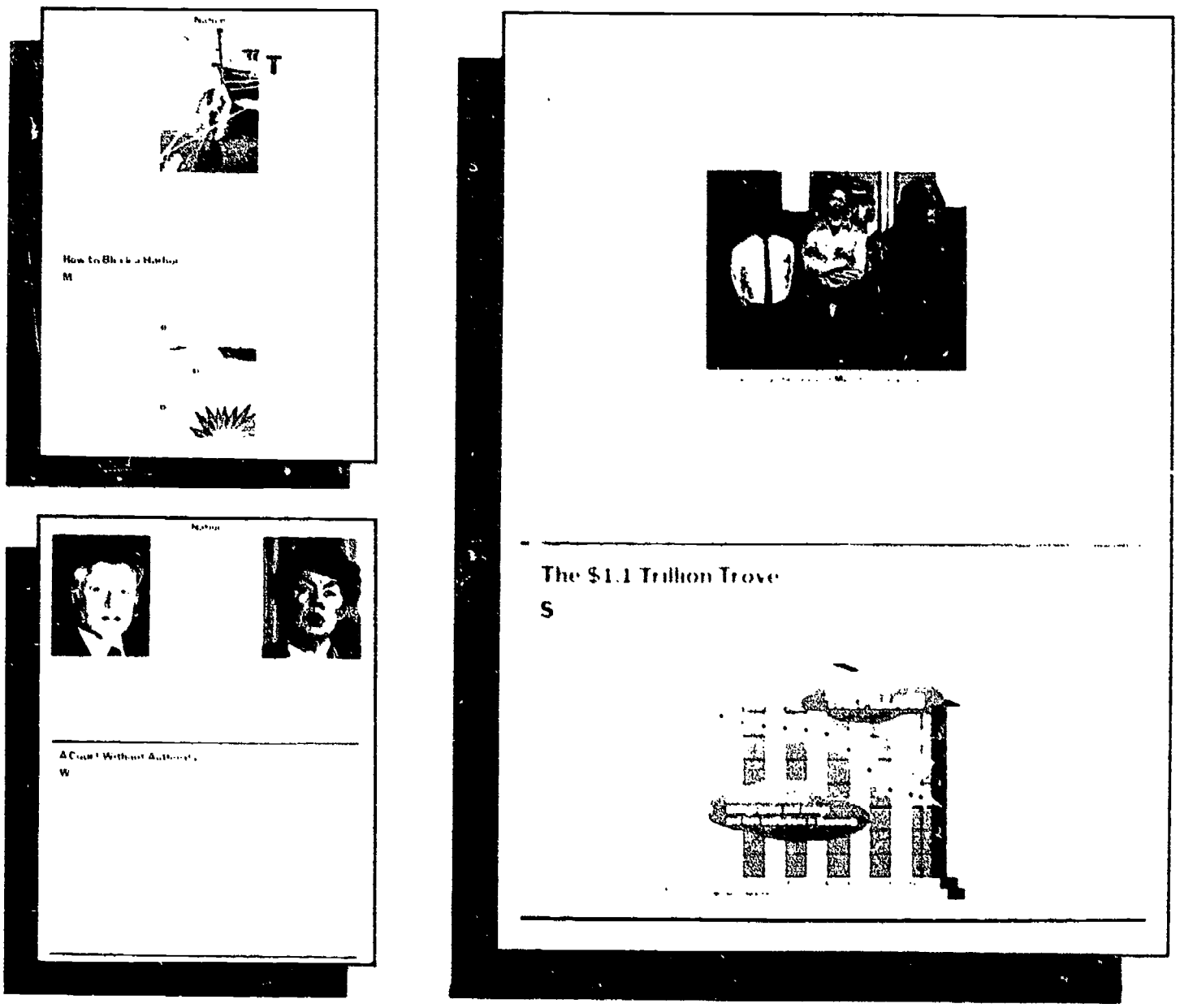
- For captions under illustrations, use the same face, but in italic.

- For headings and subheads, use the same face, but larger—say, 12- or 14-point—and in bold (or 12- or 14-point Helvetica Medium).
- For "call-outs" (the labels on drawings and technical illustrations) use 8-point Helvetica.

This will make the printed information you provide easily readable. But you need much more to make it visually interesting, to give it visual impact and flow. This is the province of layout.

VI. IDEAS ARE WHERE YOU FIND THEM

As far as layout is concerned, you can learn a lot by looking at whatever magazines you think your potential prospects are likely to read. (Think about where you might want to advertise your courses, for example.) Magazines pay art directors a lot of money to keep their readers turning pages. With a little analysis, you can have the benefit of their expertise for the price of a copy or two.



A look at the design of today's magazines shows you effective formats that constantly break up plain text with boxed sidebars, photos, and drawings.

What you are looking for is general principles, not specific designs. You will notice, for example, that except for a few magazines that fancy themselves as real intellectual heavyweights, you seldom see a page of unbroken type. Always there is something to break the page into smaller, friendlier segments. It may be spot art, a subhead, or perhaps a "pull quote" (a pull quote is a pithy line reset in a larger typeface).

A pull quote is a pithy line reset in a larger typeface.

"Okay," you say, "I'll use magazines as my models for my marine engine course. Most of my prospective students probably read *Playboy*. Is that a good model to follow?"

Not really, although *Playboy* is an extremely well-designed publication. But it is likely that your preliminary planning and research found the market for marine mechanics to be smaller than that in the large and widespread auto-repair industry. This means a smaller prospect pool, and smaller enrollments. To make your new course profitable, production costs will have to be controlled very carefully. Many schools can produce and print an entire course for substantially less than the Hefners spend on just one of the famous centerfolds.

This brings up the key issue of production costs. These, too, must be part of a well-designed home study course.

VII. AFFORDABLE QUALITY

If you are planning to produce limited quantities, there are other ways than printing to reproduce course materials. But for larger quantities, printing remains the most economical way to go.

DESIGN FOR LEARNING

Do you have to add graphics to the many hats you already wear as a home study manager? No, and unless you have some experience at it—and a flair for it—it would be foolish to try. Graphics is a visual field, but there is more to it than meets the eye.

One possibility is to hire a graphic designer to create a design concept for you. This does not necessarily mean a permanent addition to your payroll; many if not most graphic designers work as free-lancers, on a project-by-project basis.

A free-lance graphic designer can often help solve the problem of creating an effective design concept for your course.

Coming up with a design concept does not mean laying your course out page by page, either. (You can hire paste-up artists for that; you don't need a designer to do it.) What you want first is a basic page layout, a schema that will handle your charts and graphs and other such materials, and perhaps a cover design.

For laying out your course page-by-page, you can hire paste-up artists on a per-project basis.

A good designer will do even more: Educational or motivational messages can be communicated through the layout itself. Here are some examples:

- Using engineering grids as a background for technical illustrations—even when, strictly speaking they are not necessary—reinforces an image of high-tech expertise.
- Standing heads for any sections that recur from lesson to lesson give students a feeling of familiarity and confidence. For example, our boat engine course might have a short section on safety procedures in each lesson. A standing head with a red cross emblem would be immediately recognizable, and your students would always know what to expect.
- Some sort of logo based on a stylized representation of the tools of whatever trade you are teaching can function as a subtle form of motivation. Such a device encourages students to identify their goals and aspirations with your school and your course.

It is true that smaller enrollments mean smaller print runs, but that is not the first place to look to keep costs down. The most significant production costs come before the presses ever start rolling. Here are some of the areas where costs can skyrocket, and how to keep them where they belong.

TYPESETTING

Until fairly recently, home study materials were seldom typeset, except in the largest schools—final text was typed on typewriters, (albeit electric ones with carbon ribbons and a choice of type elements). Today, typesetting is getting to be the norm, because now it can be done very economically, either in-house or by an outside vendor.

Make no mistake, though, if you send typewritten copy out to be input at the typesetter's for phototypesetting, it is going to be expensive. What to do? First of all, if you're using some sort of word-processing program, you can in all likelihood either send a copy of your disk to your typesetter, or transmit your copy via a phone modem. This means the typesetter does not have to re-input your entire course.

Modern desktop publishing systems are even more cost-effective. Run on the same PC you use for word-processing and accounting, and used in conjunction with a good-quality laser printer, these systems produce a good facsimile of photographically set type. Some even produce reasonably good graphics. (This entire article was typeset with the Ventura desktop system, using an IBM AT personal computer.)

ILLUSTRATIONS

Professional photography is expensive; amateur photography is—well, amateurish. If you use photographs, get the best originals you possibly can.

WORDS, WORDS, WORDS

Not too long ago, word-processing meant $35,000 single-purpose work stations manned by trained operators who often exercised more power than a corporate vice-president, simply because they had mastered the mysteries of a cranky, temperamental machine. But this is no longer the case. Today, PC-based word-processing programs are everywhere available, eminently affordable, and embarrassingly easy to use. If you can type, you can do useful work from the moment you bring one home.

In most offices, the dedicated word-processor and its operator are becoming as extinct as dinosaurs. And more and more publications insist that all manuscripts submitted for publication be accompanied by an electronic file.

Why this change? First, any reasonably sophisticated word-processing program takes the drudgery out of writing. As any writer will tell you, good prose comes, not from "writing" as such, but from the rewriting that follows the creation of the first draft. The ability to change, delete, move, modify, and recast easily onscreen speeds up—and improves—the process of turning an often chaotic draft into a tight, well-organized discussion.

Word-processing programs and related software offer a number of other advantages as well:

- **Search-and-replace features enable you to ensure consistency in the way you use key terminology.**
- **The spell-check features included with most good programs can do a lot to turn those of us who don't type very well—or just plain can't spell—into paragons of accuracy.**
- **Editorial programs will make you painfully aware of bad writing habits:**

Today the personal computer is the writer's work station of choice for word processing and desktop publishing. The software you need is readily available for everything from just inputting text, through writing and editing, to typesetting.

overuse of the passive voice, wordy expressions, cliches. Many of them will also compute the average length of the words you use, and of your sentences, a valuable guide to determining the reading level of your material. (Some of these programs actually measure and display the reading level automatically.)

Once the writing and rewriting are done, you have a number of options for producing the final copy for printing:

- The electronic file can be transmitted to your typesetter via phone modem.
- If you or your typesetter don't have a modem (you both need one), you can simply deliver a copy of the disk. Either way, you eliminate the need—and the expense—of having your copy re-input into the typesetting system.
- Most of the mainstream desktop publishing systems accept files from popular word-processing programs, which means you can format, typeset, and print out camera-ready copy yourself if you choose.

As a matter of fact, if your resources are very limited, you can do an attractive job of producing your course with just your word-processing program and a good quality printer (such as a laser printer).

Actually, for teaching, photography may not be the best medium to use. Line drawings are often much clearer and much more effective, especially for technical illustrations. Furthermore, freelance artists generally do piecework, while photographers usually work by the day, with a half-day minimum rate.

Whether you opt for photography or line drawings or both, be sure to work with artists and photographers who are accustomed to preparing work for offset reproduction (all modern printing is done by the so-called "offset" process). You may have a friend or relative who draws or paints, or takes interesting pictures; if you are really cost-conscious, you may even be tempted to foray out yourself with a hand-held 35mm camera and a few rolls of film. But there are a lot of tricks involved in drawing or shooting for print. Remember, the printed version will never be any better than your original. It is important to start with the best image you can get.

Rather than create your own illustrations, you can buy what you need from stock houses.

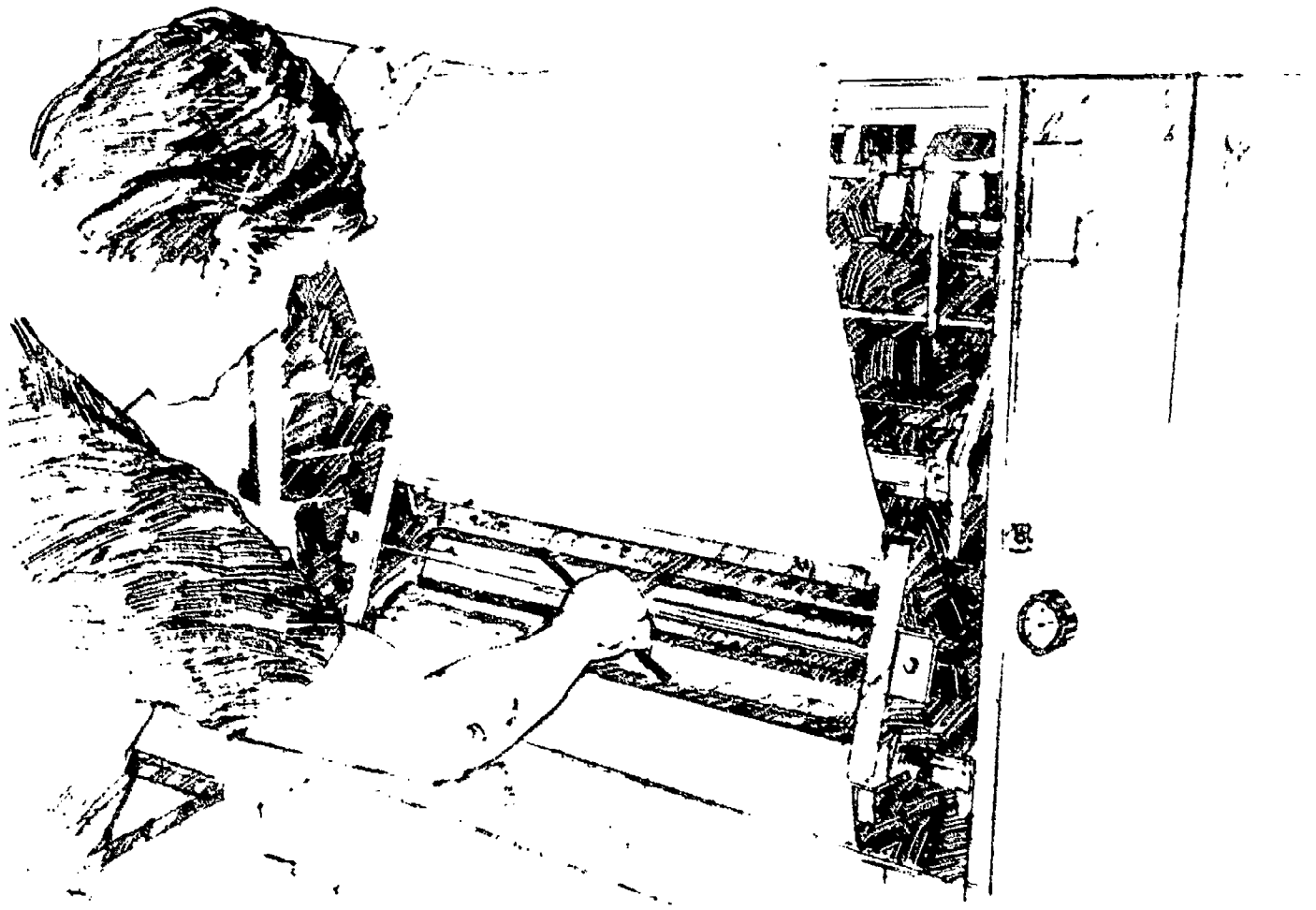
It is not always necessary to create your own illustrations. Sometimes you can buy what you need from stock houses, which have millions of images in their archives. You can, for example, tell them you want pictures of yacht harbors at sunset, or boatyards—or shipwrecks, for that matter. They will send you a selection to choose from.

