INSTRUCTIONAL DESIGN: Capturing the Classroom for Distance Learning

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About ACCESS

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Other Monographs in This Series:

#1 Strategic Planning for Extension Education, James F. Engel, Ph.D., 1989.
#2 Distance Education: Why Not?, David W. Conner, M.A., 1989.
#3 Correspondence Instruction: Does It Deliver? Robert E. Freeman, M.A.T.S., 1993

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Introduction

There once was a teacher
Whose principal feature
Was hidden in quite an odd way. Students by millions
Or possibly zillions
Surrounded him all of the day. When finally seen
By his scholarly dean
And asked how he managed the deed, He lifted three fingers
And said, "All you swingers
Need only to follow my lead." "To rise from a zero
To Big Campus Hero, To answer these questions you 'Ii strive:
Where am I going,
How shall I get there, and
How will I know I've arrived?"
(Mager, 1984)

Wouldn't it be great if all teachers could do as well as this fictitious teacher seems to be doing? Wouldn't it be great if instead of arguing about whether on campus or distance education was superior, everyone could unite in efforts to improve education wherever it takes place and, in the process, extend access to greater numbers of people? The field of instructional systems design can offer us such a hope.

In ACCESS Monograph No.1, James Engel (1989) suggests a systems approach to ensure strategic thinking about plans for distance education. In Monograph No.2, David Conner (1989) summarizes objections to distance education, along with some evidence to refute those objections. In Monograph No. 2 (Freeman, 1993) give specific evidence showing the effectiveness of distance instruction and the success of its students are, at minimum, similar to conventional methods of teaching. It is now time to move beyond the debates and find a method to bring about the goals that everyone has—the best education for the most people and the completion of the great commission. The field of instructional systems design offers such a method.

In fact, the application of these methods at Gordon-Conwell Theological Seminary has resulted in 92% of students who had experienced on-campus instruction agreeing in a formal evaluation survey that the educational experience of taking a course through the Independent Study Program was "qualitatively equivalent" to live, on-campus instruction. No students reported disagreement (Freeman, 1993).

In other words, these distance learning students felt that the classroom experience had been adequately captured. It has also resulted in the school being given the ACCESS Course of the Year Award for three years in a row. Thus, even a limited application of instructional design processes has resulted in an important "foot in the door" for delivering traditional course packages from a traditional institution to nontraditional
students. The purpose of this monograph is to provide an overview of the field of instructional design for distance education, to offer a concrete example of how it has been applied at Gordon-Conwell Theological Seminary, and to offer preliminary suggestions for applying it in your situation.

Overview of Instructional Design

To date, theories and processes of instructional design have been relatively unrecognized as management tools in higher education. Yet, they offer a powerful means of responding to the issues that are prompting educational institutions worldwide to reexamine their very reasons for being.

Given its history and orientation, particularly in relation to instructional technology, instructional design has made significant contributions to the uses of video and computers in education. More importantly, however, it has provided guidelines for the organization and presentation of all instruction— from lecture to independent study, from laboratory to library. Instructional design has caused educators and trainers to stop and think—to review their goals, to explore new delivery formats, and to reconceptualize traditional learning models. It makes educators and trainers more conscious of their instructional decisions, and helps to focus their instructional expectations (Johnson & Foa, 1989).

Thus, it is important to understand what is meant by "instructional design," what is involved in the process and what the assumptions/principles are on which it is based. An overview of the field should also include the rationale for such a process along with a discussion of its advantages and disadvantages. Finally, the overview should include a look at representative models, the special need for instructional design in distance education, ways to integrate it into existing organizations, and ways to use it with conventionally taught courses.

Definition
Coldeway states (1982, p. 91) that "instructional Systems design is actually a hybrid made up of concepts in learning theory, systems engineering, instructional technology, and organizational development. It is a Systematic attempt to organize procedures and methods of demonstrated effectiveness in the educational context."

Smith and Ragan state (1993, p.12) that the term refers to "the systematic process of translating principles of learning and instruction into plans for instructional materials and activities." An instructional designer, then, is somewhat like an "educational engineer."

Process
Another way to define instructional design is to describe the process involved in the systematic planning of instruction. At the most basic level, according to Mager (1984), the instructional designer's job is to answer three major questions. First, where are we
going? - what are the objectives of the instruction? Next, how will we get there? - what is the instructional strategy and the instructional medium? Finally, how will we know when we have arrived? - what should our tests look like? - how will we evaluate and revise instructional materials?

As shown in Figure 1, these three questions can be stated as major phases that an instructional designer completes during the design and development process:

1. perform an instructional analysis to determine where we are going;
2. develop an instructional strategy to determine how we will get there;
3. develop and conduct evaluation to determine how we know when we are there.

These three stages are the essence of what is often called an instructional design model which provides a road map to the creation or adaptation of instruction regardless of the delivery methods used (Willis, 1993).

Figure 1. Major Phases of Instructional Design (Smith & Ragan, 1993)

Assumptions/Principles
As shown in Figure 2, Smith & Ragan (1993) note four major theory bases contributing to these stages of instructional design. They include general systems theory, communications theory, learning theory, and instructional theory.

Figure 2. Instructional Design Theory Bases (Smith & Ragan, 1993)

Instructional Design Theory Bases

In general systems theory, a system is often defined as a set of interrelated and interacting parts that work together toward some common good. So, within instructional design processes the system is a set of steps in a plan that have as their purpose the solution of a particular learning problem or need.

Communication theories have had a strong impact on the field. This impact is especially seen in decisions made during media selection and in the writing and production of instruction. These theories focus on the factors that impact how information is communicated from one person to another.
Learning theories attempt to describe, explain, and predict learning. Learning can be defined as change in human disposition or capability that persists over a period of time and is not simply ascribable to processes of growth. It is a long term change of behavior or of content and structure of knowledge in memory which is not a result of fatigue, drugs, etc. (Gagne’, 1985).

Theories of instruction attempt to relate specified events comprising instruction to learning processes and outcomes. Often instructional theories are prescriptive in the sense that they attempt to identify conditions of instruction which optimize learning, retention, and learning transfer (Smith & Ragan, 1993).

These theory bases result in the process of instructional design being based on several assumptions/principles which are stated slightly differently by various experts. Coldeway (1982) includes within these principles the ideas that:

1. individual students may differ in previous experience, learning style, learning rate, motivation and attention time;
2. the educational system should accept responsibility for overcoming difficulties arising from these differences;
3. educational methods do not all have the same potential for all objectives and all students;
4. exposing students to a wide range of subjects, ideas, and attitudes is not a substitute for the identification of relevant content and related skills and competencies.

Smith & Ragan (1993) state that instructional design is based on several concepts. They include the ideas that:

1. we must have a clear idea of what the learner should learn;
2. the best instruction is effective (learning takes place), efficient (least use of learners time) and appealing (motivating);
3. students learn from many different modes;
4. some principles of learning apply across age and content;
5. evaluation should be done of instruction, as well as learner performance;
6. evaluation of learners should be measured against objectives, not other people;
7. there should be congruence among objectives, activities, and assessment.

