

An Analysis of Research Needs in Instructional Development¹

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To apply what is known about instructional design and evaluation to improve educational programs, it is often necessary to establish an effective instructional development support organization. It is certainly necessary to use consulting skills with faculty clients to assist them with their innovative efforts. The more that is known about how to establish support programs and work successfully with clients, the more likely it is that what is already known about design and evaluation will find its way into the heart of educational practice. This article represents a step toward the establishment of a research agenda focused on the practice of instructional development.

To accomplish that end, this article will define what is meant by instructional development, describe the scope of the research and knowledge base upon which the practice of instructional development is built, and comment upon the sufficiency of the investigation

into the components of that knowledge base. Some of the key questions that are, as yet, unanswered by research and scholarly inquiry will be posed as a tentative basis for a research agenda for the field of instructional development.

A Definition

This article is concerned with instructional development, faculty development, and organizational development. For our purposes it is useful to define what is meant by the term *instructional development*. *Instructional development* is defined here as the systematic design, implementation, and evaluation of instruction (courses, programs, and curricula). While faculty development focuses primarily on faculty members and organizational development focuses on institutions and how they operate, instructional development focuses on the effectiveness of the academic program in facilitating student learning.

Scope of the Research and Knowledge Base for Instructional Development

What is the research and knowledge base for instructional development? To get a sense of the breadth of that base, one has simply to read through the programs of the annual meetings of the American Educational Research Association (AERA), the American Association for Higher Education (AAHE), the Association for Educational Communications and Technology (AECT), the National Society for Performance and Instruction (NSPI), the Professional and Organizational Development Network (POD), and others. In the process, one could identify hundreds of sessions and topics that have some direct relationship to instructional development. Sessions about the change process, design of instructional materials, evaluation of instruction, choice of instructional media, uses of computers in educational programs, consulting skills, and a great many other topics could all be judged relevant to the practice of instructional development.

To bring some order to the consideration of the research and knowledge base for instructional development and to categorize the relevant areas of inquiry, four major areas have been identified:

1. *Organization and Administration of Instructional Development Programs*. This area includes the establishment and mission of agencies and programs, change/innovation process, management, supervision, administration, faculty/higher education culture, etc.

2. *Instructional Development Process and Developer-Client Interaction*. This area incorporates instructional development processes, consulting skills and techniques, counseling techniques, organizational development approaches, process consultation, etc.

3. *Instructional Design Process*. This area includes learning theories, educational psychology, instructional design theories, design of instructional materials, needs assessment, content/task analysis, design, selection, and use of media, etc.

4. *Evaluation*. This area incorporates evaluation models, product evaluation/validation, faculty evaluation, student ratings of instruction, program evaluation, cost-effectiveness evaluation, tests and measurements, research design and statistical analysis, participant observation, etc.

As we have portrayed it, knowledge about instructional development practice is drawn from a wide variety of sources (as represented in Figure 1).

Each of the four primary areas is fed by work in a number of areas, each of which is the subject of discrete scholarly inquiry. Similarly, these areas are based on even more specialized inquiry. For example (as shown in Figure 2), the instructional design process can be subdivided into several areas of concern, one of which is instructional design theories. This topic can also be subdivided into even more specific categories of inquiry such as the use of advance organizers, the role of feedback, sequencing of material, etc.