Stock houses are not cheap, but manufacturers and other suppliers to whatever industry your course is designed to serve will often allow you to use their photos and drawings free of charge. Often they will even send you glossy prints and high-quality reproductions. Usually all they expect in return is a "credit," a small line near the illustration saying: "Photo courtesy the Marine Widget Company."

CAMERA-READY ART

Finding, or creating, an original image is one thing; reproducing it effectively is yet another. Black-and-white photographs can be reproduced in a variety of ways. Least expensive are what are called "PMTs" (PMT stands for "positive mezzo tint"). These are simply black-and-white copies of an original (which can be in color), screened to create the dot pattern essential for offset printing.

PMTs are a little cheaper than half-tone negatives. (They are also slightly lower in quality but, if the original is good, the difference is usually negligible.) Their greatest virtue is that they can simply be pasted in position on your "mechanical" (a mechanical is the pasted-up artwork you send to the printer). This represents a considerable savings in the "stripping" phase, when



Four-color illustrations are more expensive to print, because they must be printed on more sophisticated equipment.

your printer shoots his negatives and starts to assemble all the various elements to make his plates.

COLOR

Graphic designers, marketing specialists, and research psychologists all agree that color attracts reader attention and, properly used, contributes to interest and readability. Two-color work—adding a strategic touch of color here and there—is only slightly more costly than straight black-and-white printing. This is because printers estimate their jobs by establishing standard hourly rates for all their equipment. Two-color work either goes on a two-color press, which is billed at a slightly higher rate, or it goes through a one-color press twice.

At the pre-press stage, two-color work can be done with very little in the way of added production costs. (Simple two-color features can be indicated on a tissue taped over the mechanical.) Your printer will have to prepare a second plate and wash up and change inks, but you are not talking about a lot of money.

Four-color, or "process" work is another story. Here we are talking about reproducing a color photograph. In most areas, you can expect the pre-press costs on even a small—say, 3" x 3"—four-color illustration to be at least $100, and often more. And again, because four-color work has to be printed on more sophisticated equipment, the printing itself is more costly, too.

This makes the decision of when and where to use four-color process pictures an important one. Since you know your potential students are not great readers, and since you can easily produce as many as six or seven good black-and-white illustrations for the price of one in color, effective course design suggests that, here, quantity might be more important than color.

For some subjects, color is likely to be essential. If so, there are generally some economies you can make. There are, for example, different quality grades of color separations, so ask yourself just how precise the color has to be. If you can plan all your illustrations, or groups of them, to be the same size, it is often possible to "gang" some or all of them and save some money in the separation process.

BROKERS

Buying printing services calls for a certain amount of knowhow. As a result, many companies whose printing needs are only occasional use print brokers to arrange for printing, and to see their job through the press. Print brokers are independent contractors who work on commission, paid by the printer. This will be reflected in what you ultimately pay for your job but, especially at first, it may be well worth it.

Be sure the broker's services include checking press proofs and doing press inspections—and go along when these are done (even if, as is often the case, they are early in the morning). If you ask the right questions and treat your broker like a consultant, chances are you can soon learn to negotiate a good printing contract and perform press checks on your own.

When the job is done, make sure you get your mechanicals back (the negatives and plates belong to the printer). Unless you are doing a major re-work of your course, you can make minor corrections and revisions on the original boards. And if, when it comes time to reprint, you decide to change printers, you can use them again.

We have gotten right down to the nuts and bolts of producing course materials and staying within your budget. Now let's widen our perspective again to look at some other important elements that can help the success of your course, if they are designed into it: motivation, presentation, delivery, and servicing.

VIII. THE PICTURE OF SUCCESS

You would never advertise your course with copy that said: "Sit home, night after night, and study! Sacrifice your leisure to hard work! Add to your stress by trying to re-acquire good study habits you forgot years ago." But that is, in part at least, what completing a home study course means.

Faced with that reality, some students become discouraged. The bright hopes and plans that prompted them to enroll in your course are obscured by the day-to-day reality of keeping at it. For this reason, motivational devices of all sorts should be built into the design of your course from the outset. Remind them of their ultimate goal every step of the way, with pictures, sidebars, and success stories.

Most of your illustrations, of course, will be selected with an eye to teaching something. But you can—and should—use pictures with other purposes in mind. At the simplest level, inserting some sort of illustration into a visually barren page of text does a lot to keep your readers engaged. Such pictures (sometimes called "spot art") might well be motivational in nature.

Yes, the students in our imaginary marine engine repair course are interested in boats and motors. But they are also interested in a vision of themselves succeeding in that business. Look for, or commission, pictures that reinforce their sense of what they want to achieve.

Let's take an example: Early on, you want to emphasize to your students how impor-

tant it is to have a clear understanding with their customers about the nature of the work to be done, the terms of payment, and when the work will be completed.

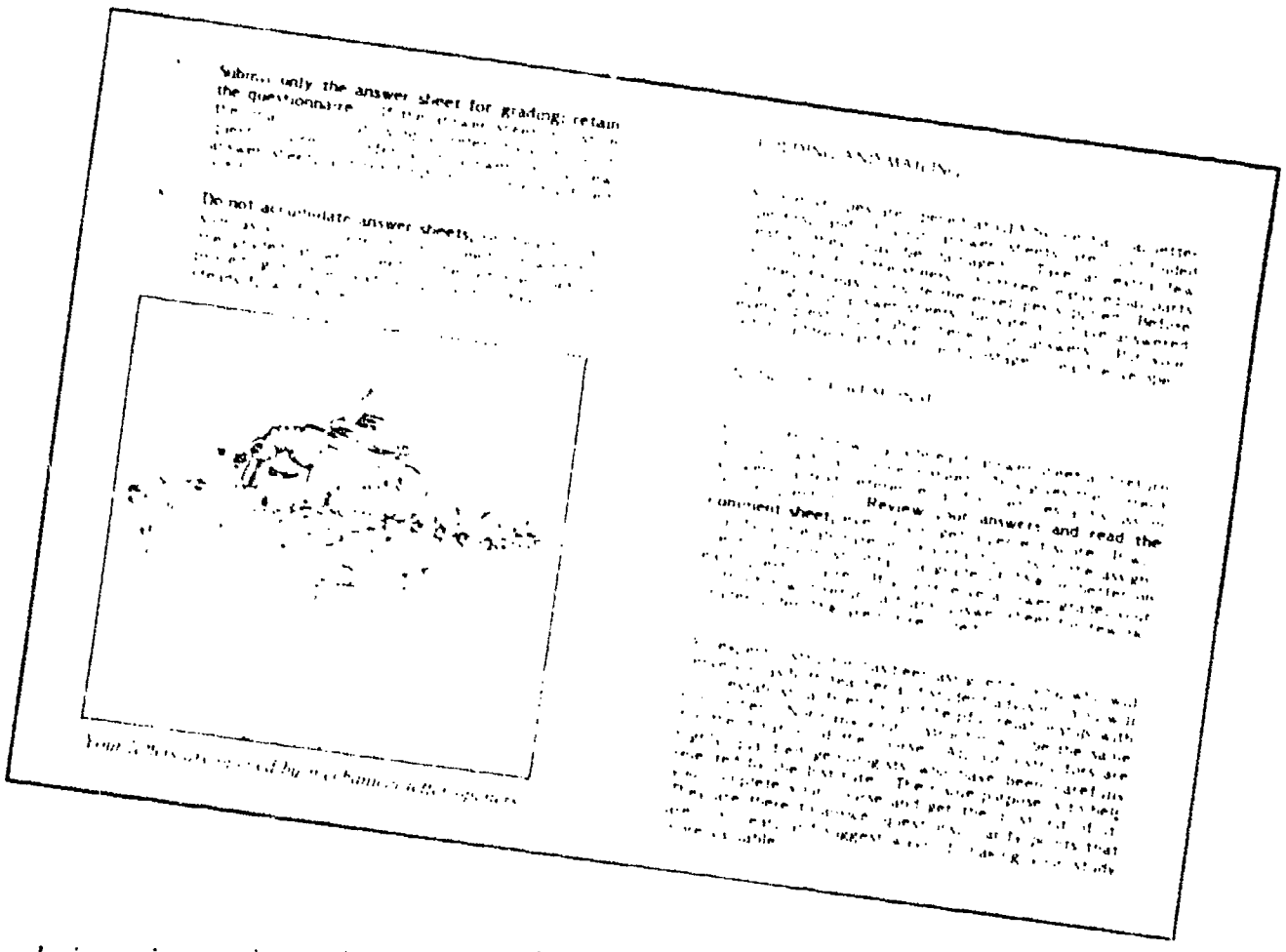
Such a discussion does not "need" an illustration in the same way a technical explanation of, say, a wet exhaust system might. But it is an excellent opportunity to use a drawing of a smiling, confident owner-mechanic talking to an attractive, obviously affluent couple, with a handsome yacht at dockside in the background. Never mind that working on marine engines often involves lying on your back in the bilges, wet and cramped, trying to undo a hopelessly corroded, hard-to-reach fitting. Show your students the up-side of what the future may hold in store.

Not all your students will succeed, no matter what you do. You will always have some no-starts, and some who never finish. But you can reduce these numbers by helping students stay motivated.

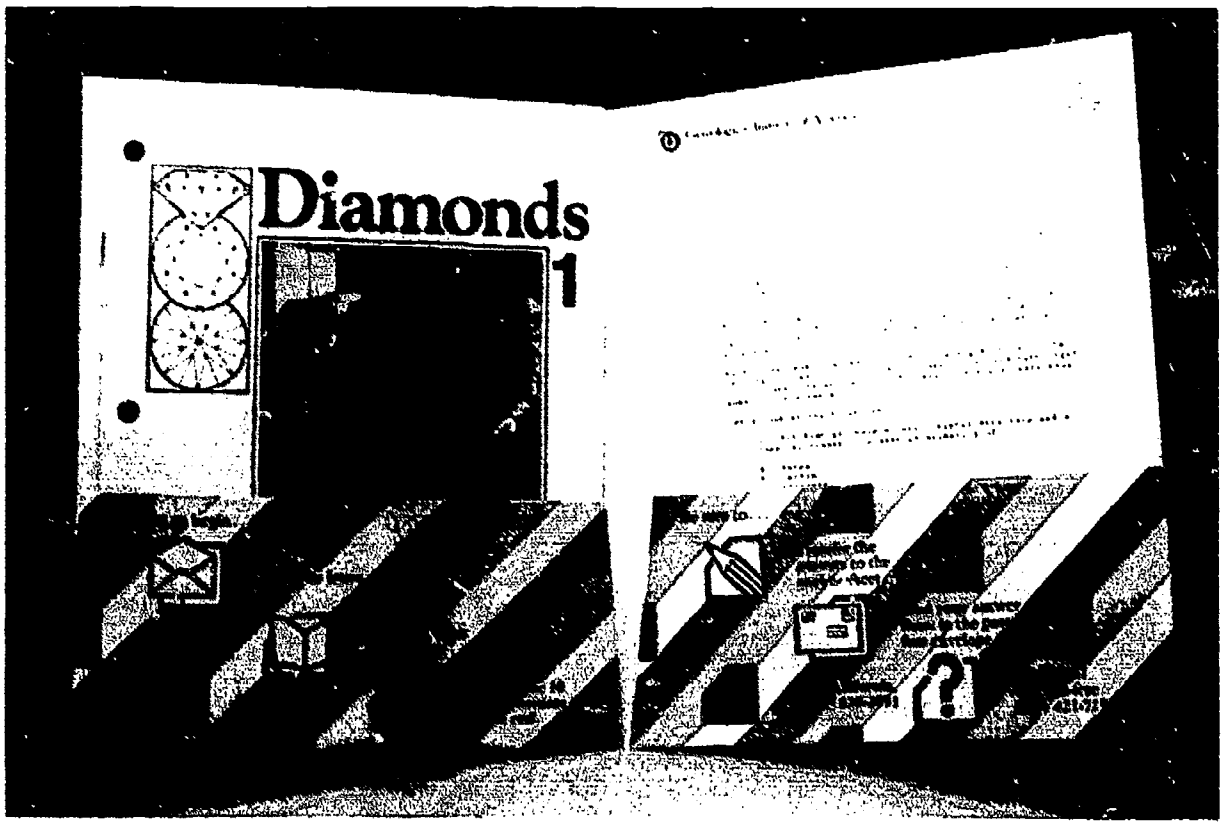
There are also other factors which influence your no-start and completion rates; you need to consider these, too, when you are designing your course.

IX. GETTING OFF ON THE RIGHT FOOT

You want all your new students to get in the habit of plugging away at lesson after lesson. This means getting them started right away, as soon as they receive their course. After all, that is when they are likely to be most excited and enthusiastic.



Simply inserting a picture into a page of plain text immediately helps keep the reader engaged.



The package of materials with the first lesson, perhaps "gift-wrapped" in an attractive folder, can help get students started right away.

To begin with, you can do a lot to decrease no-starts by paying special attention to your first few lessons. The very first lesson, especially, is critical in any home study course. The package of startup materials that includes the first lesson can help, but getting them really rolling depends more on designing that lesson so it provides an immediate sense of achievement and is easy to complete. Your first lesson, then, should be both motivational and substantial. Spend some time reminding them about the opportunities these new skills represent, and teach them something—something you can safely assume few of them know, something they can use immediately.

The first examination should be challenging, but absolutely straightforward and procedurally simple—no trick questions, no assumptions regarding knowledge or skills that are not specifically taught in the first lesson. The idea is to give students a psychological boost, by making them see they can do it if they try.