Thus, the four major bases of theory on which instructional design is based result in several implicit assumptions on which the stages of the process are carried out. They also form the background for an overall instructional design rationale.

Rationale
Johnson and Foa (1989) present a comprehensive discussion of the rationale for instructional design. University and college administrators face enormous changes and
unrelenting new pressures in higher education. Instructional design can provide schools with the resources to meet these challenges and adapt successfully to the pace of change. One pressure facing educators is a new population of learners, newly armed with raised consumer consciousness. By beginning with learners where they are, "by understanding learner needs, by meaningfully structuring content, and by building in the motivational factors to explore and persevere, instructional designers can ensure that the proper foundations in any subject are understood before students move on to more abstract and difficult concepts. This results in satisfied consumers.
Another major challenge facing higher education is that the nature of knowledge itself is changing -- at such an accelerating rate that it is commonly said that what an engineer knows upon graduation today will be totally outdated in five years. This calls into serious question our traditional views of education as the process of a faculty expert pouring
information into a receptive student's open mind. Rather, the knowledge that is of use today is structural understanding and the application of skills—the conceptual and practical systems that allow us to find and plug in new facts and behaviors appropriately, as needed. Understanding the structure of things is a strength of a systems approach.

Thirdly, students, employers, and community leaders have expressed their unrelenting need for an education that draws from sound theoretical principles and puts them to work for the common good. Thus, specific outcomes must be designed into the educational process to satisfy this demand for applied learning.

Faculty are also affected by the pressures and changes within higher education. While many choose to teach part-time while they engage in other professional endeavors, all are being pushed to improve their teaching skills. Instructional designers help in course design, materials development, and evaluation methods. Not only can courses be made more available via different media, but teaching skills can be enhanced in the process.

Finally, the proliferation of off-campus sites where courses are offered has resulted in the need for cost-effective and comparable curriculum design. Instructional designers can ensure the comparability of course offerings and evaluation. For instance, if an instructional design team were asked to develop a course that would be taught simultaneously at a variety of sites, they could build the development of faculty guides into their approach. Faculty guides, with specific syllabus outlines, reading and reference lists, and suggestions for class discussion and assignments, will help any given faculty member move through the syllabus in such a way that all significant material is comparably covered, but so that considerable room is also left for individual faculty to insert their own variations on the theme.

Perhaps the rationale for instructional design can best be seen by comparing it with traditional approaches to education. The principal difference is philosophical. It relates to perspective, or point of view. It is the difference between viewing instruction from the learner's perspective or from the perspective of the content—an audience orientation versus a subject-matter orientation.

This audience (or market) perspective consciously guides and influences all instructional design activities. The essential perspective of the instructional designer promotes the following questions:

1. What does the learner know now?
2. What does the learner need to know?
3. What conditions will affect and facilitate his or her learning?
4. How will you know when he or she learns it?

The answers to these questions are formulated as measurable goals and objectives. Those, in turn, are translated into instructional strategies and delivery systems. Finally, student performance is measured in relation to the goals and objectives.
In contrast, traditional instruction, typically based on a subject-matter perspective, asks different questions:

1. What is important about the content?
2. What makes sense in the content?
3. How can the instructor best present the content so the student will understand its place among the disciplines?

Answers to these questions generally yield something like a syllabus, or content outline, that ties content to a time line. It rarely outlines learning strategies, however, and it almost never expresses expected student outcomes in measurable terms.

The significance of instructional design's consciously focusing on the learner does not suggest, of course, that effective instructors do not do that. In fact, a major characteristic of effective instructors is that they are constantly aware of student needs and student progress, and that they monitor student reactions throughout a course. However, as the diversity of student populations grows, this awareness is more difficult to put into practice.

A second major difference between instructional design and a traditional approach is that the designer consciously uses a systematic process to create instruction, whereas most traditionalists do not, nor can they be expected to do so. Subject matter, especially in scientific and technical fields, is expanding exponentially. To expect instructors to keep current in their own field, to understand new developments in learning theory and learning technology, and to be intimate with a coherent instructional design process, is unreasonable given the typical reward structure and career path in education and business. In higher education, instructors are rewarded first for scholarly research, second for teaching.

The instructional designer focuses on structuring and sequencing the events of instruction, and creating conditions that foster learning. This approach can actually enhance the integrity of the subject matter, because it views it in relationship to the learner, in terms of what the learner knows and what must be learned. Sequences are mapped according to the way a learner can comprehend the new materials in light of previous learning. Content is organized to be consistent not only with the principles of the subject area, but also with the principles of learning theory. Thus, while initially instructional design and traditional instruction may seem to be at odds, their distinctive emphases can, in fact, support and enhance each other.

Instructional design is an evolving discipline. Drawing on social science, management science, and information science, it is becoming both a body of knowledge about learning and learners, and a process for organizing and managing the development of complex instructional programs (Johnson & Foa, 1989).
Advantages/Disadvantages
According to Smith & Ragan (1993) this rationale leads to several advantages that accrue to instructional design. They include:

1. the learner, not content, is the focus of instruction;
2. it supports effective, efficient and appealing instruction;
3. it supports coordination among designers and those who instruct;
4. it facilitates dissemination, since you end up with a reusable product;
5. it supports alternative delivery systems;
6. it facilitates congruence among Objectives, activities and assessment.

On the other hand, often for adults, the desire is to let the students participate in the development of objectives, strategies, and assessment (Smith & Ragan, 1993). If this is the case, instructional design, as it is most often implemented, may need to be adapted. Nevertheless, the process is exactly what the adults should be taught to do for themselves.

Models of Instructional Design
The details of the instructional design process are best presented by looking at several models that have been proposed. Since instructional design borrows so heavily from systems theory, these models are often described using flow charts, one of the major tools of systems theory. An early model on which others have built is that of Dick and Carey as shown in Figure 3.

Figure 3. Dick and Carey Model (Gagne, Briggs, & Wager, 1988)

Gagne (1988) then expands the Dick and Carey model to look at the design of entire instructional systems with the steps shown in Table 1. This is an important way to look at instructional design since it more clearly displays that even though it is a process with a definite flow from one step to another, it also has a series of discreet levels and steps, some of which can sometimes be skipped, combined or "watered down" depending on the needs and resources.