X. PACING, DELIVERY, AND INCENTIVES

Next, you need ways to sustain student progress. We mentioned earlier that part of course design is deciding what to teach when, in what order. This is an important element in putting your subject across effectively. But it also matters at the basic level of helping the student simply get through the course without bogging down.

In every home study course, there is at least one lesson that is a real killer. Perhaps the problems are really psychological. Shop math, for example, is not all that difficult, but many people simply shut down—emotionally and intellectually—when they see a lot of formulas and four-place decimals staring them in the face. Still, there is no way around teaching it to our budding marine engine repairpeople—eventually.

There is much that can be done in the writing of such lessons, to make them less intimidating and more accessible.

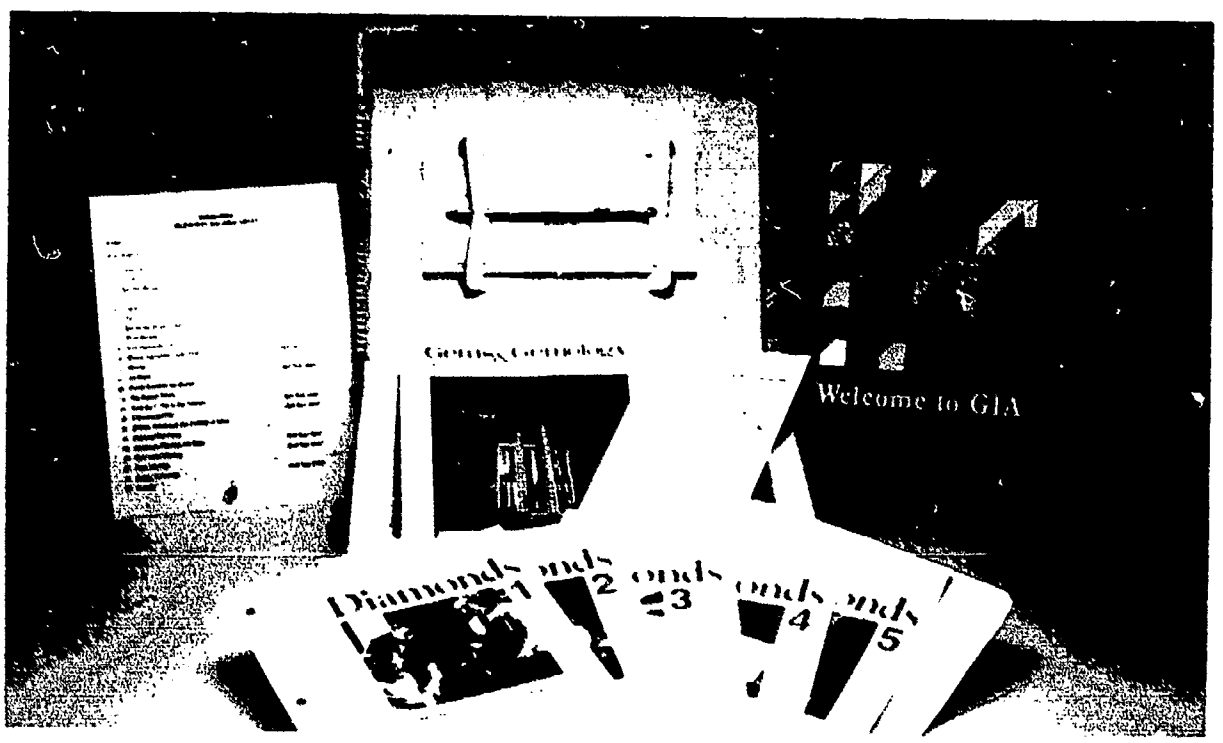
But think about when and where you really need to present this material, too. We tend to assume we have to teach fundamental material right away, in the beginning, but this is not always necessary. There is really no need to present it until they are going to use it. Often you can plan your course so as to defer some of the more difficult material until your students have experienced some success with easier material. (Remember, success is the greatest motivation-builder there is.)

Even when you get students to make a good start, some still will not finish. Consequently, course design also means planning your presentation in increments that encourage them to reach the milestones that flag your contractual rights to a certain percentage of your tuition.

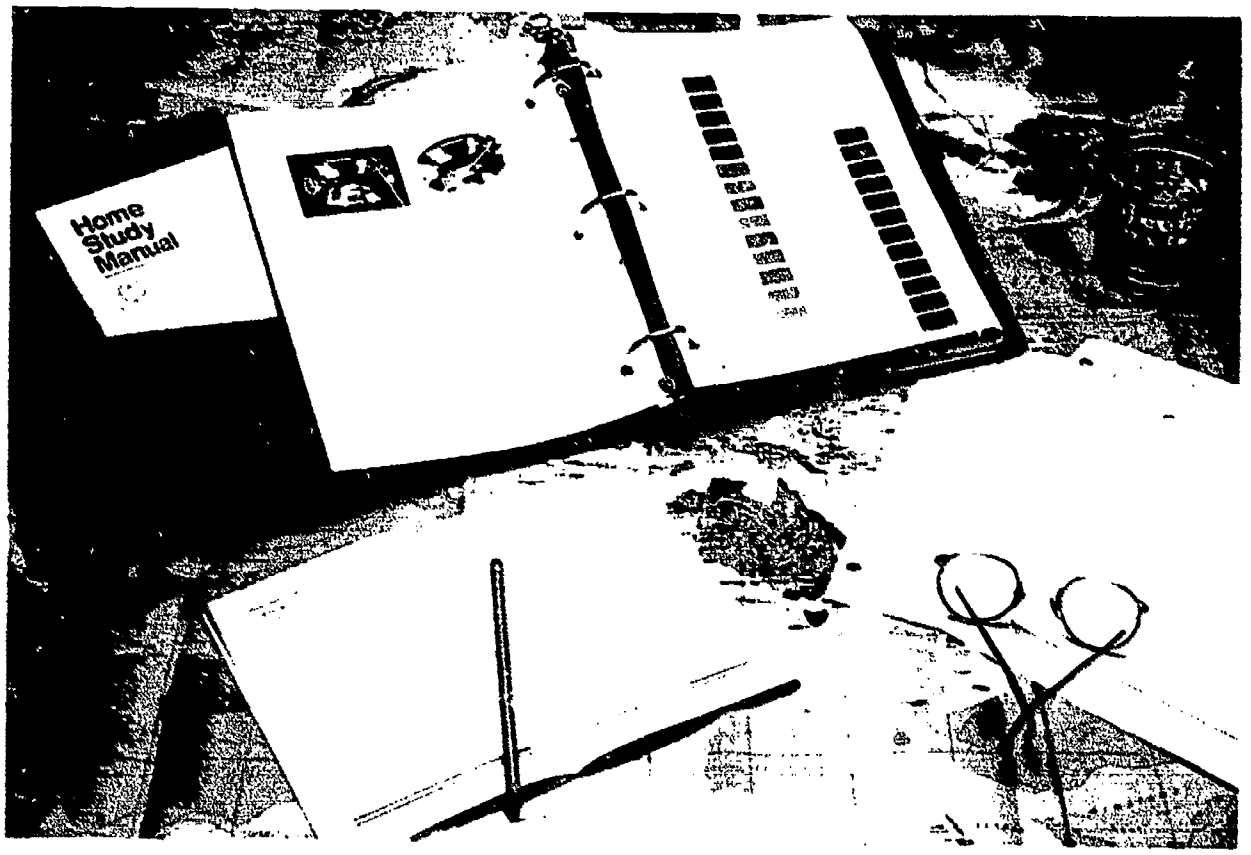
Dividing your course into shipments may help. When enrollments are high enough, and you have enough data on student performance, you may find you can predict your dropout rate accurately enough to print fewer of the lessons in the later shipments. Over the years this can represent substantial savings. Remember, though, that multiple mailings cost more—not just for postage, but for warehousing, packaging, and handling too.

You also need to estimate the cost of the materials in your first shipment as accurately as possible, including the various motivational and administrative materials you include. (If you plan to include kits or tools, such planning and estimating are even more important.) You will never eliminate no-starts completely, so you want a down payment that enables you to break even, at least.

With a course divided into several shipments, order of presentation also provides more options for keeping students motivated. In every field, there are some areas which seem more glamorous than others, especially to beginners. Dividing a course into shipments allows you to hold back some of this special expertise, like a carrot on a stick. Try to design your course so material of this sort is strategically spaced out, in different shipments. Then the thought of getting to something especially desirable in the second shipment provides an extra incentive to finish the first, and so on.



If you plan to send your course out in several shipments, you need to estimate the costs of the materials in the first shipment accurately, to help you break even.



Everything you include with the student's first study materials—text, binder, administrative pamphlet, even a sharpened pencil—can reinforce the sense that you are trying to help them learn.

PACKAGING IS PART OF THE MESSAGE

Packaging your course materials attractively and effectively is an important part of course design. Bear in mind that, while *you* know a home study course is much more than just a collection of books and reference materials, this is not immediately apparent to a new student. Much of the value of any course is intangible—the service, the evaluation and advice you provide, the ability to call on a sympathetic and helpful instructor.

So when you ship new students their first study materials, try to make these reflect the real value of the training you are providing. A short pamphlet that lays out your procedures for taking and returning examinations and requesting additional help can, for example, emphasize the importance of these services. A one-page step-by-step guide to completing and mailing the first examination, together with a pre-addressed return envelope and a motivational letter urging the student to get started immediately will help reduce no-starts.

Other recommended features include three-ring binders to hold lesson materials, a shipping box designed to double as a storage box for tools, reference materials, or work-in-progress—even something as simple as a pre-sharpened pencil. These all add to the student's perception that you are trying to make the learning process as painless and effective as possible.

You can even use your packaging to help keep students on track. There are a lot of different ways to handle the mechanics of packaging and shipping a home study course. Depending on the nature of your study materials, you may find it best to use a special shipping box that doubles as a permanent storage device; you may want to use three-ring binders or slip cases.

If you do include permanent binders or cases, you may want to send them out with the last shipment, rather than the first. That way, the binder (or whatever) becomes yet another incentive for finishing the course (and you will not have to give them to non-starters and dropouts).

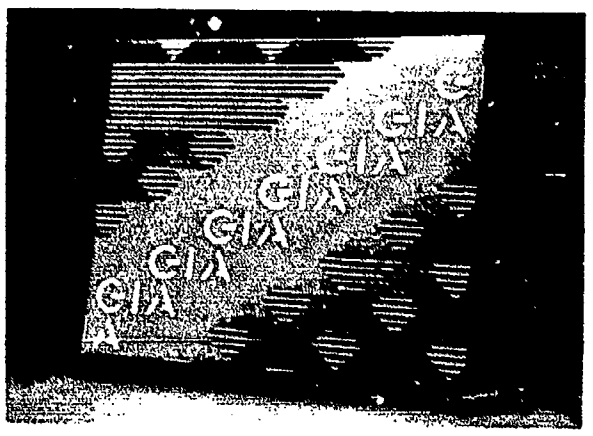
XI. SERVICE COUNTS

How your course is to be serviced is another element which must be incorporated into the course design. This involves designing efficient ways to handle student questions, accounting, billing, testing, and grading—or smoothly plugging your new course into systems already in place.

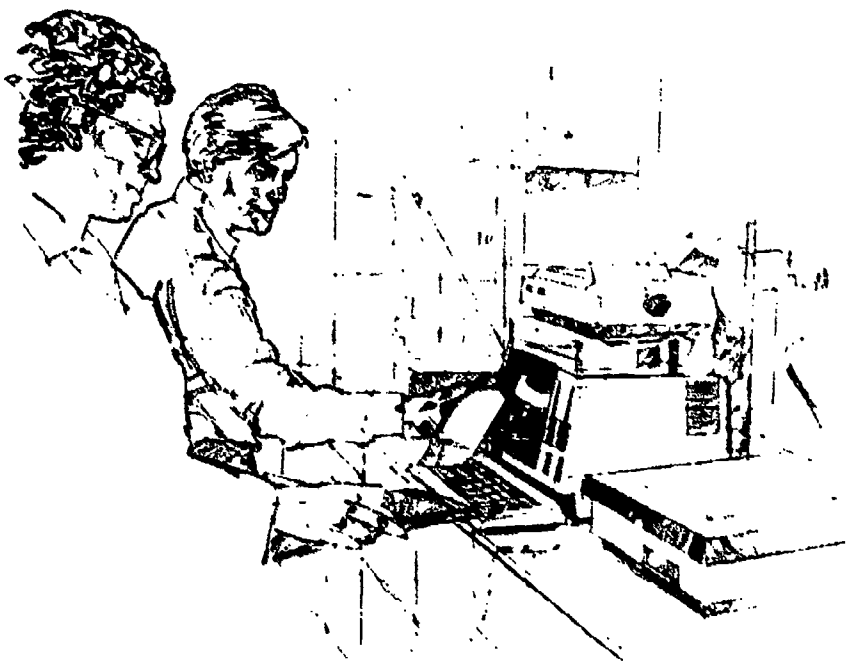
Testing and grading are especially important. Well-written multiple-choice examinations are at once the most effective form of written testing from an educational point of view, and the most efficient and cost-effective from an administrative standpoint. By contrast, essay questions pose a lot of problems. They may be appropriate if writing skills are important to the students' training; for certain types of material they can be an effective testing device, but they are often difficult to evaluate properly.

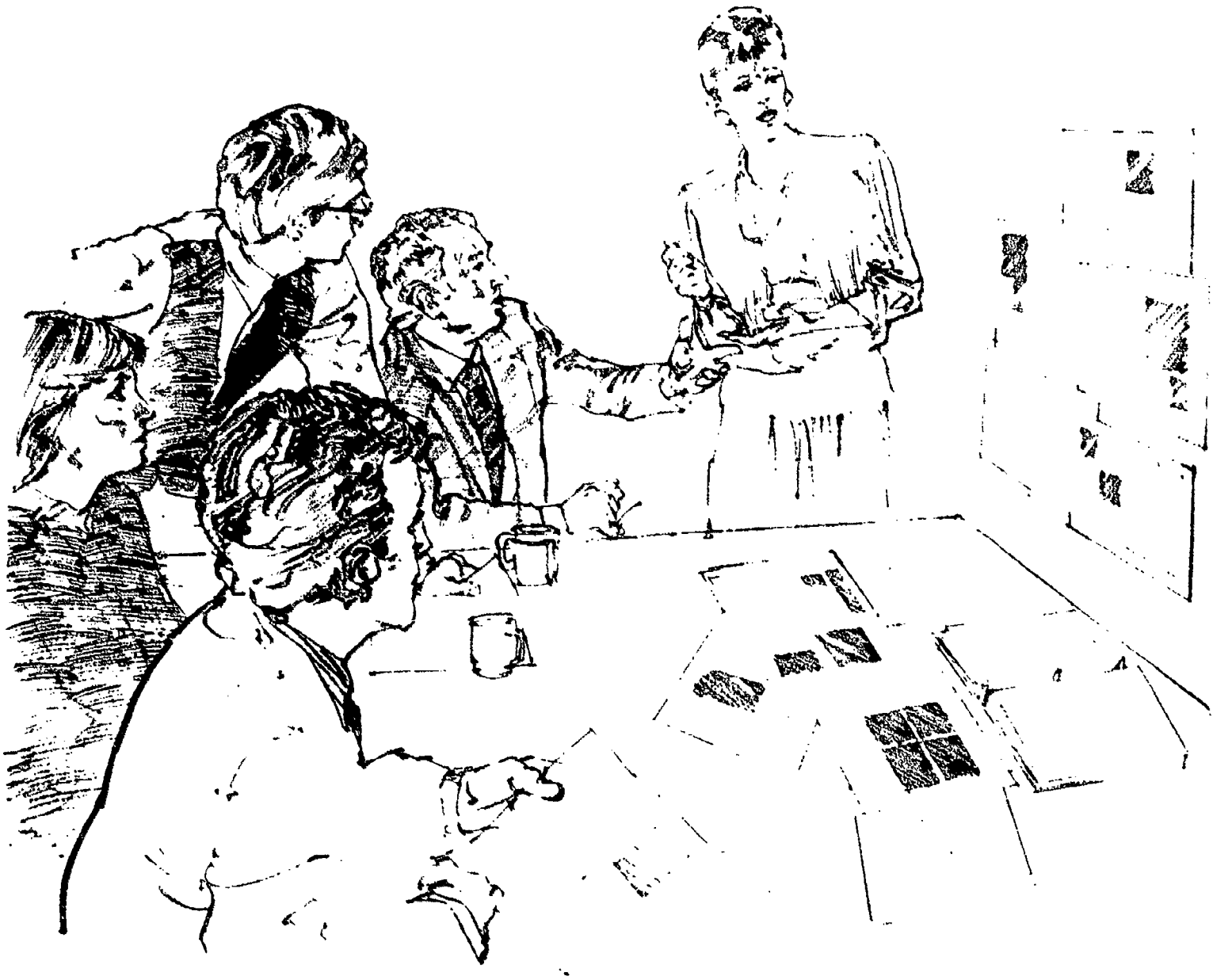
Another important question: Does every lesson need an examination? The first one does; you want to initiate contact with a new student as soon as possible. But thereafter you may find that, for testing purposes, you can cover two or even three lessons with a single examination. Self-tests provide students with a way to check themselves on the interim lessons for which no submission is required. The savings in service costs with such a system are self-evident, and there is no evidence that the quality of the training suffers. Generally, try to plan your course so students have some sort of contact with you at least once a month—more often if possible.

There are many ways to handle the mechanics of shipping a home study course.



You may want to use an attractive shipping box that doubles as a permanent storage container.





Think of good course design as a holistic process: it must accomplish many goals at the same time.

Think ahead, too. For example, your resources may not permit you to use automated grading or posting right now, but in a year or two, perhaps you can. It will be easy to make the change if the answer sheets for your examinations are designed with that in mind from the outset. Whenever possible, design for the future; think of where you want to go.

What about forms of graded work other than written examinations—projects designed to provide practical experience?

Most hands-on projects are likely to be expensive, especially if the student's work has to be shipped to your school, evaluated, and then returned. There are certain subjects in which this is probably the only way a student's understanding of the material can be adequately measured. If so, the work should be planned very carefully in terms of the overall course design.

Certainly projects of this sort should be designed to serve more than one educational goal. Ideally (although this may not always

be possible), they should also be placed well into the program, when the likelihood that the student is going to complete the course successfully is higher.

If the time it takes to service such a project is much longer than that required to handle a normal lesson, the course should be designed so to allow the student to continue working on other things while waiting for a major project to be graded and returned. Inactivity breeds drop-outs.

XII. SUMMING UP

To recapitulate: A home study course is a multi-faceted delivery system for a very specialized kind of information. Unless you think and plan in terms of the entire system, the course will not achieve your goals.

The first step is to analyze the demographics of your prospect pool. The more hard data you have about their age, gender, educational level, reading skills, and vocational experience, the better. Ideally, you should understand their dreams and aspirations, too. The more you know about the prospective students you are targeting, the more successful your planning, and hence your course, will be.

First of all, understanding your prospective students will help you decide what really needs to be taught, and where in the course you need to teach it. The nature of the skills and information you are trying to communicate also affects your course format, your prices, your packaging, and your servicing.

Remember, good writing is the rock on which the whole structure stands. Good writing is clear; good writing is accessible to its audience; good writing not only instructs but entertains and motivates as well. If you have to choose, put the lion's share of your effort, and your money, here. In most areas of training and instruction, carefully-planned illustrations are essential, too. They will always enrich an explanation, and they can also be used to motivate and inspire.

A good word-processing program will speed the writing of your course, and can help you improve the quality of the writing itself. Together with desktop publishing systems and modern graphics methods, word-processing programs also speed up production and dramatically reduce costs.

For reproducing large quantities of course materials, printing remains the most economical way to go. Pre-press production is the most time-consuming, and the most expensive part of producing a course; once on the press, you can see the light at the end of the tunnel.

It is important to think of course design as a holistic process. Good design accomplishes a multitude of goals: It reduces servicing costs and lets you deliver more and better training, and it motivates students and helps them learn. And that is why we are here.

ELEVEN

Managing Course Production

Ronald D. Clark

Introduction to Article

Educators, particularly home study educators new to their positions, are not generally trained in the art of printing and text production.

Mr. Clark leads us through the fascinating and sometimes confusing world of printing and text production with a deft hand. Speaking from over three decades of home study experience, he takes us step-by-step through the text production maze.

Managing Course Production

Ronald D. Clark

Your school's Editorial Unit has just handed you a course manuscript and told you to have it printed. Ergo: you are instantly a Production Manager.

Very often it is not quite as simple as that. If you are a part of a school that offers a few courses, you may have just finished the editorial process yourself. In that case, you are not only an editor, but a Production Manager as well. It is obvious, though, that there is a delineation of function, and it is the function of the Production Manager that we will discuss in this chapter.

What Does the Production Manager Do?

The Production Manager is concerned with format, layout, types of illustrations, pagination, type style, selection of stock, text bulk, method of printing, type of binding, scheduling, and the finished product. He also knows his printers and their capabilities. Finally, he should know how to spec production jobs to potential printers so that they can give him suitable and relevant bids.

To follow through a printing job from the time the manuscript is submitted to the Production Manager to the actual printing, it is best to take a look at each of the steps in the course production process.

Format

Formats of texts, lessons, and study guides, as well as formats of special jobs, are most often determined and

agreed upon by the educational staff, the marketing staff, and the editorial staff. Thus the Production Manager is aware of what the finished text should look like in terms of size, cover, binding, and overall design.

When the Production Manager receives little guidance from other staff members on format characteristics, it is up to him to consider text size (i.e., 8 1/2 x 11-inch, 6 x 9-inch, etc.), and the basic layout. This means he determines column width, number of columns per page, and how the illustrations will be placed on the pages.

The Production Manager must then select the type faces, and decide which style and size of type to use. He will consider size for main headings, shoulder headings, and the text material itself, as well as the legends for illustrations.

The printer should be consulted and the Production Manager should know what fonts he has on hand. If a typeface is specified, and the printer does not have that particular font, the Production Manager can request that the printer obtain that type font. Because this is expensive, it is frequently preferable to use a typeface already available.

Once these decisions are made, both editorial and education personnel should agree on the format. Then, the manuscript will be proofread and marked accordingly (see Appendix A for proofreaders' marks). Now the manuscript is ready to go to the printers for bids.

Bidding or each individual job is not usually done, because most schools do business with a limited number of printers, and have rates which the Production Manager is familiar with. Furthermore, sometimes the printing is done in-house, and the production is somewhat captive. Not only that, but with the growing interest in and use of Desktop Publishing, a new dimension has been added to the course production process. More about that later.

The alert Production Manager will be checking printers on a continuous basis, and by doing so will attempt to get acceptable work at the best possible price. This is not to say that the lowest price is always selected; quality and dependability of the finished product and the printer's delivery schedule must meet the school's needs.

The Production Process

Here we are going to talk about the traditional way of carrying out the production of a book. Let us assume that the printer has been selected, the manuscript is all ready to go to the printer, and the various production processes have been agreed upon. The manuscript is then delivered to the printer.

A short time later the printer will return the manuscript to the Production Manager, along with galley proofs of the typeset material. He will then examine the proof sheets to make sure that the text has been completely typeset. Then the galleys and the manuscript will be returned to the school's Editorial Unit for proofreading. Proofreading is not the function of the Production Manager.

After the galleys are proofread by the Editorial Unit, they will be returned to the Production Manager. If there are numerous corrections, which there should not be, it may be necessary to send the galleys back to the printer to have major corrections made. If this happens, corrected galley sheets will be required, and the proofreading step repeated.

When the galleys are satisfactory, the Production Manager will commence paging the book. He will cut the galleys and fit the type to the predetermined format. Illustrations, tables, and other graphics must be considered and allotted the proper amount of space. It will be necessary to work with the Editorial Unit to assure that the illustrations are in the best possible proximity to the text material which they refer to. Sometimes because of space this is not possible. In these cases the editors should make the final decision of placement of illustrations.

A word about illustrations: all illustrations, including artwork, photographs, tabular material, and the like, must be furnished to the printer in a condition which will lend readily to reproduction. Line drawings should be precise. Glossy photos should be furnished. Illustrations to be shown in halftones should be prepared so they show exactly what is desired. In the event that four-color illustrations are mandated, good, clear photos should be furnished. The desired size of the illustrations must be clearly specified. Particularly in four-color work, color separation must be done to a predetermined size, since photographic reduction is impossible once the separations are completed. Tabular material should be laid out carefully, and careful instructions given to the printer as to how such tables are to be set. The printer can vary the size of the finished printing in line drawings, as directed by the Production Manager. Graphs are best supplied in a finished condition,

so that they can be produced photographically. You can easily see that some artistic ability is needed to ensure a desirable quality of illustrations.

It is important to remember that the legends, figure numbers, and the like, must be placed in the correct position so that such graphics are identified.

It may seem too elementary to mention that the odd-numbered pages are always on the right, while even-numbered pages are on the left. A right-hand page is called a recto; a left-hand page is called verso.

Back to the printer again. He will make any noted corrections, and will set up the pages as indicated by the Production Manager. If necessary, he will produce a "page proof," which will show exactly how the finished book will appear, without the illustrations. However, the locations where illustrations are to be placed will be blank.

Page proofs are examined by the Production Manager. This is his final opportunity to make copy changes without incurring enormous expenses.

We mentioned that the printer may furnish page proofs. Sometimes the Production Manager will opt to eliminate this step, and go directly to a "blueline." This isn't usually a good practice.

The blueline is a true copy of the finished book, except that everying is shown in a single color, most often blue. Illustrations are in place. Pagination is completed and pages are numbered. The index (if any) carries the proper page references. Whether a page proof is seen or not, the blueline is the very last chance to make any changes before production. A word of warning: changes on the blueline are quite expensive; therefore, everything should be "ready to go."

Desktop Publishing

Desktop publishing is a term coined especially for a system of preparing text material with computer techniques. Since the working components used by the operators are of a size and configuration to fit on the top of a desk, this term has become popular.

In this section of the Handbook, no effort will be made to go into detail about desktop publishing, as this topic is also covered in other chapters. However, I am including some information on desktop publishing to demonstrate one of the

options available to the Production Manager as he coordinates the creation of the finished text.

Listed here are the components needed to produce a text with the desktop publishing method.

Hardware:

1. CPU -- minimum 512K memory, and a 10-MB hard disc drive. For example, a Personal Computer or minicomputer with a DOS, or UNIX-based (or MacIntosh) operating system.

2. Monitor, with high resolution screen image -- given in pixels (picture elements or screen dots) -- the higher the better.

3. A laser printer.

4. Scanner (optional). This allows user to add photos, drawings, etc.

Software:

1. A word processing package.

2. Graphics package.

3. Document handling software. Included here are elements which allow user to choose fonts, perform page layout, integrate graphics and text, crop and size. There may be automatic kerning (adjustment of white space between letters) or user may adjust this manually. The operator can set margins, set column width, provide for hyphenation, and provide page description language for interface with a printer or typesetting machine.

The operator uses a word processor (WP) to write and edit text and correct spelling (most WPs have spelling checkers that allow the user to tailor the dictionary to specific terms most commonly used).

Once the lesson or text is written, it is formatted. Most document handling software is WYSIWYG (what you see is what you get). Thus, with a high-resolution monitor the operator, author or editor can determine what the finished page will look like.

The Production Manager should be familiar with desktop publishing. Although the items listed above look formidable, most schools will have some of the components already on hand. Also, it is not absolutely necessary to

have all of it -- note the options -- since the printing company you use will have some of the items.

More specific information about desktop publishing will be given in other chapters of this Handbook.

Selection of Paper and Cover Stock

When the blueline of the finished pages from the production process is approved by the Production Manager, the lesson or text is ready to print. By this time, the Production Manager has finished his work except for two things -- selection of paper stock and method of binding.

In selecting paper stock, the Production Manager must go to the printer or to his paper supplier. Samples of various stocks are available, and from these a selection can be made. Attention must be paid to the color, type of finish, weight, opacity, bulk, and general appearance of the stock. A bulky stock will make a book thicker, and appear bigger. Naturally, a light-weight paper stock will cost less to mail. But if the paper is too flimsy, there are press problems; the sheets will not feed well and printing costs may be higher. Be very alert when checking for opacity, since bleed-through of print and illustrations is undesirable. In particular, illustrations such as bar graphs, heavy halftones, and reproduction of photographs could show through to the extent that reading material or even other illustrations on the reverse side are difficult to see.

The Production Manager must also specify the kind of cover stock to be used on the book. Sometimes self-covers (the same stock used for the pages) are selected. However, these tend not to hold up well. Most home study schools use a heavier cover stock, and quite a few use ring binders.