Table 1. Steps in Designing Instructional Systems System Level

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Analysis of Needs, Goals, and Priorities</td>
</tr>
<tr>
<td>2.</td>
<td>Analysis of Resources, Constraints, and Alternative Delivery Systems</td>
</tr>
<tr>
<td>3.</td>
<td>Determination of Scope and Sequence of Curriculum and Courses; Delivery System Design</td>
</tr>
<tr>
<td>4.</td>
<td>Course Level</td>
</tr>
<tr>
<td>5.</td>
<td>Determining Course Structure and Sequence</td>
</tr>
<tr>
<td>6.</td>
<td>Analysis of Course Objectives Lesson Level</td>
</tr>
<tr>
<td>7.</td>
<td>Definition of Performance Objectives</td>
</tr>
<tr>
<td>8.</td>
<td>Preparing Lesson Plans (or Modules)</td>
</tr>
<tr>
<td>9.</td>
<td>Developing, Selecting Materials, Media</td>
</tr>
</tbody>
</table>
9. Assessing Student Performance (Performance Measures)
2. System Level
10. Teacher Preparation
11. Formative Evaluation
12. Field Testing, Revision
13. Summative Evaluation
14. Installation and Diffusion
Figure 4. Verduin and Clark Model
Other models which adapt the instructional design process to particular situations have been published by Heinich as cited in Moller (1991), Johnson and Foa (1989), Alaska University (1989b) and Price and Repman (1993). The author has found the recently published text, Instructional Design, by Smith and Ragan (1993) to include the most comprehensive, practical and usable model. Each step of the Smith and Ragan model has several substeps as shown in Appendix A. The major steps are shown in Figure 5.
Figure 5. Smith and Ragan Model (Smith & Ragan, 1993)

Analysis
- Learning Environment
- Learners
- Learning Task

Write Test Items

Strategy
- Determine
  - Organizational Strategies
  - Delivery Strategies
  - Management Strategies

Write and Produce Instruction

Evaluation
- Conduct Formative Evaluation

Revise Instruction
Thus, while instructional design models seem to vary widely, they all involve the stages of analysis, strategy and evaluation made specific for the particular situation to which they will be applied. The use of instructional design in distance education will require very specific adaptations.

**Instructional Design in Distance Education**

Distance Education can be defined as formal instruction in which a majority of the teaching function occurs while educator and learner are at a distance from one another (Verduin & Clark, 1991). These circumstances have special implications for instructional design.

First, distance learning tampers with a central feature of traditional formal learning by omitting or substantially reducing the frequency of the regular meeting-in-class of teacher and learner. Besides serving as a venue for the transmission of knowledge, classes provide an occasion to clarify expectations, correct misconceptions and errors, share perceptions through informal contacts, and simply pace study. This classroom based learning can be diagrammed as in Figure 6.
In distance learning the situation looks more like Figure 7 where the instructional designer and technology need to provide the link between the subject expert and the learner.
Secondly, the range of possible learners in distance programs suggests that instructional designers should possess, and be able to employ effectively, a collection of strategies. Designers of distance learning programs must define clearly the target audience (age, educational background, personal circumstances, reasons for studying) and take account of what is already known about such student populations. Furthermore, some distance learning programs, through flexibility of place and time, are accessible to a much broader audience than a classroom counterpart.

Thirdly, the usual forms of feedback and assessment may be impractical. This requires creativity on the part of instructor and designer.

Finally, physical and temporal distance mean isolation, and under conditions of isolation motivation may be more difficult to sustain (Johnson & Foa, 1989). Each of these circumstances of distance education must be specifically addressed by the instructional designer.

Based on Calvert (1986), Johnson and Foa (1989) describe another way to view the implications of distance education for instructional design which is to see the extent to which the learning programs can be characterized by extension or independent study modes. The extension mode occurs when the designer visualizes the class, and considers how to extend the classroom to other places and times perhaps with itinerant instructors leading classes in regional communities. The resulting instructional program will mimic in many ways the campus classroom experience, and attempt to compensate for lost features and cues. If, instead, the designer visualizes the student, and considers how to provide instruction to students who do not attend class, the instructional program will transform classroom lectures and discussion into independent study materials. In their pure forms, the extension and independent study models contrast with one another in several ways.

The extension strategy, by treating the class as a class, retains the sense of the group. In so doing, it may also retain the inflexibility of campus-based instruction requiring students to attend at a particular place and regular times. In contrast, the independent study strategy tends to isolate the individual, while adding flexibility to student schedules by reducing or eliminating time and place restrictions. Extension courses are relatively easy and fast to mount, because teachers continue to perform as they normally do in the classroom; thus development costs are relatively low. Creating a course for the independent study system is, by comparison, slow and

Delivery costs under both strategies will vary with choice of media, but here also differences exist. Delivery costs of extension courses increase directly as a function of the number of groups and offerings, because the performance must be remounted for each. With independent study, in contrast, economies of scale are possible. Materials once developed can be delivered to any number of students at the cost of reproduction and/or transmission.
As time passes the distinction between extension and independent study strategies will blur. As the move is made further into the age of computer and satellite communications, teleconferencing and electronic mail will reduce isolation, allowing asynchronous conversations that have some of the flavor of the class meeting (Johnson & Foa, 1989). All of this, however, will require good design of an increasingly complex educational process.

Integrating Into Existing Organizations
Deciding where to begin in integrating instructional design into an existing educational process is once again helped by referring to Gagne's stages of designing instructional systems as shown in Table 1.

Professional development by the content specialists, who may begin to see their discipline differently (Duning, Van Kekerix, & Zaborowski, 1993).

In addition, some of the basic elements of an instructional design unit, such as the organization's media center, may already be in place. If a new, internal instructional design structure will both provide a needed resource for the organization and allow existing service units to be even more serviceable through their redefined role, then the value-added aspect of the concept can be magnified. At the same time, integration of new and existing service units will produce a unit very much in tune with the organizational culture, which also can become operational in a relatively short period of time (Duning, Van Kekerix, & Zaborowski, 1993).

Finally, control of both quality and proprietary information, as Lent (Johnson & Foa, 1989) emphasizes, is of considerable importance. Proprietary information can often provide a competitive edge. Contracted parties may put control of such information in jeopardy. Internal instructional design units will also introduce a product consistency into the project stream of the organization that would not be possible if a series of contracted agencies were used. Therefore, the products that the organization delivers to its constituents will be more clearly seen as part of a unified whole.

Most importantly, however, the instructional design unit's value extends beyond its formal role and function to that of being a catalyst for change in other segments of the organization. The unit can "lead the charge" in terms of proposing and substantiating system level changes.

Rationale for "Wrap Around" Instructional Design
Bringing about positive change in the teaching/learning process is the fundamental rationale for instructional design. One way this can be done in traditional institutions is, instead of beginning with system-level concerns (see Table 1), to start at the "bottom" with course and lesson-level concerns. The solution to these "bottom" level concerns can then become a "Trojan Horse" towards defeating system-level barriers to nontraditional
education. Ford (1991) calls this the revision approach to curriculum design as opposed to the free rein approach. Changes come by accretion rather than revolution. Teachers have long sought ways to make teaching more precise while adjusting both their objectives and methods to the needs and characteristics of individual learners. These efforts have largely been frustrated because teachers have had no delivery systems designed to adjust instruction to the individuals. As cited in Gagne (1988), attempts were made by Bloom (1984) to overcome some of the difficulties inherent in group instruction.

Bloom maintains that one-to-one tutorial instruction is the most effective form, and that an average student in a tutorial program achieves more than 98% of students in conventional classroom instruction. However, there is another set of solutions for the problem besides the tutoring mode of instruction. These are centered on the use of instructional materials that address the student directly, without depending on a teacher for delivery, and that are tailored to individual student needs.