To achieve the most attractive appearance for the cover, a coated cover stock is often preferred. Coated stocks are easier to keep clean and the cover design and type will appear sharper and more defined.

Usually, hard covers are not used by home study schools that prepare their own text material. They are simply too expensive. However, if the texts are to be used by the student for referencing, hard covers will keep better and last much longer. Hard covers are most often cloth-bound -- that is, a cloth surface is glued to a hard cardboard cover material.

Binding

The type of binding also has to be determined and specified to the printer. Many home study schools furnish binders with loose-leaf pages. In this case it is not necessary to worry about cover stock. If this is what is used at your school or is what you would like to use, you have to specify page size, where the sheets are to be drilled, and the number of holes to fit your binder.

Ring binders with loose-leaf pages provide a flexible way to make revisions without the necessity of redoing the whole text. This can be a distinct advantage. Combined with a desktop publishing system, speedy adaptation of new techniques, components, and equipment can be done, as well as correction of any inaccuracies.

If, however, the subject content is basic and relatively stable, the need for less frequent revisions tends to mitigate this advantage. Another consideration in using ring binders is their expense. An attractive, sturdy binder is rather expensive.

Many home study schools prefer to bind a lesson unit that covers one topic, or a series of closely related topics. If the book consists of not more than 100 to 120 pages, saddle stitching is an ideal binding mode, and is likely to be the most economical way of binding. An attractive product results. Keep in mind that when a book is prepared the pages are folded, collated, saddle-stitched, and the edges are trimmed. The inside pages will have more paper trimmed than the outside ones, and this must be considered when margins are set up.

When books exceed the number of pages that are conveniently saddle-stitched, other types of binding should be considered. A "perfect" binding is sometimes used. In this process, single pages are glued, either with or without a cloth backing strip, and the cover is stripped on. Then the books are locked into a press until the glue is set and the backs of the books are squared.

Perfect binding has the advantage of economy and is used on the majority of mass-produced paperback books. The greatest disadvantage is that the backing breaks during use, and either single pages or groups of pages become detached. This creates a disadvantage if the books are to be maintained as reference material, since pages are often lost.

Higher quality books use a stitched binding. The pages are in signatures, that is, a number of pages are printed all at once on one large sheet. The sheets are folded into book size, and each one becomes a signature. Several signatures are included in one book. The signatures are stitched together on a stitching machine. Then glue is applied to the back, or spine, and a cloth strip is applied. The cloth strip is often wider than the width of the book, so that it can be bound to the cover stock. After the cover is stripped on, the books are placed in a press. This not only allows the glue to be impressed so that it will adhere, but pressure also gives the book the characteristic shape of its back. You can notice on a book of this type that you can slip a pencil or a finger down inside the spine of the book between the cloth strip and the book cover.

This process is referred to as Smythe stitching, and as you w guess, it is the most expensive binding process. B ooks have an attractive appearance, do not break at the spine, and last much longer.

Another form of securing the books is to drive staples through the pages or the signatures, then strip a tape backing on the spine, extending cover to cover. Books bound in this way will not lie flat, which makes it necessary to hold them open when reading. Often this "turns off" the reader.

Revisions

Revisions of existing texts often require a different handling than do completely new books. Since only parts of the texts, and perhaps some illustrations, are being changed, the Production Manager can save money by keeping whatever material doesn't need to be revised.

If the placement of new material in an existing text need not be in any given sequence, it may be possible to just add pages at the end of the book. Unfortunately, this is not often the case. Therefore, revisions must be carefully planned to limit the amount of existing type which must be reset.

When revised material must be inserted within the body of existing copy, the revisions will have to go to the typesetter, be typeset, and the galley proofs furnished to the Production Manager. He will then fit the new material into the book at its proper place. This will require cutting pages and making a new page layout.

Once the new copy is typeset, it sometimes can be fitted into the space of the old copy. If repaging is to be avoided, the match must be very close.

It should be mentioned here that the difficult job of fitting material in to allotted space is made much easier when a loose-leaf binder is used. The text may be set in separate sections, (similar to chapters), each with its own page numbers. For example, Section A would contain as many pages as necessary to cover the specific subject matter. These pages would be numbered consecutively from 1 to any required number. Then Section B would begin; again numbering from 1 to the required number. By doing this, one section could be revised and renumbered without any changes made to the other sections. Numbering sections, and then pages within each section, makes total repaging unnecessary.

When making revisions, the Production Manager will have to work closely with the Editorial Unit. They can help by decreasing or increasing the amount of new material furnished by means of editorial changes. Sometimes illustrations can be changed in size without lessening their value. A good deal of work and expense can be avoided if you don't have to require changes in all the printer's flats.

When revisons are numerous and scattered throughout the textbook, it is desirable to set new type for the entire text. If there is a difference between new and old type, it will have to be completely reset.

Scheduling with Outside Production

The responsibility for scheduling is shared by many people. The Editorial Unit should determine a target date to place new texts or revisions into use. Inventory Control will inform everyone of existing stock and when it will be exhausted. The Production Manager can now set up his production schedule. Appendix B is a sample schedule, when outside production is utilized.

The Production Manager will work with his printer to set up time schedules for each step. Naturally, the printer will know his own schedule and capability for accomplishing every part of the job.

The following shows a type of schedule for each job. This can be charted on a control sheet or board so that each step can be recorded and followed.

I. Date of receiving the manuscript from the Editorial Unit.

II. Date and time at which the manuscript is checked, marked-up, and delivered to the printer.

III. Number of days required by the printer to typeset the copy and date upon which galley proofs will be returned to the Production Manager.

IV. Number of days required for proofreading, and the date when the proof sheets are returned to the Production Manager.

V. Number of days allotted to the Production Manager for layout and paging the book, using the galleys and the date upon which the pasteups are returned to the printer. Note: If a second galley proof is required, this will alter the schedule in mid-process. Therefore, it is wise to have some flexibility in the schedule.

VI. Date upon which page proofs are delivered to Production Manager by the printer.

VII. Date that approved page proofs are returned to the printer.

VIII. Date that the blueline is available from the printer for final approval.

IX. Date when the blueline is returned to the printer. If specs on paper stock, cover stock, and method of binding have not yet been given, they must be given now.

X The time allotted for the press run, collating, binding, trimming and packaging, and the date the job is to be delivered. (This must be worked out with the printer).

When in-house desktop publishing is utilized, the steps in this schedule are much the same. However, proofreading will be done on the CRT screen, and corrections made immediately. Also, layout of the pages, including space for illustrations, or the illustrations themselves, will be done by the magic of the computer. Working with the authors and editors, and with the necessary desktop publishing equipment, the text can then be printed on a laser printer for final review. If corrections are needed, they can be done at once, and then final pages of the copy can be sent to the printer.

If an industry-standard page description language has been used, and it is compatible with the printer's equipment, diskette output can be delivered to the printer to go directly on the typesetter. To carry this a step further, if dial-up access is available -- which requires a modem and interface software -- the final text output can be sent directly to the typsetting machine from the author's personal computer.

Based on previous experience, the Production Manager should know exactly how the production and printing system operates. From time to time he will recognize that time schedules can be shortened, or must be lengthened. He can assist the printer in any case by increasing lead time whenever possible, or especially when it is essential.

Knowing the schedule for each step, and the projected delivery date, will enable the Production Manager to assist Inventory Control in setting realistic low points (or reorder points) for the stock in inventory. This ensures that adequate time is available for replenishment.

Although selection of paper and cover stock can be done after approval of the blueline, it is always helpful to make your selection in advance of this time. By doing this you are giving your printer reasonable lead time to obtain your chosen paper and cover stock.

There is a final word of caution on maintaining a realistic production schedule. If anyone involved in the course production process is delinquent in meeting the predetermined due dates, only two uncomfortable alternatives are available. The first alternative is to wait. In the home study field, this is often unacceptable; it is vital to keep students supplied with work. Then comes the second alternative: authorize the printer and employees to work overtime to make the deliveries on time. Who pays the additional cost of overtime? The customer, of course. Naturally, this should be avoided if at all possible.

Conclusion

Although course production sounds a bit formidable, it really is not. The process is logical. Good planning, plus communication between the Production Manager, the Editorial Department, the Inventory Control Section, and the printer, are the main factors contributing to successful course production. Appendix C illustrates some of the important terms and principles we have discussed.

Appendix A

Copy-editing symbols

Symbol meaning	Edited copy	Symbol effect
Capitalize	ajax soap co.	AJAX Soap Co.
Make lowercase	the Foreman	the foreman
Make caps & lowercase	FOREMAN	Foreman
Insert letter	forman	foreman
Change letter(s)	foreman	foreman
Delete letter, leave space	company editor	company editor
Delete letter, close up	foreman	foreman
Insert word	the policy	the new policy
Delete word, leave space	the new policy	the policy
Delete word, close up	type and setting	typesetting
Change word	type size	type size
Insert space	typestyle	type style
Close up	lower case	lowercase
Insert period	the man The	the man. The
Insert comma, colon & semicolon	men women and	men, women and
Insert hyphen	reevaluate	re-evaluate
Insert dash	workers the pride	workers—the pride
Insert quotes & apostrophes	This company...	"This company...
Insert exclamation point & question mark	What	What?
Delete punctuation	men and women	men and women
Transpose letters	thier jobs	their jobs
Transpose words	type set	set type
Transpose sentences or paragraphs	Apply the same principle as above, or circle the first item and draw an arrow to the new position and note with TR	
Make opposite	Indiana	Ind.
	Ind.	Indiana
	9	nine
	ten	10
More of story to come	more	
End of story	end or 30	
Not a new paragraph	end. More	end. More
New paragraph	end. More	end. More
Correct as written	John Smyth	John Smyth
Do not change as marked	the new policy	the new policy

Appendix B

DATES

Text I.D. or number	MS recd from Editorial	MS checked marked up	MS to Printer	Galley proof recd fm.printer	Proofread* by Editor	P.M. layout & pasteup	Page proof from printer	Page proofs appr. ret. to printer	Blueline from Printr	Blueline to printr	Text Del.Date
TT-27	Day 1	Day 2-3	Day 3	Day 8	Day 11	Day 12-13	Day 18	Day 22	Day 25	Day 26	Day 31-35

* If a second or subsequent proof is required, dates must be adjusted here and for balance of schedule.

NOTE: EVERY PRODUCTION MANAGER will work out a day schedule which exactly suits his requirements, time lapses, and printer capabilities.

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Appendix C

GLOSSARY OF TERMS

binding	the cover and fastenings of a book
blueline	a photographic print of a printed text, usually produced with dark blue ink on light blue stock
cover stocks	a paper cover of a book, usually of heavier stock than that used for the pages. May also refer to hard stocks.
flats	the frames or devices which hold the negatives for offset printing. When printed and folded, a signature is produced.
font	an assortment of type all of one size and style
format	makeup of a book, as to shape, size and appearance
galley proof	a proof from type on a galley before it is made into pages
graphics	drawings which represent an object in two-dimensional forms; also representations by a graph
hard cover	the cover of a book made by using a hard cardboard stock covered with cloth, plastic or leather.
layout	arrangement of matter to be printed
legends	an explanatory list of the symbols on a chart or illustration
manuscript (ms)	the typed text of a book or document as opposed to a printed text
page proof	a copy of a book showing placement of all type, but no illustrations or figures
paging	setting the order of pages
pagination	paging and marking sequence of pages
paper stock	supplies of paper for printing
perfect binding	a process by which single pages are glued at the spine with a cover stripped and glued over the pages
saddle stitching	a process of binding a book by driving staples through the center of the spine and clinching at the center
self-cover	a book cover formed from the same paper stock as is used for the pages
signature	a group of pages which are printed on one sheet, then folded
Smythe stitching	a process by which book signatures are stitched together with the binding and cover secured with glue
specs	specifications
stapling	using small u-shaped wires driven through the pages of a book at the corner or at the spine
type style	face, size, and appearance of type

TWELVE

Completion Rate Studies

Kenneth E. Whittington

Introduction to Article

Course developers and Directors of Education new to their jobs usually come to a quick appreciation of one of the facts of "home study life"; not every student who enrolls in a course will finish it. Knowing how to calculate the accepted course completion statistics is an important skill.

Mr. Whittington describes the various definitions, provides complete rate examples, and even gives the reader a quiz. Understanding how to calculate completion rates is one of the first steps in coping with the age-old question of how to encourage students to complete their courses of study. These completion rate formulas are required to be used by the Accrediting Commission of the National Home Study Council evaluation reviews of institutions seeking accreditation. Every home study school will want to maintain quarterly -- or even monthly -- course completion data.

Completion Rate Studies

Kenneth E. Whittington

Overview

Course developers need to understand the proper methods of working formulas for calculating completion rates for home study courses. Knowing how to do a completion rate analysis is but another skill course developers must have at their disposal, for it aids in course design.

You may be wondering why we would be concerned with completion rates in this Handbook which is primarily devoted to course development. Let's start by asking the question, why are we developing a new course? Obviously your school has performed a marketing study to determine a need for the course. As Director of Education, the chore of research and developing the course is placed in your hands. You also know that your department can add to the profitability of your school if the course is successful. By what better method can we determine if a course is successful than by measuring student progress within the course? Proper calculations of completion rates is the key method for measuring. It should be done for each course at least twice each year to determine various trends.

If your school is accredited or applying for accreditation, part of the accrediting standards mandate calculation of student progress. The Accrediting Commission will ask for the school to present data from an adequate statistical study of students' records. The study must show the number of enrollments, the percent completing the first assignment or lesson, the number completing through several

specific points in the course, the exact number of assignments completed, and the percent of students completing the course. A copy of the Accrediting Commission's Document 4.1.1 entitled, "Instructions for Studies of Student Progress" is enclosed as Exhibit A for your reference.

What makes a student discontinue his studies? It is an age-old question, but one that a Director of Education must address every day. I have found the highest number of student responses to this question involved personal reasons. The second most frequent response involves financial reasons, and the third, "they don't have the time."

I have drawn my own conclusions through research and persistence as to the exact reasons students drop out of educational courses. Actually, there are three major reasons students drop out: poor educational materials, poor servicing, or poor student-school communication.

If your school can keep a student as motivated through the course as he was when he registered, you can increase your completion rates tremendously. By keeping a close watch on completion rates and student progress through the course, trends can be detected and dealt with. For example, we had 40 lessons in our truck driver course. Beginning with lesson 25, our course instructed in the Federal Bureau of Motor Carrier Safety Regulations. There were seven continuous lessons dealing with rigorous regulations. Through student progress studies, we were able to detect a high percentage of drop- outs starting with lesson number 25. In our revisions, we redesigned the course so that the regulations were taught in a more desireable language and were more evenly spaced throughout the course instead of all seven lessons grouped together.

This is only one of many examples I could share with you concerning the necessity of adequate completion studies. I could cite many more that would have remained unnoticed without the results of the studies. Stop and think; have you recently stopped doing business with a vendor you might have been purchasing from on a regular basis? Why did you discontinue? For personal reasons? I doubt it. It probably had something to do with the product or the servicing, or perhaps poor communications. I have a good friend who has boycotted a major retail store for over ten years. He purchased a lawn and garden tractor for $750.00. Shortly after he purchased the machine, he called the service department to perform some work that came under

warranty. The service manager told him the warranty would not cover the repairs, which was not true. My friend became so angered that he returned the machine and never returned to the store. To this day he tells his story to everybody he meets in hopes that they will refrain from buying at that store. The company tried on several occassions to right the wrong that had been done, but to no avail. It was too late. Perhaps a large national retail store can afford to lose customers. In most cases we can't. Remember, our student "customers" usually buy from us one time.

Definitions

Let's begin our learning process by understanding the definitions of some of the terms we will be using in making our discussion of completion studies.

Combination Course: A course consisting of a home study portion and a residence portion. Normally, the home study portion precedes the residence portion. Residence training is offered to provide students instruction on the use of specialized equipment, learning of manual skills or the application of certain techniques under supervision (e.g., tractor trailer driving).

Completion Rate: The ratio of assignments completed to the total number of assignments contracted for in a sample of enrolled students (note: not the same as graduation rate). To further interpret this definition, if there were 40 lessons in your course, a student completed 20 lessons, and no more, the student completed 50% of the course. If the student completed all 40 lessons but did not meet the school's grading standards in lessons 5, 10 and 15, the student completed 100% of the course but did not graduate.

Enrolled Student: A person who has made the required tuition payment, has been accepted by the school and has been sent his first instructional materials. Enrolled students are those who have not elected to cancel by means of cooling-off rules or by failing to reaffirm their enrollment (if required).

It is important for you to know that the completion rates should be calculated by using enrolled students only. If an application is rejected by your school for not meeting the entrance requirements or if the student elects to use cooling-off privileges, he is not an enrolled student and does not belong in your completion statistics.

Graduation Rate: The percentage of enrolled students in a sample of the school's course (or courses) who have satisfactorily completed all of the prescribed requirements of a given course.

Non-Start Rate: The percentage of enrolled students in a sample of a school's course (or courses) who did not submit any required examination or lesson assignment for grading or servicing. Non-Starts: Students who after becoming enrolled, do not submit any of the required examinations or lesson assignments.

The Accrediting Commission has determined that the non-start student is considered an enrolled student and is a "revenue generating" student, and that non-starts who have not cancelled via cooling-off provisions must be included in determining completion and graduation rates.

Samples: Size and Selection

In our definitions, we have referred to "sample of students" several times. Since some schools could have thousands of students enrolled in a given course, it is necessary when calculating completion rates that a fair and just method of sampling be done. The "pick and choose" method will not accurately reveal the completion rate information you are looking for. Remember, to cheat on these calculations is only hurting you and your school. Faculty sampling leads to skewed data and, inevitably, to faulty decision making.

There are statistical charts readily available that are useful in determining a valid sample size based on the population used and the confidence level desired by the school. The sample size must be large enough to guarantee a statistically valid study.

The key to effective sampling is the "randomness" of the sample: in a random sample of student body, each enrolled student's name must have an equal chance of being selected for the sample. The selection of names must be guided purely by chance. For example, selecting every 10th name out of a phone book would be a random sample of all names in that particular phone book.

To conduct a completion rate study for a home study school, no fixed size sample is suggested. Medium or

larger schools may want to use 500 or more names while small schools use a smaller sample or even use all students enrolled during an appropriate time period.

Care should be taken not to let the sample become too selective. In an alphabetical or numerical list, to arrive at the desired sample, one might need to take every fifth, tenth, or fortieth name falling in the required enrollment period. Small samples from 100 to 500 names are acceptable, provided they are drawn on a truly random basis.

Time Frames for Samples

In computer completion and graduation rates, the sample should include only students who enroll long enough ago to have a reasonable chance of completing the course. If the course has changed little recently, include only students who have been enrolled for the entire period normally allowed to finish the course. If significant changes have been made, one can select a period of enrollment sufficiently far back to embrace at least 80% of those who had a chance to finish (i.e., if 80% usually finish within 18 months, one can select from those who enrolled on or before a period commencing 18 months ago). Non-start rates, of course, can be computed sooner, since after an initial period most of the non-starts will have been identified.

Completion Formulas

Now let's look at the formulas used to compute the various rates. You may need your pocket calculator to keep up with us from here on.

1. Non-Start Rate: Enrolled students who have never submitted the first lesson divided by total of enrolled students in the sample.

Example: In a sample of 102 total students, 12 never submitted lesson 1 for grading. Of these 12, two had elected to cancel during the cooling-off period. The non-start rate is therefore:

$$\frac{10 \text{ (enrolled students)}}{100 \text{ (total)}} = 10\% \text{ non-start rate}$$

2. Completion Rate: Total of lesson examinations actually submitted divided by total of lesson

examinations which would have been submitted if all of the enrolled students (including "countable" non-starts) in the sample did 100% of their work.

Example: A course has 10 lessons (i.e., 10 exams must be submitted to the schools). In a sample of 102 students, two elected to use a cooling-off cancellation. The sample was left with a base of 100. From these 100 students, a total of 530 examinations were actually received by the school for grading. The completion rate is therefore:

$$\frac{\text{530 Exams Received}}{\text{1,000 Total Possible Examinations*}} = 53\% \text{ Completion Rate}$$

*(100 students x 10 exams = 1,000 Total)

3. Graduation Rate: Total number of enrolled students who complete and submit all required lesson examinations divided by total of all enrollees (including "countable" non-starts) in the sample.

Example: $\frac{\text{300 Submitted All Exams}}{\text{1,000 Students in Sample}} = 30\%$ Graduation Rate

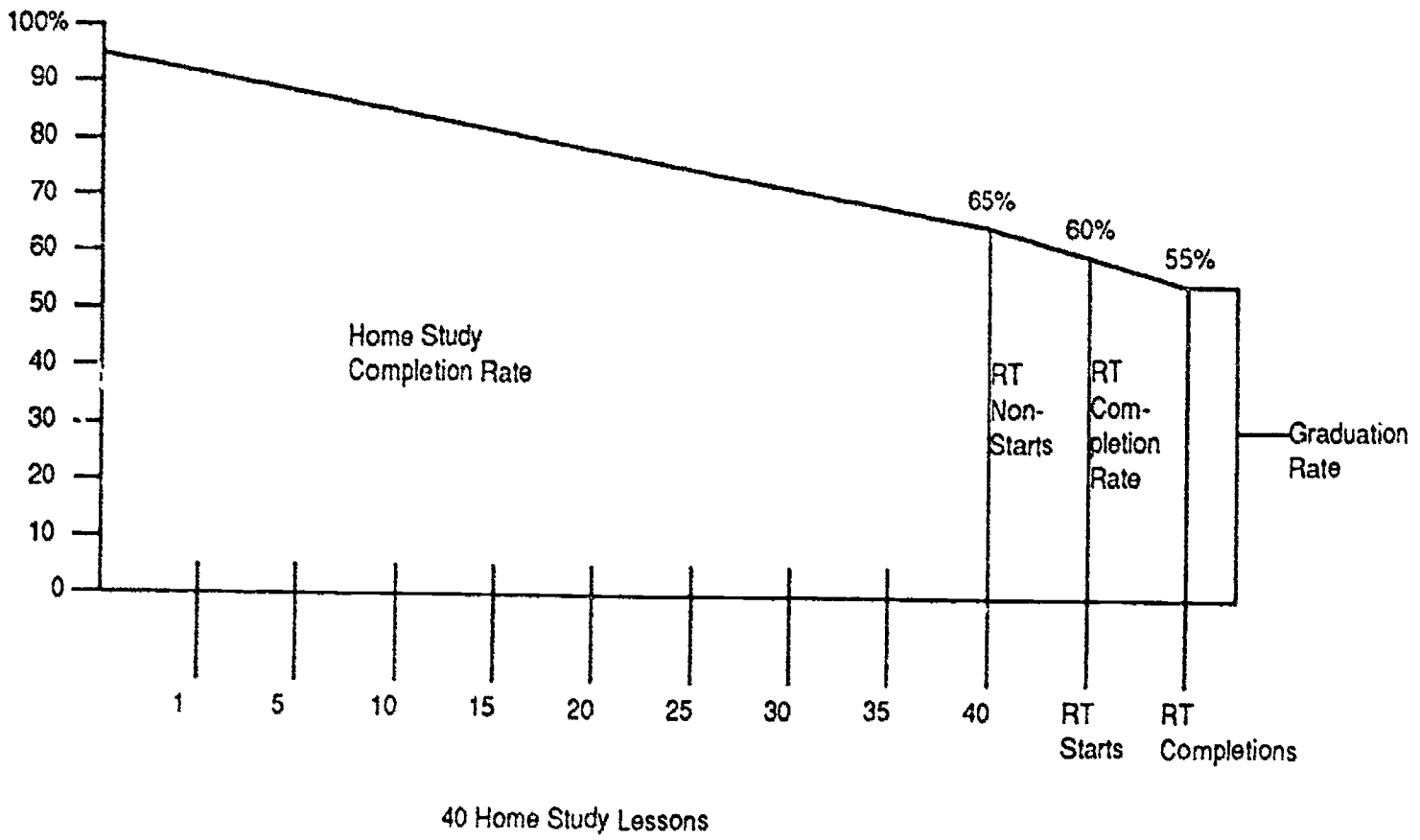
Completion Rates for Combination Schools

If your course consist of a home study portion and a required residence training portion, the Accrediting Commission requires that you maintain completion rates for both portions. The method of calculating the resident training completion rates is to divide the number of students completing residence training by the number of students who started residence training. For example, if 100 students reported to training and 85 finished, the completion rate would be 85%.

Example: $\frac{\text{85 Students Finished}}{\text{100 Students Started}} = 85\%$ Completion Rate

Illustrated below is a sample of student progress graph that shows completion rates for a combination course.

COMPLETION RATES FOR COMBINATION COURSES



Student Progress Graph

Explanation of Graph

8%	non-starts
92%	completed one lesson
90%	completed 5 lessons
85%	completed 10 lessons
80%	completed 15 lessons
75%	completed 20 lessons
72%	completed 25 lessons
69%	completed 30 lessons
67%	completed 35 lessons
65%	completed 40 lessons
60%	started residence training
55%	completed residence training

This type of chart and statistics will assist you in determining at what points in the combination course student attrition rate is highest and if trends exist that would alert you if the design of the course needs to be evaluated. As the chart shows, there is a significant number of

students who finish all home study lessons, but never start resident training. The graduation rate is reduced also by those students who drop out or do not successfully complete academic requirements for the course.

Computerized Completion Rates

If you decide your school has reached a point where computerized lesson completion is desirable and cost effective, there are several factors you would want to consider:

In your approach to computerized lesson completion, you should make clear the kind of information you need in the design process. The variables you might want to consider in your report format are:

1. Completion rates for each course or program.

2. Completion rates for home study lessons and resident training if your course requires both.

3. Showing completion rates by individual lessons or groups of lessons depending on how the lessons are packaged.

4. The time period your reports would cover (weekly, monthly, etc.).

These are not the only variables or considerations that would need to be evaluated before designing your computer program. Some of the most important factors would be to determine specifically the type of information you want reported and the time period the report would cover. You might also consider programming a graphics capability in your computer that could produce charts such as the one shown in Completion Rates for Combination Schools.

The advantages of computerizing lesson completion rates are numerous and there are several program designs that you would use to track lesson completion and graduation rates.

In Exhibit B we have prepared a "Completion Rate Quiz" for you to test your understanding of these formulas. The correct answers to the quiz are provided at the end of the exhibit.

Conclusion

We cannot stress enough the overall importance of knowing student progress and satisfaction with your courses. The measuring of completion rates is the sure way of finding these answers. Although we have given you the recommended formulas, we suggest that you use your own creativity in developing a running monthly table of completion statistics. At our institution we do this to verify sample study results and to give us approximate completion figures on a monthly basis. If problems are evident (e.g., the non-start rate appears to be rising), we take immediate appropriate action.

Or if, for example, we note a trend in which lesson completion rates appear to be falling, we can take several correction steps: pinpoint difficult lessons or exams and revise them; survey students to ascertain any difficulties they have; review our marketing efforts to determine if the course is delivering what we have promised, etc.

Remember the three elements which cause students to drop out: poor course materials, poor servicing, and poor communication. Give your course a chance to succeed. Have your entire instruction staff communicate on a regular basis and on the same level with your student body. We must resell our students every day. So many educational directors believe that the "other guy" does the selling. In most cases it's your product he's selling. Who should know more about the product than the people who developed it? Students must constantly be reassured that the decision to enroll in your school was the best decision they have ever made.

Document 4.1.1 EXHIBIT A

ACCREDITING COMMISION
National Home Study Council

INSTRUCTIONS FOR STUDIES OF STUDENT PROGRESS

Item 27 in the Guide to Self-Evaluation can be restated as follows:

In answer to item 27, the school should present data from an adequte statistical study or sampling of student records which shows:

a. the number of enrollments in the sample
b. the percent completing the first assignment
c. the number completing through several specific points in the course
d. the average number of assignments completed
e. the percent of students completing the course

Do this for each of your major courses.

In regard to d. above, in order to plot the graph called for on page 3, we suggest calculating how many finish successfully each successive tenth part of the course, e.g. how many sent in the first 10% of the total examinations in the course, 20%, 30% etc. Other breaks may be more convenient in yourcourse. Data should enable you to plot a graph somewhat similar to the one shown later in this document.

Suggested Method of Deriving Data by Use of Sampling

Size and selection of sample. No fixed size of sample is suggested. Medium or large schools may want to use 1,00 or more while smaller schools may want to drop to smaller samples or even to a complete count. Care should be taken not to let the sample become selective. In an alphabetical or numerical list, to arrive at the desired sample might need to take every fifth, tenth, or fortieth name falling in the required enrollment period. Small samples of 500 or even fewer may be acceptable provided they were drawn on a truly random basis and the percent of error recognized.