In recent years, universities and private research and development agencies have developed comprehensive delivery systems for individualized instruction designed to enable all pupils to work on objectives within their individual needs, capacities, prerequisite skills, and rates of learning. This was accomplished, in part, by designing the learning materials and media that could carry more of the support of more of the instructional events. Team efforts were often employed to design, develop, evaluate, and diffuse the learning materials as a component of the entire delivery system (Gagne, et al., 1988). In short, a systems design model was employed to provide teachers with a total delivery system to support the learning activities. In other words, a new delivery system was "wrapped around" their classroom course (Galvin & O'Donnell, 1989).

This wrap around approach has a number of advantages over producing a distance education course from scratch. Most obvious is that development costs would be less since the subject matter expert has already done his or her work. Perhaps some of the materials used in the classroom would be appropriate for the distance education course, even including audiotapes of the classroom lectures. In fact, being able to offer the "on-campus' experience in this way also has marketing advantages, since many students want to experience what happens on-campus.

The most important advantages are more long term in nature. In ACCESS Monograph #3 (Freeman, 1993), I report several studies which show that faculty who participate in distance teaching are more favorable to it than those who do not. Working with a faculty member in producing his/her course for distance delivery is one of the best ways to gain faculty support. Thus, the wrap around process becomes a "Trojan Horse" for dealing with system level barriers to nontraditional education. Finally, and even most importantly, the team approach allows for the improvement of instructional techniques of conventional faculty as they adapt some of the new methods learned. Thus, using instructional design to wrap a new delivery system around a conventional course not only
makes that course more accessible but it also results in other significant advantages to the institution.

Summary of the Literature

The systematic process of translating principles of learning and instruction into plans for instructional materials and activities is based on sound theory and results in several important advantages. Asking where are we going, how will we get there, and how will we know when we have arrived adds an important focus on the learner to the traditional focus on content. This makes an improvement in learning possible and can move the traditional institution a long way toward serving nontraditional students, even if it is only one faculty person at a time.

This systematic process has been codified in several models of instructional design using the three stages of analysis, strategy and evaluation made specific for the particular situation. Distance education—with its separation of the teacher and learner—is especially needful of instructional design. Thus, schools delivering courses at a distance need to find ways of integrating instructional design into their organizations, whether through external or internal resources. Using instructional design to wrap a new delivery system around conventional courses offers advantages in the areas of development costs, marketing appeal, faculty support, system level change, and the improvement of conventional teaching.

An Instructional Design Manual for Gordon-Conwell Theological Seminary

Each application of instructional design processes to specific programs will require modifications to the generic models reported in the literature. This was true of the Independent Study Program of Gordon-Conwell Theological Seminary in which course and lesson level instructional design is being used to improve service to nontraditional students.

Background

Gordon-Conwell allows students to take four courses toward any of its Masters degrees through the Independent Study Program. Students studying in this manner receive a media learning package including audio and some supplemental video tapes, lecture outlines, reading and study guides, and independent learning suggestions. These students are assigned to a member of the resident faculty who acts as the mentor for the student and grades the work. Students are given six months to complete a course.

A limited program of "off-campus guided studies" was approved by the Gordon-Conwell faculty in 1986 in response to the requests of many church members who either live in isolated locations or have full time jobs, thus preventing them from attending "live" classes.
An initial formative evaluation of the program was conducted in 1990 in which participating students were asked to pinpoint areas that needed improvement. Suggested changes were made in the editing of audio tapes and the writing of study guides and assignments. A basic instructional design process was implemented. A summative evaluation showing enrollment information and an evaluation of student success, student and faculty assessments and student achievement was published in ACCESS Monograph #3 (Freeman, 1993).

Process
The instructional design process that has resulted from these seven years of experience is described below. According to Gagne's stages in designing instructional systems shown in Table 1, this is a course/lesson-level only design process. Since Gordon-Conwell's Independent Study Program involves adapting conventional classroom courses for distance delivery, the analysis or design of system-level concerns has been taken as a given from the on-campus programs.

The primary objectives of Gordon-Conwell's current instructional design process are to improve course materials and to allow these courses to reach new markets by making theological education more accessible. This must be done with a minimum of investment and needs to allow for constant revision. A secondary objective is to develop faculty support for distance learning and for more learner-oriented teaching techniques. A final objective is to set the stage for future system-level change.

Administrative context
While the primary objectives are course/lesson level, the wrap around strategy has enabled a host of system-level concerns to be dealt with easily at present. Some of these are summarized below as the administrative context for the instructional design process to be described.

The fundamental point of the wrap around process is that the only thing that is done is to add a new delivery method to a traditional course. The course is still the "same" course from the point of view of faculty and administration. Consequently, the following administrative issues become only slight variations of existing procedures rather than policy changes. These procedures were negotiated with all departments of the seminary and published in a Policies and Procedures Manual which was approved by the administration.

Students are classified as either off-campus special students (who have not taken an on-campus course in the past) or "degree program" students (who have). In order to protect from students choosing independent study over attending class, "degree program" students must sign a petition saying that the reason they want to study independently is that they cannot take an on-campus course due to time or travel constraints or due to the course not being available in the on-campus schedule. The registrar approves all
petitions. Tuition is full price for "degree program" students and discounted for off-campus students.

The body of the faculty interacts with Independent Study (ISP) courses as they would any other course. The Academic Policies Committee is responsible for approving all matters dealing with the granting of academic credit. The ISP was approved by this committee in February 1987. Faculty divisions approve each mentor, the course materials and methodology, and assign the appropriate number of semester hours based on the recommendation of the mentor. Independent Study activity is reported to accrediting associations within the school's regular reports.

Individual faculty interact with the ISP as course mentors who are the faculty members responsible for supervision of the student and for the writing or evaluation of course materials. Each course is assigned a mentor from the appropriate department. The mentor advises the student on the suitability of the course for that particular student's objectives, answers content and procedural questions via the mail and telephone, holds telephone conferences with the student, and grades the student's work. A stipend is paid to the mentor for each student being supervised. A professor who desires to develop his/her course for distance delivery has the "rights" to the mentor's job. Each mentor signs an agreement delineating the requirements of producing the course, the duties of the mentor and the duties of the distance learning staff. Other details of the agreement are currently before the faculty for review.

Thus, the faculty member maintains complete control over the content of the course and is rewarded for the effort required to produce the course through stipends, improved course materials for use in the on-campus sections of the course, and the recognition that comes from having the course published. Most of the required course development work is done by the course writer who is paid from the distance education budget.

Administratively, ISP courses are treated as any other course except that only four can be applied to a degree. Also, the distance education staff acts as the focal point for all administrative activities including course registration, drops, mailing exams to proctors, and tracking student work and grades to and from the faculty. This is necessary to maintain the increased level of service needed by distance students. The registration office keeps official records and transcripts and rules on issues such as extensions. Thus, in all of these administrative areas, beginning at the "bottom" with course-level concerns has enabled the ISP to become established as just another way of doing quality education. This has, in turn, made it possible for faculty to see the quality results that are accomplished by distance students and to see the benefits of serving them.

Assumptions
The course/lesson level instructional design process at Gordon-Conwell is based on a workshop given at the 1989 ACCESS Conference by James (1989) and Peter O’Donnell (1989). The presenters discussed many of the points noted in the preceding
overview and then suggested the development of "wrap-around" course guides for conventional courses. These wrap arounds would provide much of the help and support that is normally given in the classroom. This process is based on a number of assumptions supported by the educational literature. These include:

1. all learning begins from the learner’s frame of reference and is best accomplished when the meaning of current learning can be related to past learning and current application;
2. all learning should facilitate new skills, not just provide cognitive information;
3. content must maintain the highest academic integrity by, among other things, revising course materials based on out-of-print texts, etc;
4. educational effectiveness should be a top priority meaning that sometimes "low tech" methods such as print and audio cassettes are preferred to "high tech" methods;
5. student support (counseling, ability to reach the subject matter expert, etc.) is crucial for distance education;
6. there are varieties of learning styles;
7. all distance learners are adult learners.

**Adult Learning**

This last assumption leads to several implications for how materials and procedures are developed. According to Gagne’ (1988) the nature of both the materials and the procedures of a distance education course may properly be less highly structured for college students or other experienced adult learners. This applies to objectives and evaluation, as well as to directions and materials.

It may be assumed that evaluation of adult learner performance can be made at less frequent intervals than would be the case for children. Whether (if)C broad objective or many more specific are employed in modules, checks on the performance of the adult learner are typically not made until after a rather long period of study. Directions for pursuing study may also be greatly abbreviated for adults. The learners may be provided with a list of resources or simply told to "use the library and laboratory." The objective itself may be the main source of directions. In other words, designing materials for adults requires giving them more latitude due to both their developmental phase and their life circumstances.

**Motivation**

A final important set of assumptions has to do with the motivation of distance learning adults. The standard motivating forces active in "traditional~ classrooms such as group pressure, a familiar learning situation, and social factors are often absent in distance education settings. Without these characteristics as givens, planners of distance education programs must build their awareness of motivational strategies and purposefully integrate methods to enhance learner motivation (Zvacek, 1991).
Keller (1987) addressed the systematic development and use of motivational instruction with the ARCS model. ARCS was designed to be used in conjunction with traditional, cognitive domain instructional design models. The four components of the ARCS model acronym are: Attention, Relevance, Confidence, and Satisfaction.

Student attention may be fairly easy to catch, initially, but difficult to sustain over an entire course. Maintaining a balance point between boredom and hyperactivity at which the learners are aroused and involved should be the designer's goal.

Relevance, the 'R' in the ARCS model, is especially important in motivating adult learners, since competing priorities, such as careers or families, reduce the amount of time available for learning. Skills and information gained through education or training must be perceived as usable beyond the classroom setting. Learners need to be aware of the 'larger meaningful context' in instructional events. A distance education designer emphasizes course relevance by relating the content to learner experiences or the learner's future goals (Zvacek, 1991).

Building learner confidence is the third motivational consideration in Keller's model and is, perhaps, the most important to distance education of the four components. Learners in distance settings often lack confidence that they have what it takes to succeed in a non-traditional setting (Wagner & Riddle, 1990) and this may be compounded by the fact that many distance education students are adults who are not in school full-time, or are newly returned to formal education, and have lost faith in their academic abilities. A useful strategy for confidence-building is to plan for 'success opportunities' early on in the program. An activity could be designed in which students are likely to succeed, but that required some effort. (If assignments are too simple, students will then attribute their success to the 'easy assignment' or 'luck' and the effect will be lost.) Other strategies for increasing student confidence include helping students to set realistic goals for themselves, providing clear and specific criteria for evaluation, and attributing success to learner effort when giving feedback.

Satisfaction, feeling good about accomplishing instructional goals, is the final motivational component of the ARCS model. Learners feel satisfaction when success is rewarded intrinsically in cases where the learning is in itself desirable, and extrinsically when tasks are less interesting (Keller, 1987). Distant students who feel at least moderately in control of their learning experiences, and concomitantly assume greater responsibility for their own learning, are also more likely to have feelings of satisfaction (Moore, 1977). To increase the chances of learner satisfaction, designers should provide activities that allow new skills to be used in realistic settings; transfer of learning is intrinsically motivating. Flexibility and choice within the instructional program by
providing options for objectives, study methods, and/or evaluation, can increase the learner's sense of control. Providing extrinsic rewards for progress and verbally reinforcing students' intrinsic feelings of pride will also strengthen learner satisfaction. The ARCS model provides structure for designers concerned about the motivational aspects of instruction. In distance education, the components of attention, relevance, confidence, and satisfaction may determine whether a student successfully completes a course, and these factors are considered as part of the Gordon-Conwell instructional design process.

Based on the above assumptions, the Galvin and O'Donnell model was implemented in a pilot project with one of the more popular lecture-based, on campus courses. Based on the results of the pilot, the process was revised as reflected below.

Definition

Instructional design at Gordon-Conwell is the process whereby an educational team applies a Systems analysis approach to designing, developing, delivering and revising a set of educational materials/experiences that will accomplish specific educational objectives for a particular audience's needs.

Team Approach

This educational team is composed of:

1. a subject matter expert (SME), normally the faculty member who teaches the course on-campus. Currently the terms of agreement with this faculty member are under discussion among the administration and faculty with regard to ownership, copyrights and compensation;
2. a staff media specialist (MEDIA) who works with the SME to arrange for the live taping of the classroom lectures and then delegates the actual taping to student employees. A few SMEs prefer to be taped in a studio without students present;
3. a lesson writer (WRITER) who does the actual work of writing the course materials based on the SME's lectures and syllabus and the instructional designer's process. Occasionally, students are hired to write the materials and are allowed to take the course for credit at the same time. A sample Writer's Agreement is shown in Appendix B.
4. an instructional designer (ID) who establishes the process, outlines the course materials and coordinates all of the work.

Model

The Gordon-Conwell instructional design process is a systems approach to a set of educational materials/experiences that will accomplish the SME's educational objectives for students studying independently. It includes the major steps of prepare, design, develop, deliver and revise discussed below.
Prepare

The preparation process is shown in Figure 8. Its purpose is to document the agreement with the SME, as well as the methods and materials that are currently used in the on-campus section of the course.
Figure 8. Prepare Process

- ID Prepare agreement with professor SME
- ID Schedule taping with media SME
- MEDIA Media tapes classroom lectures SME
- ID Gather classroom overhead slides SME
- ID Obtain classroom syllabus SME
- ID Obtain texts and articles SME
- ID Obtain tests and papers SME
- ID Complete current course documents SME
Design
The design process is shown in Figure 9. This process is usually carried out during one or two meetings between the instructional designer, SME, and writer.
Figure 9. Design Process

1. ID
   Refine course goal
   SME

2. ID
   Review students needs and interests
   SME

3. ID
   Write instructional objectives
   SME

4. ID
   Map out scope and sequence
   SME

5. ID
   Determine testing strategies
   SME

6. ID
   Select appropriate media
   MEDIA

7. ID
   Write course design specifications document
   SME
Refining the course goal can be as simple as using the seminary course catalog description but usually involves asking the SME what skills are desired in students who finish the course, what is going to be studied and why? The designer and writer need to understand any hidden, as well as published goals. Reviewing student needs and interests is best accomplished by having the writer be a student. Often, gifted students are employed to do the writing and this insures that student needs are considered throughout the development process. Student evaluations of other courses are often helpful inputs. However, the dominant input is still the SME's assessment of what students know.