One should include only students who enrolled long enough ago to have a reasonable chance of completing the course. If the course has changed little recently, include only

students who have been enrolled for the entire period normally allowed to finish the course. If material changes have been made, one can select a period of enrollment sufficiently far back to embrace at least 80% of those who have a chance to finish (i.e., if 80% ususally finish within 18 months, one can select from those who enrolled during a period prior to 18 months ago).

Tallying and Calculation. After the sample has been drawn, one needs to tally how many assignments have been finished (usually how many examinations have been sent in) and have recieved passing grades. The tally for a sample of 1,000 students in a ten assignment course might look like this:

Non-starts	————	80	0
Credit for	1 Exam	130	130
(but not 2)	2 Exams	110	220
	3 Exams	103	309
	4 Exams	84	336
	5 Exams	65	325
	6 Exams	38	228
	7 Exams	16	112
	8 Exams	13	104
	9 Exams	14	126
	10 Exams	347	3,470
		1,000	5,360

In the sample 92.0% of the students (all but 80 out of the 1,000) completed the first assignment.

If all enrolled students in the sample had done 100% of their work, 10,000 examinations would have been sent in. Instead, 5,360 were received. The typical or average enrollee went 53.6% of the way through the course. This is the completion rate of the course. (This definition was promulgated by the National Home Study Council's Research and Educational Standards Committee and issued in the NHSC LETTER of April 16, 1955).This probably is this best single index of student progress. It can be a basis of comparison within the school as improvements are made from time to time. Many of the injustices of interschool comparison, however, are obvious.

In the sample, 34.7% of the students completed the course. (i.e., They did all the home studying required regardless of whether or not they took any "final examination", supervised examination, entered upon terminal resident training, qualified for certificates, or a diploma, etc. This figure should reveal what percentage of the students finished the home study part of the course. If this figure includes resident study also, it should so specify. Where resident terminal training is offered, it is of interest to know what percent of the sample start and what percent finish the resident portion of the course.)

NOTE: The same base (a) is used for (b), (c), (d), and (e).

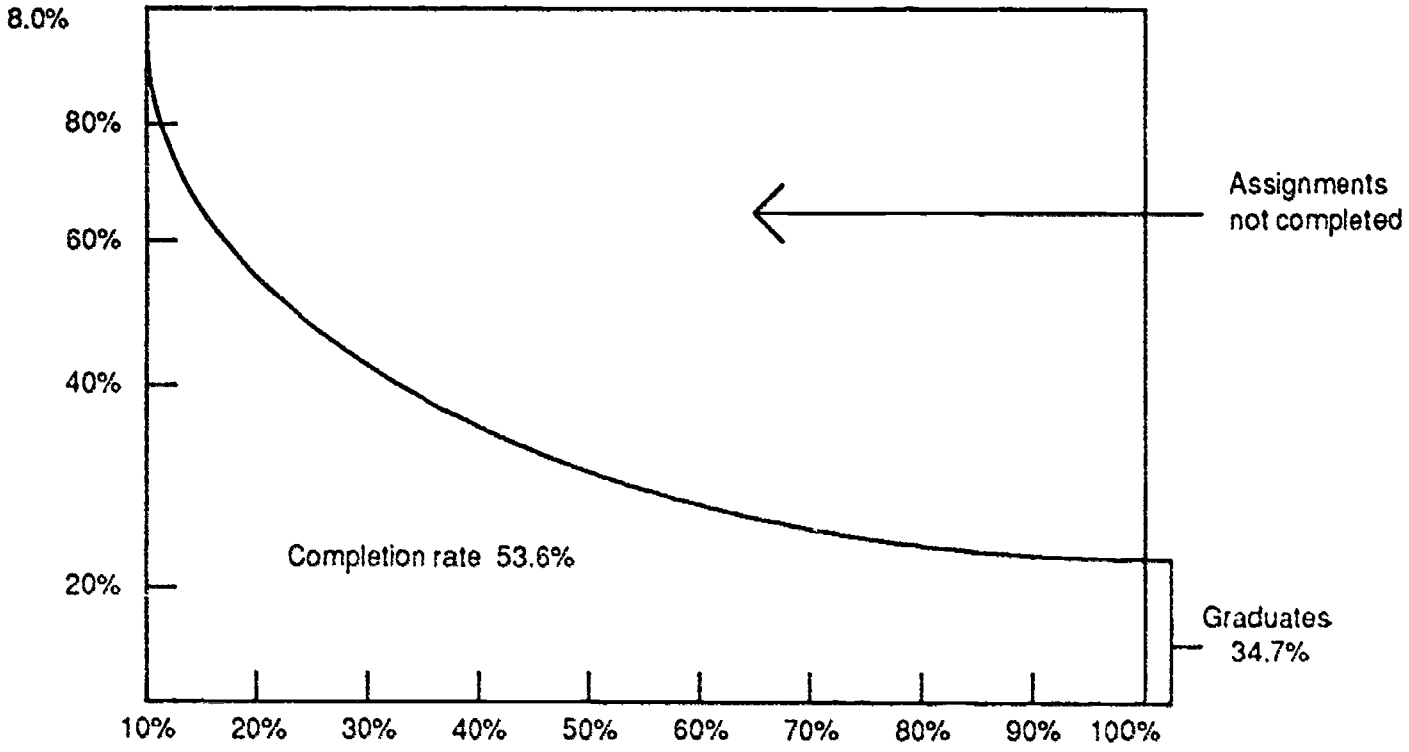
An enrolled student is one who has made the required tuition down payment, has been accepted, and has been sent his first instructional materials.

Similar studies should be made and reported for each different major course of field, e.g., high school, chemical engineering, accounting, traffic management, factory management.

STUDENT PROGRESS GRAPH

For each major course, prepare a line graph similar to the following showing student activity. The graph below shows the student progress of the example on the opposite page. The graph closely approximates the actual record of one accredited school.

Non-starts



Ten exams in course. Sample of 1000 students

Interpretation:

8.0%	non-starts
92.0%	sent in first exam (starting rate) (also finished 1/10 of course)
79.0%	finished 2/10 of course
68.0%	finished 3/10 of course
57.7%	finished 4/10 of course
49.3%	finished 5/10 of course
42.8%	finished 6/10 of course
39.0%	finished 7/10 of course
37.4%	finished 8/10 of course
36.1%	finished 9/10 of course
34.7%	finished entire course

Average percent of assignments completed: 53.6%

(This is the completion rate obtained from a tabulation of exams sent in by all students in the sample.)

EXHIBIT B

COMPLETION RATE QUIZ

To test your understanding of completion rate calculations, you may want to try your hand at this quiz. Answers to this quiz are at the end of this exhibit. You may write your responses in the spaces provided and check them against the correct answers.

A. Given: The following data apply to quiz items 1 through 3 below:

Total Enrollees in original sample: 1456
Enrollees cancelling via cooling-off: 16
Number of required lesson submissions in course: 30
Enrollees who never submitted a lesson: 144
Total number of lessons received for grading: 23,760
Number of enrollees who sent in all submissions: 576

1. What is the non-start rate? _____

2. What is the (lesson) completion rate? _____

3. What is the graduation rate? _____

B. Given: The following data apply to quiz items 4 and 5 below:

Enrollees for - 1984: 680 (January 1 - December 31)
1985: 920 (January 1 - December 31)
1986: 1,650 (January 1 - December 31)

The average time for the typical enrollee to complete the entire course is 10 months. Today's date is October 17, 1987.

4. Which of thefollowing time periods should you select to get a good current sample for a completion study? (circle best response)

A. January 1, 1984 - December 31, 1984
B. July 1, 1985 - December 31, 1985
C. January 1, 1986 - December 31, 1986
D. January 1, 1986 - July 1, 1987

5. Which of the following would provide a reasonable acceptable sample size?

A. 50 enrollees
B. 100 enrollees
C. 500 enrollees
D. Either B or C above.

C. Given the following data for quiz items 6 through 9 below:

Non-start rate = 12%
Completion rate = 60%
Graduation rate = 35%
Sample size (no cooling-off cancellations): 700
Required lesson submissions in course: 15

6. In the survey above, how many non-start enrollees were there?

_____

7. In the survey above, how many lessons were received for grading?

_____

8. How many students finished the course? _____

9. If, after the sample had been taken, an additional 1,050 lessons had been received for grading, what would the new completion rate be?

_____

D. Given for item 10:

Non-Starts = 315
Total in Sample = 2,100
Non-Start Rate = 15%

10. If, after taking a sample, 63 of the non-starts submitted lesson one for grading, what would the new non-start rate be? _____

_____

EXHIBIT B cont'd.

ANSWERS TO QUIZ

1. $\frac{144}{1440}$ = 10% non-start rate

2. $\frac{23,760}{43,200}$ = 55% completion rate

3. $\frac{576}{1440}$ = 40% graduation rate

4. D. Going back 18 months in time would provide a current sample. If the average student takes 10 months to complete the course, 18 months would allow most students to have completed.

5. D. Either B or C are possible sample sizes, provided both samples are truly random.

6. 84 non-starts (700 x 35%)

7. 6,300 lessons (10,500 x 60%)

8. 245 students graduated (700 x 35%)

9. 6,300+1,050 = 7,350 lessons

   $\frac{7,350}{10,500}$ = 70% completion rate

10. 315 - 63 = 252

    $\frac{252}{2100}$ = 12% non-start rate

THIRTEEN

Financial Analysis

James E. Godfrey

Introduction to Article

More than one excellent home study course has gathered dust on a warehouse shelf because it never reached its audience. Usually, such courses were inadequately or improperly promoted.

One key to assuring that courses are sold is to understand the complex interrelationships between course price, volume, and profit analysis.

Mr. Godfrey explains the basic cost accounting principles which home study educators at both profit and non-profit schools must know in order to survive. He cautions that the formulas presented here are tools for analysis, not substitutes for judgment.

Financial Analysis

James E. Godfrey

The Pricing Challenge

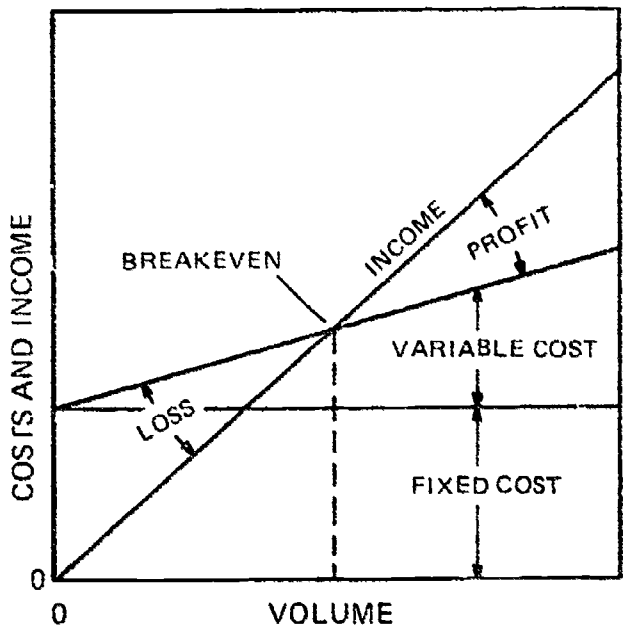
In managing the for-profit school, any new course offering inevitably brings forth the question of price: "What should the tuition be?" And, of course, there are these related questions:

-- What volume might we expect?
-- To what extent will price affect volume?
-- Where is the price sensitivity barrier?
-- And finally, will the course be profitable?

We're dealing with dynamic factors here, and with the interrelated impacts of price on volume, volume on cash flow, and cash flow on profits. Ideally, when dealing with a new course offering, the management can make calculated judgments based on the track records of similar reliable cost information. Properly sorted, such cost data can be projected for a new course offering. At this point, it would be well to name two kinds of tools for cost analysis:

1. Breakeven Chart for Cost-Volume-Profit Analysis
2. Analysis of Contribution to Profit and Absorption of Overhead

Here, in the simplest form, is a breakeven chart: Costs and income run vertically, volume runs horizontally. There are fixed costs, variable costs, a straight income line, and a breakeven point.



But before we dare get into a discussion about the use of either of these procedures, we must touch on several bases of cost accounting.

Fixed Expenses (or Fixed Costs): All combined, this is what it costs to "turn the key in the door each morning," the overhead costs that are not related to volume of production or services rendered. In the school business, this would include costs such as rent, depreciation, insurance, utilities, supplies, indirect labor, general expense and administration.

Variable Expenses (or Variable Costs): These are all costs that can be tied directly, on a per unit basis, to the volume of business conducted. For schools, the unit of volume is the enrollment. Included are freight, direct sales expense, and direct labor -- such as enrollment processing, lesson grading, records posting and motivational follow-up functions.

Semi-Variable Expenses: Costs cannot always be neatly pitched into the black and white bins. Gray areas are inevitable -- those costs that are influenced by changes up or down in volume, but don't change in a direct relationship. Advertising is one such example. However, on a breakeven analysis, there is no handy way to deal with semi-variables. Therefore, by arbitrary decision, compromise or whatever, all costs must be categorized as either fixed or variable. In the case of advertising, this type of compromise might lend itself to schools. Establish a base ad budget as a fixed expense, then assign a flat amount per enrollment -- thereby creating a variable expense (as well as some elasticity in the ad budget).

Acorn Institute: Data for Year Ended 12/31/86

Financial Data by Courses	Course 101	Course 102	Total
Full Tuition	$ 428.00	$ 615.00	
Average Revenue per Enrollment	300.00	400.00	
Enrollments, Year Ended 12/31/78	900	450	1350
Sales Revenue for Year	$270,000.00	$180,000.00	$450,000.00
Variable Costs:			
Variable Cost per Enrollment	$ 108.00	$ 168.00	
Variable Cost per Year (Variable Cost x Enrollments)	$ 97,200.00	$ 75,600.00	
Fixed Costs:			
Total Fixed Cost per Year			$189,000.00
Allocation:			
Course Sales to Total Sales	60.0%	40.0%	
Allocated Fixed Cost	$113,400.00	$ 75,600.00	$189,000.00
Combined Costs:			
Enrollments	900	450	1350
Variable Cost	$ 97,200.00	$ 75,600.00	$172,800.00
Fixed Cost	113,400.00	75,600.00	189,000.00
Total Cost	$210,600.00	$151,200.00	$361,800.00

Analysis of Contribution to Profit and Absorption of Fixed Cost

	Course 101	Course 102	Total
Average Revenue	$ 300.00	$ 400.00	
Less Variable Cost	−108.00	−168.00	
Contribution per Enrollment	$ 192.00	$ 232.00	
Contribution per Year	$172,800.00	$104,400.00	
Allocated Fixed Cost	113,400.00	75,600.00	
Profit Contribution	$ 59,400.00	$ 28,800.00	$ 88,200.00
Profit, Percent of Sales	22.0%	16.0%	19.6%

Contribution: (or by its full title, Contribution to Profit and Absorption of Overhead): "What has this course done for me -- or my school -- lately?" Contribution is a good measuring stick, and an easy one to use is:

Contribution = Price less Variable Cost

In school language, the contribution of an enrollment is what's left over after subtracting variable costs from tuition received. Take special note of the fact that fixed expenses are not involved. Contribution absorbs fixed expenses -- totally we hope, and money to spare then becomes profit.