SMEs often have a good overall understanding of their educational objective for the course but have not translated this into matching strategies. According to (Galvin & O'Donnell, 1989), a complete statement of an educational objective should have five parts:

1. components- who and what is involved?
2. functions- what will be done?
3. processes- how will it be done?
4. conditions- when, why, where it will be done?
5. standards- how well will it be done?

The scope of Gordon-Conwell Independent Study courses must be the same as the on-campus course so that it can be recorded on transcripts as the same course number. The sequence of the complete course is also often left the same since the SME is most comfortable with what is usually a content-driven sequence.

Maintaining the same course sequence also facilitates keeping the testing strategies similar to the on-campus course. While some SMEs are open to slight variations in testing strategies, required assignments are usually left the same in order to insure comparability with the campus course and for the convenience of the SME in grading work. It seems that the least favorite part of teaching is grading the work and this process is further complicated if the variety of testing strategies increases too much.

There are a number of considerations in the selection of media. The overall priority given to each in the Gordon-Conwell process is based on the chart shown in Appendix C which was presented by Galvin and O'Donnell (1989). Since knowledge acquisition is the most typical immediate objective, the courses are print-led since this is effective and the most convenient and comfortable medium for both SME and student. The content load of the course is carried by the audio taped lectures which are outlined in detail in the course materials. Audio tapes are effective, convenient, accessible and they provide particular help to those with an auditory learning style. In addition, they gain the support of the SME who does not want to “be replaced.” Finally, students like them since they feel that they are better able to have the same experience as actually being in the classroom.
Textbooks also carry part of the content. However, the most common cause of the need to revise correspondence-type courses is having textbooks go out-of-print. This is becoming an increasing problem as publishing houses push to keep low inventories of slow moving books. Consequently, Gordon-Conwell course materials are designed around the audio lectures with study questions based on these. While the questions require integration from the reading, they are seldom textbook specific. Of course this is also characteristic of graduate education where the emphasis is not on finding answers in a text, but on integrating various readings. Should an out-of-print book be crucial to the course, copyright permission is usually available for no fee and the book is photocopied for inclusion in the course materials. The best place to simplify the revision process is in good initial design.

As the media selection guide in Appendix C shows, video lecture is not an effective medium for most objectives. Therefore, video tapes are purchased off-the-shelf from a number of sources and used for illustration and motivation rather than to carry content. These design elements are summarized for all parties concerned in a design specifications document. An example is shown in Appendix D.

Develop
The develop process (shown in Figure 10) begins with a detailed review of the design specifications document and an outline of the course guide by the entire team. After this the writer drafts a syllabus, lecture outlines and a tape edit sheet. Media then takes out undesired audio sections such as student questions, references to assignments that are no longer to be part of the course or to other "time sensitive" events, etc.
Figure 10. Develop Process

1. **ID**
   - Review course design specifications document
   - **SME**

2. **ID**
   - Outline course guide
   - **SME**

3. **WRITER**
   - Write syllabus

4. **WRITER**
   - Write lecture outlines and tape edit sheet

5. **MEDIA**
   - Edit classroom lectures

6. **WRITER**
   - Write lessons and other notebook components

7. **WRITER**
   - Complete draft course guide
The major effort of the writer is in the development of the study guide lessons. While the overall course sequence is left unchanged from the campus course, the sequence within a lesson receives a great deal of attention in the design process in order to account for the concerns about motivation and adult learning mentioned above. It is in these lessons that all aspects of the course are interrelated in ways that are meant to address these concerns. In order to show how all of the notebook materials flow together and are interrelated in the study guide lessons, a typical course guide is outlined below including a sample study guide lesson.

Generic Outline of Course Guide

A. Welcome Letter
   a. Introduction to distance learning staff
   b. Overview of contents of the notebook
   c. Description of audio and video tapes
      i. Mentor Letter
   d. Personal welcome from course mentor
   e. Includes contact instructions
      i. Lecturer Biography
   f. Gives academic, professional, and personal information about the course lecturer
   g. Includes picture of lecturer
      i. Syllabus

B. Course description
   a. How the course will help the student
   b. How the course relates to other disciplines
   c. Overview of the content of the course
   d. General learning objectives

C. Course requirements
   a. Methodology includes self-directed selection for research topics
   b. Evaluation

D. Textbook information

E. Examination guidelines

F. Written assignment guidelines

G. Grading scale-options available sometimes
   i. Personal Program of Study with Lesson Descriptions

H. List of each lesson with short description of content

I. Time line with suggestions for weekly assignments (lectures, readings, research projects) designed to enable the student to work consistently through the course

J. Study Guide for Course Lessons

A. Example of the study guide instructions:
Each lesson is designed to begin (Ready) with an interesting quote or cartoon which will arouse your interest and lead you into the overview which will help you see what is ahead in the lesson and how this lesson fits with the other lessons. When you read the objectives (Aim) for each lesson, keep in mind that these are the points of reference around which you can organize the material in both the reading and the tapes. The objectives are what the lecturer thinks are important. You may find it helpful to write in your own additional objectives for each lesson. Now (Focus) do the reading and listen to the lectures while focusing on the objectives. Questions are provided to help you do this. Keep in mind that the assigned readings are designed to insure that you read the entire text, so you will often be reading about more than just the subject of that lesson. This will help you put that subject in the correct context. Finally (Develop) be sure you understand and can explain the concepts of the lesson by working through the exercise. The exams will be made up directly from these exercises and the focus questions.

Ready

How can I be sure this is inerrant?

In the previous lesson you have considered the Biblical evidence for the verbal inspiration of the Scriptural text. One crucial implication of verbal inspiration is that the Bible is free from error in all that it teaches. In this lesson you will have the opportunity to examine the important concept of inerrancy, exploring the meaning of this term, its Biblical foundations, a number of current objections to it, and its implications for the life and ministry of the church.

B. Example of study guide lesson from Theology Survey I:

Aim When you have completed this lesson you will have:

- Defined the two main positions held by Evangelicals on the inerrancy of Scripture.
- Surveyed the Biblical data in support of the comprehensive inerrancy of Scripture.
- Examined some of the major objections to the position of comprehensive inerrancy.
Develop
While focusing on the learning objectives:

Read: Erickson, Chapters 10 and 4 Geisler, Inerrancy

Listen to: Lecture 5 "Revelation and Inspiration, Part 2; Inerrancy"
Lecture 6 "Inerrancy; The Canon of Scripture"

Ask:
1. What is the Evangelical view on the inerrancy of Scripture? Identify and critique some of the major objections to this view.

2. How does Scripture itself evidence support for the position of comprehensive inerrancy?

A friend of yours has been taking some courses at a mainline Protestant seminary, with the hope of eventually earning a degree. You find yourself engaging your friend in a discussion in relation to the course she has recently completed, "Introduction to New Testament Criticism." She makes the comment, "The modern critical study of the Bible has made the old doctrines of verbal inspiration and inerrancy no longer tenable. We have to face the fact that the Bible, as a human book, is subject to the limits of human error and fallibility." How would you reply to this comment, on the basis of your own understanding of the inspiration and authority of the Bible?