Allocation: Allocation is the sharing of fixed expenses by more than one profit center. Whenever a school offers more than one course, there should be some method of allocating equitable portions of the overall fixed costs. Such sharing of the burden might be done on the basis of sales revenue, floor area, payroll, or combinations thereof. The case examples that follow make use of an allocation based on sales.

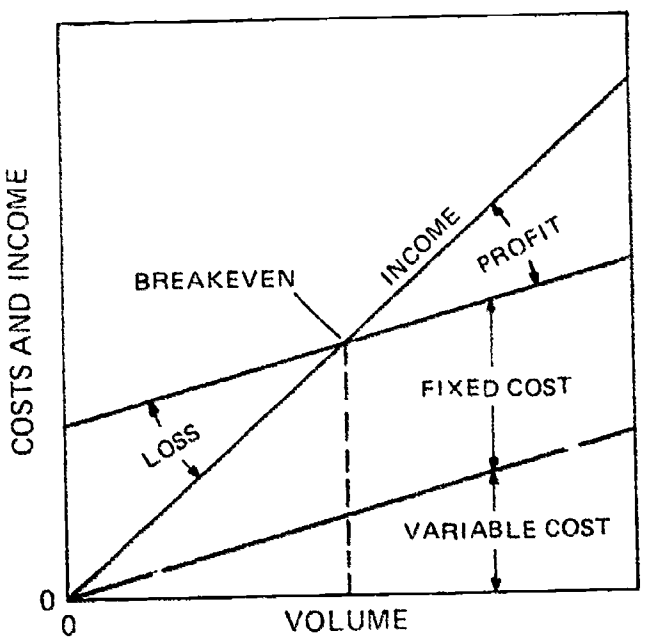
Target Volume: This is my personal term for the targeted enrollment volume that will assure a comfortable profit margin.

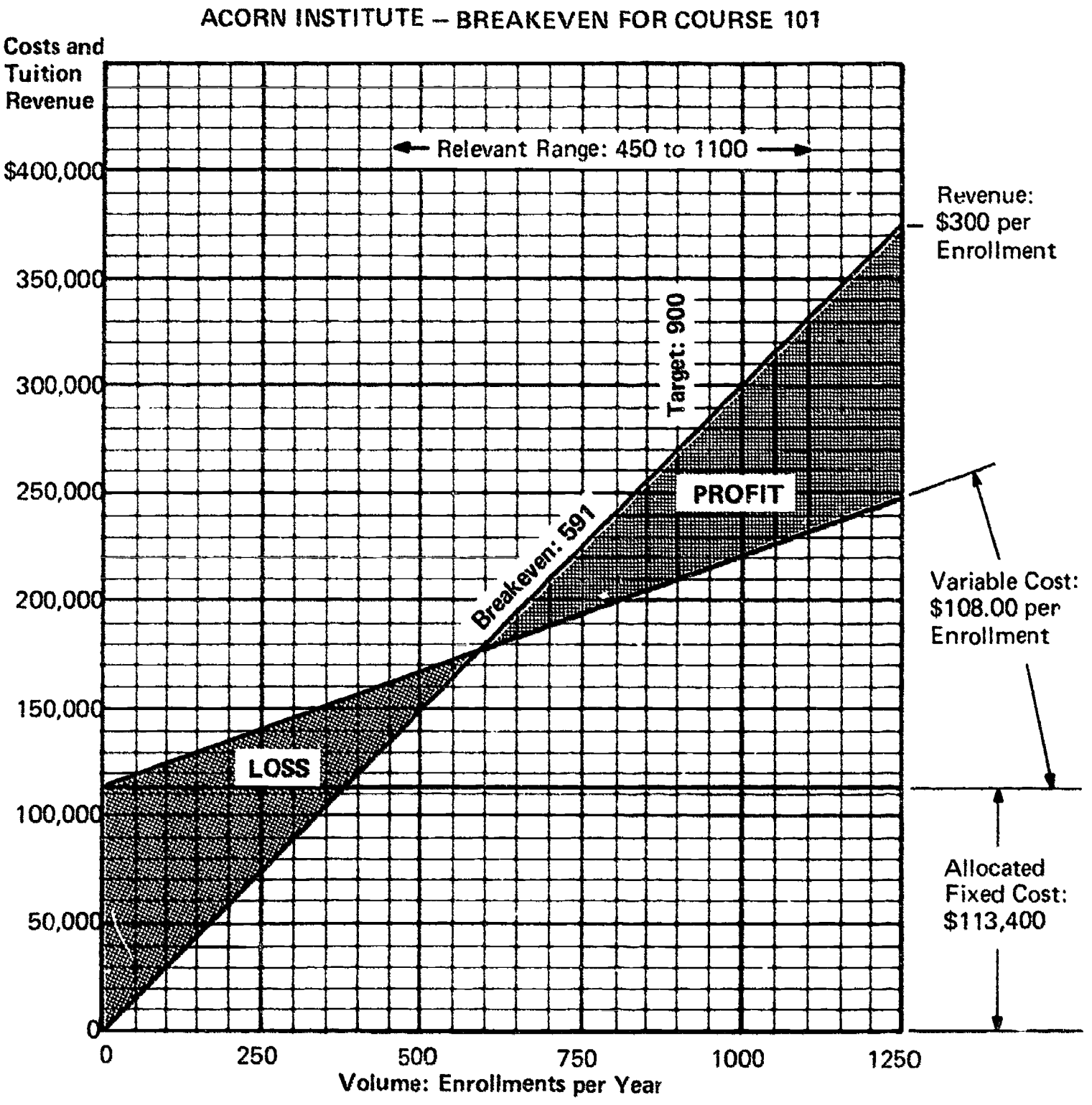
Relevant Range: In the real world, fixed costs quickly become unfixed by retrenchment to cope with a sales slump, or by expansion and hiring of indirect as well as direct labor to handle booming sales. To this extent, any breakeven chart must be qualified for the minimum and maximum enrollment levels that will be accommodated by the give of fixed costs. This setting of the range assumes that the management has in place a series of options for dealing with such ups and downs in volume.

So much for the basics. Now we want to demonstrate the use of breakeven charts and analysis for contribution. Acorn Institute, our case history school, offers two seasoned courses. They keep good costs records, and manage to make a profit. Here is the cost data for Acorn's two courses. Derived from that data, you'll see a breakeven chart for each course.

Alternative Breakeven Charts: Looking at Acorn's breakeven charts, the fixed costs comprise the foundation of the expense structure, and the wedge of variable costs in the next layer. While the wedge of variable costs is the next layer, there is perhaps a better way to chart the breakeven point. I prefer this next format because it shows any loss as a bit out of fixed expense, and that's a realistic portrayal of what happens. When a profit center fails to reach breakeven, the contribution falls short of covering the allocated fixed expense. Procedurally, just begin the chart by plotting variable costs from the ze : point, then add the fixed costs as a parallel layer of expense.

Your Contribution to Contribution: If a course goes sour, or a new course comes up short of its projections, do you dump it and look for greener fields? Not necessarily. The decision ought to be influenced by its contribution. Assuming the course to be on the bad side of breakeven, how much contribution is generated to defray the school's overhead? Going back to Acorn, the picture has changed. Course 101 is holding steady at 900, while Course 102 fizzled, with only 150 enrollees for the year. Calculate the contribution of Course 102, the total contribution as related to fixed expense and Acorn's profit. Without the contribution from Course 102, would Acorn Institute be in the red?



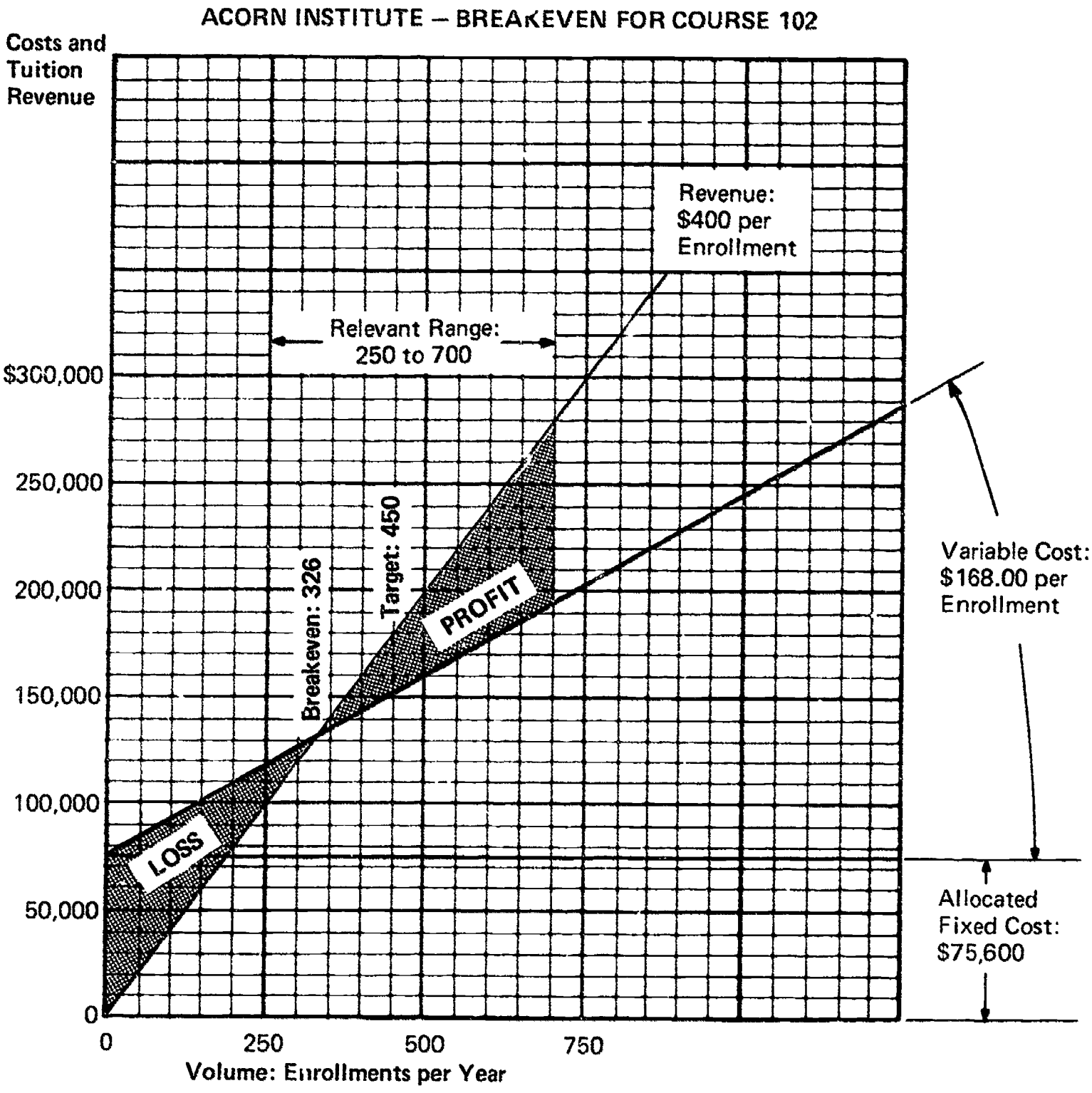


Breakeven Solution by Algebraic Equation:

$$\text{Breakeven (Enrollments)} = \frac{\text{Fixed Expense}}{\text{Unit Revenue} - \text{Unit Variable Cost}}$$

$$\text{Breakeven (Enrollments)} = \frac{\$113{,}400}{\$300 - \$108} = \frac{\$113{,}400}{\$192} = 591 \text{ Enrollments}$$

Proof: $113,400 + ($108 x 591) = $177,228 Cost
$300 x 591 = $177,300 Revenue
(Rounding up to a whole enrollment explains slight difference.)



Breakeven Solution by Algebraic Equation:

$$\text{Breakeven (Enrollments)} = \frac{\text{Fixed Expense}}{\text{Unit Revenue} - \text{Unit Variable Cost}}$$

$$\text{Breakeven (Enrollments)} = \frac{\$75{,}600}{\$400 - \$168} = \frac{\$75{,}600}{\$232} = 326 \text{ Enrollments}$$

Proof: Revenue
$\$400 \times 326 = \$130{,}400$

Proof: Cost
$\$75{,}600 + (\$168 \times 326) = \$130{,}368$

Calculate the Contributions and School Profits

Acorn Institute Data	Course 101	Course 102	Total
Average Unit Revenue	$ 300.00	$ 400.00	
Variable Cost (per Unit)	108.00	168.00	
Unit Contribution	$ 192.00	$ 232.00	
Yearly Enrollment	900	250	1150
Contribution per Year	$172,800.00	$_____	$_____
Contribution, % of Total	_____%	_____%	
Fixed Expense			$189,000.00
Profit (Contribution Less Fixed Cost)			$_____
Course Revenue per Year	$270,000.00	$100,000.00	$370,000.00
Profit as a Percentage of Total Revenue			_____%

Conclusion

From the above discussion we can see that unless you have a firm handle on all costs associated with your course, you will have a difficult time in analyzing where you are. It is impossible to budget accurately unless you know:

A. Historical costs;
B. Actual costs per course; and
C. Where you want to be financially with your course offerings.

As Directors of Education you will want to work closely with your accounting people from the very beginning of any new course. Financial statements are only "histories;" they tell you where you have been. In order to achieve success, you need much more than a history: you'll need a plan.

Hopefully, this article has touched on some of the tools for financial analysis and planning you should understand as you develop new course offerings.

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