VII. Lecture Outlines
A. Detailed outlines of each lecture
B. Arranged to correspond with lesson topics as found in the study guide

VIII. Supplemental Resources Guide
A. Bibliography of recommended reading for each lesson topic
B. Suggested video resources for each lesson topic, with rental and purchase information provided

Ix. Study Helps Guide
A. Suggestions for studying independently at the graduate level
B. Brief glossary of theological terms
C. Helps in research and writing
D. A guide to proactive reading
E. Selective answer key to study guide "Focus" questions
F. Supplemental study materials (varies by course)

~. Case studies
2. Copies of out-of-print books
3. Copies of scholarly articles
X. Office Support
A. Registration confirmation with due date and refund criteria
B. Students are called after one month and reminder cards are sent at three and five months

Deliver
The deliver steps (shown in Figure 11 are a straightforward process of the writer and SME editing the draft course guide and producing the materials. The typical visual appearance of graduate-level study materials is opened up" with more white space in an attempt to make them look more user friendly. The visual grid in which the study guide is presented reinforces the main steps of each lesson as can be seen in the example lesson. Written materials are desktop published and laser printed. The master copy is kept in an office file and sent to a local high speed copy business to be reproduced on loose leaf notebook paper whenever inventory drops below minimum. Total inventory seldom exceeds three months worth. This enables staff to make changes to the materials anytime without incurring undo inventory costs due to out-of-date versions.

Figure 11. Deliver Process

<table>
<thead>
<tr>
<th>WRITER</th>
<th>SME</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refine content</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ID</th>
<th>MEDIA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visual Design</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>WRITER</th>
<th>MEDIA</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRINT</td>
<td></td>
</tr>
<tr>
<td>Manufacture</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STAFF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete course materials</td>
</tr>
</tbody>
</table>
The entire revision process is carried out by the distance education staff with only consultation by the SME. This is necessary to insure that it is done in a timely manner. Upon course completion, each student is sent a student evaluation form, shown in Appendix E. The results of these evaluations are compiled and reviewed for suggestions. The SME sometimes makes suggestions for course revisions based on the grading of student work. If a required text does go out of print the SME is contacted to suggest a replacement. Any changes from the above sources are incorporated into the course as needed. Since the materials are sold in three ring binders, only pages with changes need to be replaced in existing inventory. This revision process is shown in Figure 12.

In summary, Gordon-Conwell Theological Seminary has tailored a team instructional design process which adapts the conventional classroom for those students who cannot come to campus due to time or distance barriers. By giving special attention to adult learner characteristics and to the motivational factors involved in distance learning, this process has produced course materials which have won the ACCESS Course of the Year Contest for three years in a row. More importantly, the process has improved student assessment of the Independent Study experience and resulted in increased faculty support for distance learning and learner-oriented teaching techniques. The experience of Gordon-Conwell shows that the field of instructional design does, indeed, offer both a hope and method for improving education and making it more accessible to God’s people.
Applying Instructional Design in Your Situation

At this point, the reader may be able to identify with another instructional designer poet:

• What do you do
• When you have no time
• No time to do "model" ID?
• Do you skip some steps,
• Or water them down,
• Combine, or maybe all three? (Wedman and Tesmer, 1990, p.2)

Appropriate Instructional Design

Due in large measure, perhaps, to the prescriptive nature and systematic orientation of instructional design, novice designers typically have the idea that all instructional design projects should undergo the same level of rigorous analysis and design effort. Smith and Ragan (1993) suggest, however, that rather than discard the tools of instructional design when situations make it difficult to use them to their fullest, it is better to learn ways of "tailoring" their application to the situation. This is the basic idea behind "appropriate" design—that both the Cadillac and the Chevy will get you there.

An often quoted business saying is, "Given three criteria for doing a job—high quality, low cost, and rapid completion of the job—you may have any two." The trade-offs expressed in this wry analysis illustrate the dilemmas often faced by designers who have limited resources and high demands. The appropriate design concept suggests that it is not only possible but also advisable to perform design functions at varying levels of effort, depending on available resources, criticality of the task, the level of accountability of the educational or training agency, and expectations/requirements of the client agency. When personnel, physical resources, and time do not allow a full implementation of the procedures, it is still possible to improve instruction over what would otherwise be used if systematic instructional design were not employed. So, for example, when resources do not allow for a full learning task analysis, it is better to informally reflect on the lesson objectives and the kinds of learning that should lead up to them rather than to not be concerned with outcomes at all (Smith & Ragan, 1993).

Another way to look at this is to ask, which instructional design activities do practicing instructional designers actually incorporate into their systematic design? Wedman and Tessmer (1992) examined this question by surveying 35 practicing instructional designers. Although their data are potentially biased because the majority of the respondents were from one training agency, the findings identify for this group of designers those aspects of design that are deemed "most appropriate" to the particular situations in which they commonly operate. The activities that the respondents "always" or "usually" performed are listed in Table 2:

Table 2. ID activities always or usually performed
• ID Activity Percentage of Respondents
• Write learning objectives 94%
• Select media formats 86%
• Select instructional strategies 85%
• Develop test items 82%
• Summative evaluation 75%
• Identify types of learning 74%
• Determine if need requires instructions 70%
• Conduct task analysis 66%
• Conduct needs assessment 63%
• Assess entry skills 54%
• Formative evaluation 49%

Directed research students are likely to be highly motivated.

Define Implications of Characteristics for Instructional Design

These older students, along with ones interested in directed research are likely to want to be more self-directed in their studies. Can some aspects of self-direction, at least in the subject of required assignments be introduced into the course? How will their "life schedules" effect the scheduling of assignments? Does a lecture with no media supplement work in the evening after a full day's work?

Should directed research students design their own evaluation of performance?

C. Learning Task

What is the major goal of each of these courses? Is the goal the same since it is the "same" course or is it different since it is for different students?

D. Assess Learner Performance

Does the assessment of performance need to be different for different students even though the students are of different type?

II. Strategy

A. Determine Organizational Strategies

Is the SME willing to change this, can it be changed and still fit in the system? How do you pace a one week course?

1. How Instruction Will be Sequenced
2. What Content Will be Presented

3. How This Content Will be Presented

B. Determine Delivery Strategies

How will media and textbooks be made available?

How will advanced readings/assignments be sent to modular students?

C. Determine Management Strategies

How often should the directed research student meet with the faculty person?

III. Write and Produce Instruction

Does the SME have the time to redo presentations to fit new audiences?

IV. Evaluation

A. Conduct Formative Evaluation

Will anybody use the results of the evaluation if it is done?

B. Revise Instruction

Is there a need to revise?

After the process is determined, some sort of design specifications document should describe the goal of the process. Additionally, an agreement between team members concerning responsibilities and compensation should be completed.

Every institution wants to provide the best possible instruction to the largest number of students. The overview and concrete example of instructional design provided in this monograph, along with these suggestions for applying it to your own situation can help you determine an appropriate instructional design process that can be the method to help your institution accomplish this and, in turn, further the completion of the great commission.
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References


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APPENDIX A

Detailed Steps of the Smith and Ragan Model

I. Analysis
   A. Learning Environment
      1. Need for Instruction-Needs Analysis reasons for needs assessment
         learning goals not being met inefficiency of current instruction lack of
         appeal of current instruction ineffective instruction new goals for
         learning added change in learner population phases of needs
         assessment describe goals of current system evaluate goal achievement
         describe gaps prioritize gaps determine which needs are appropriate
         for design
      2. Describe Learning Environment teachers existing curricula / media
         hardware school organization / larger community
   B. Learners
      1. Outline Learner Characteristics cognitive general / specific aptitudes
         cognitive developmental level language development level / reading
         level / visual literacy cognitive processing styles cognitive and learning
         strategies general world / specific content knowledge psychosocial
         interests / motivations to learn attitude toward subject
         matter and learning academic self-concept / anxiety level / beliefs
         relationships to peers / feeling toward authority tendencies toward
         cooperation or competition moral developmental stage socio-economic
         background racial / ethnic background job position / rank / role models
         physiological sensory perception / general health / age
      2. Define Implications of Characteristics for Instructional Design speed
         of presentation (pace) types of statements needed to convince students
         of relevancy techniques for gaining and focusing attention context of
         examples amount of structure and organization media level of
         concreteness / abstraction grouping of students size of instructional
         chunks response mode / type of feedback level of learner control
         reading level / vocabulary and terminology used amount and types of
         reinforcement amount of time allowed / amount and type of guidance
   C. Learning Task
      I. Write an Instructional Goal
         i. Determine the Types of Learning Relevant to the Goal
         ii. Conduct an Learning Processing Analysis of the Goal-flow chart
      4. Determine a Prerequisite Analysis and Type of Learning
      5. Write Performance Objectives
   D. Assess Learner Performance
      1. Assessment Models - norm or criterion referenced Assessment Item Specifications

II. Strategy
A. Determine Organizational Strategies
1. How Instruction Will be Sequenced
2. What Content Will be Presented
3. How This Content Will be Presented
   - introduction
   - activate attention
   - establish instructional purpose
   - arouse interest and motivation
   - preview
   - lesson body
   1. recall prior knowledge
   2. focus attention
   3. employ learning strategies
   4. world / utilization / inquiry/learning- concept related
   5. conclusion
   6. summarize and review
   7. transfer knowledge
   8. remotivate and close
   9. assessment
   10. assess performance
   11. evaluate feedback and remediate

B. Determine Delivery Strategies
1. What Instruction Medium Will be Used
2. How Learners Will be Grouped

C. Determine Management Strategies
I. Scheduling and Allocation of Resources to Implement the Instruction
III. Write and Produce Instruction
IV. Evaluation
A. Conduct Formative Evaluation
1. Design Reviews
2. Expert Reviews
3. One-to-One Evaluation
4. Small Group Evaluation
5. Field Trials
6. Ongoing Evaluation
B. Revise Instruction
APPENDIX B

Sample Writer's Agreement

The writer is responsible to:

2. Review current course materials - deliver tape edit sheet to ID.
3. Review general outline and approach of course guide developed by ID.
4. Write detailed outline of the content and approach for the course guide.
   Submit for approval.
5. Write a draft of the course guide and submit for revision and approval.
6. Write final draft along with charts and art work.
7. Review of proofs.

All submissions to be on MAC floppies with Microsoft Word (4.0) and Pagemaker (4.0).

Fees: as negotiated.

No Royalties: Listing as Co-author

ID Deliverables

D2: General outline of course guide

Writer Deliverables

D1: Audio tape edit sheet
D2: Detailed outline of course guide
D3: Draft course guide
D4: Final draft

Instructional Design 65
## APPENDIX C
### Media Selection Chart

<table>
<thead>
<tr>
<th>KNOWLEDGE ACQUISITION</th>
<th>CHANGING ATTITUDES</th>
<th>PROBLEM-SOLVING SKILLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Programmed Instruction</td>
<td>1. Role Plays</td>
<td>1. Case Study</td>
</tr>
<tr>
<td>5. Role Plays</td>
<td>5. Business Games</td>
<td>5. Audio Lecture</td>
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</table>

### INTERPERSONAL SKILLS

<table>
<thead>
<tr>
<th>KNOWLEDGE RETENTION</th>
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<tbody>
<tr>
<td>1. Role Plays</td>
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<tr>
<td>2. Sensitivity Training</td>
</tr>
<tr>
<td>3. Conference</td>
</tr>
<tr>
<td>4. Business Games</td>
</tr>
<tr>
<td>5. Case Study</td>
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<tr>
<td>6. Audio Lecture</td>
</tr>
<tr>
<td>7. Films</td>
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<tr>
<td>8. Video Lecture</td>
</tr>
<tr>
<td>9. Programmed Instruction</td>
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</table>

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<tr>
<th>PARTICIPANT ACCEPTANCE</th>
</tr>
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<tr>
<td>1. Conference</td>
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</table>
APPENDIX D

Sample Design Specifications Document
Church History Through the Reformation

Target audience   Seminary students as a supplement to residence study but as part of regular curriculum.

Course description A survey of church history from Pentecost to 16th century Reformation.

Course goal     As a result of this course the student will be able to explain the key developments of the Christian church's doctrine, faith and practice from Pentecost to 16th century reformation.

Instructional Objective
The students will be to understand and explain the key developments of the Christian church from its founding at Pentecost through the early stages of the 16th century Protestant Reformation.

Process

By describing the major figures their times and their contributions to a doctrine and/or practice

Conditions

when explaining the development and nature of the church to lay questioners,

Standards

as measured by the completion of essay examinations and a written research project.

Components

Functions

Design Constraints

• must incorporate classroom audio must use SME time sparingly
• must use on campus testing techniques (in addition to others) must meet on campus requirements easily revised no "up front" money

Scope survey from Pentecost to 16th century Reformation

Sequence  chronological/biographical
Testing two essay examinations and a written research project

Media decisions use classroom audio

Course development team Subject matter expert

- Media Specialist
- Lesson Writer
- Instructional designer
APPENDIX E

Student Course Evaluation

Course # Course Title

Overall, were you pleased with the course? yes m

Please rate the following (one=strongly disagree, five=strongly agree)

Course objectives were clearly written lessons accomplished those objectives
Course scope and sequence covered content which was useful to me lessons flowed in a logical order
Course was appropriate in length lessons
Objective and significance was stated
Content clearly presented Assignments/Exams
Guidelines and instructions were clear I
tested my mastery of the material I
tested accomplishment of course objectives ~
clear due dates I

Course written materials
Well designed and attractive I
Notebook was well organized, easy to use I
textbooks were easily available I
Audio tapes
Were of good technical quality I
Student questions/comments were helpful I
Learner support
Office staff was helpful I
Professor was helpful when contacted I

The educational experience was qualitatively equivalent to "live," on-campus instruction

Will you take another course through ISP? Yes

If not, why not?

Please use the back of this form to give any comments you feel would be helpful in improving this program.