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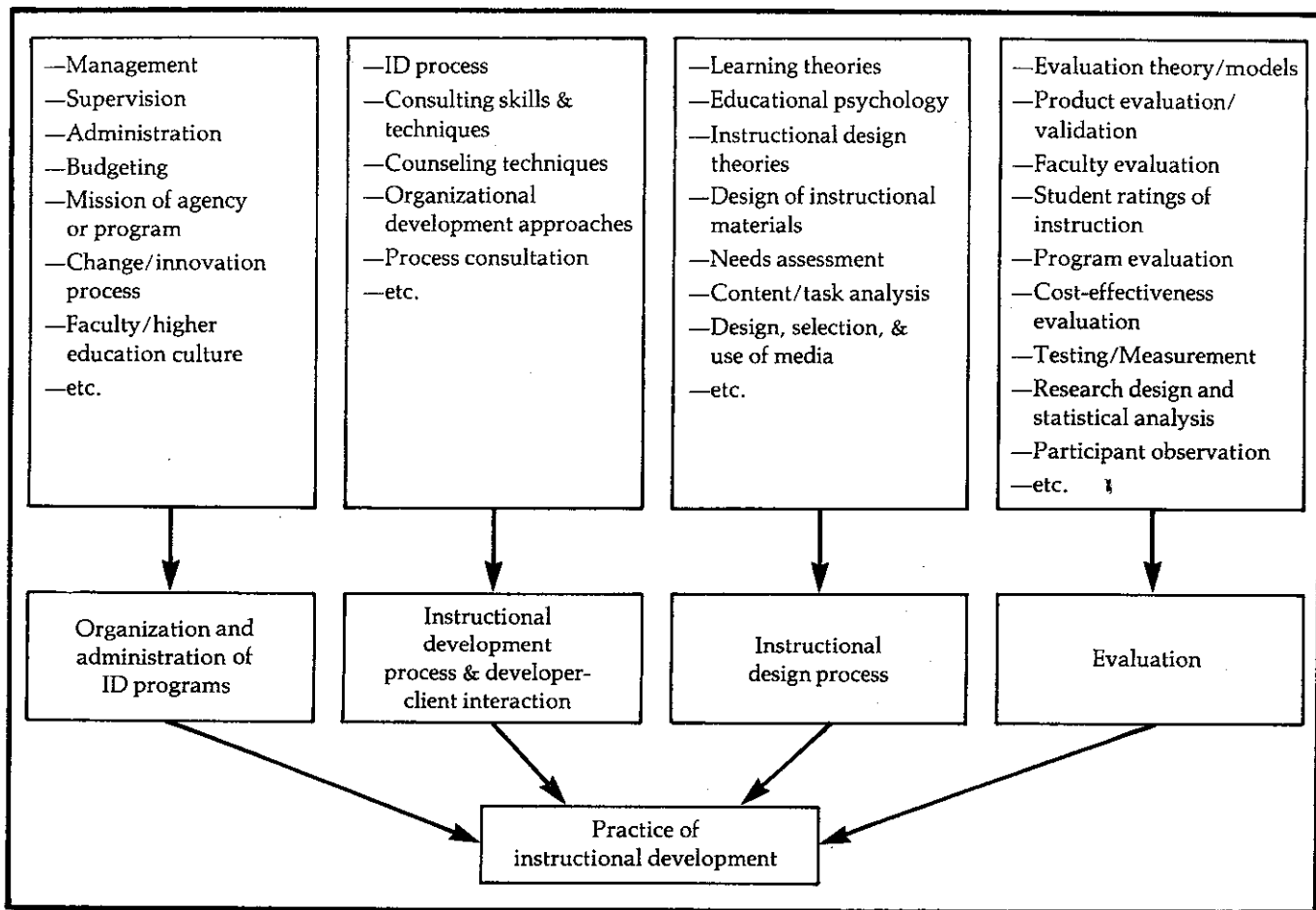


Figure 1. Scope of the knowledge base for the activities of instructional development in higher education.

The degree to which individual practitioners draw upon this research and knowledge base varies widely depending on experience, familiarity with the areas, project goals, types of tasks to be performed, time and resources available, and the setting in which the instructional developer or evaluator is working.

Sufficiency of Investigation into the Knowledge Base

As one explores the state of the art in instructional development, it becomes apparent that not all of the four major areas of inquiry supporting the practice of instructional development have received equal emphasis by researchers. It is our observation that, while a great deal of research has been conducted in the area of instructional development, most of it has been concerned with instructional design, design and use of media, and evaluation of programs, materials, and media, (e.g., research on

the teaching-learning process). It is not being suggested that the considerable amount of research that has been done in these areas is not important—quite to the contrary, it is a basic cornerstone for instructional development. However, additional inquiry into the organization and administration of instructional development and the development process itself must be undertaken. Consequently, the emphasis of the remaining sections of this article is on those two areas where basic questions still remain to be asked and answered if the practice of instructional development in higher education is to be advanced.

Organization and Administration

What questions are important about organization and administration? Durzo (1978a) identified several major areas that he believed were important to understanding the nature of instructional development programs: (1) the role of instructional development agen-

cies, (2) characteristics of the agencies, (3) approaches taken to instructional development, (4) scope of instructional development projects, and (5) project generation and selection. Each will be discussed briefly.

Role of Instructional Development Agencies

Among the first questions that should be asked regarding instructional development programs are: What role will the agency play? What activities will it support? In 1971, a conference was held at Michigan State University in which representatives from 14 instructional development agencies reported on various aspects of their programs. The results of that meeting were summarized by Alexander and Yelon (1972). One question answered by the conference participants dealt with the typical activities of their agencies. Alexander and Yelon's summary is presented in Table 1. Bratton (1978), for example, observed that 50 percent of the centers included in his

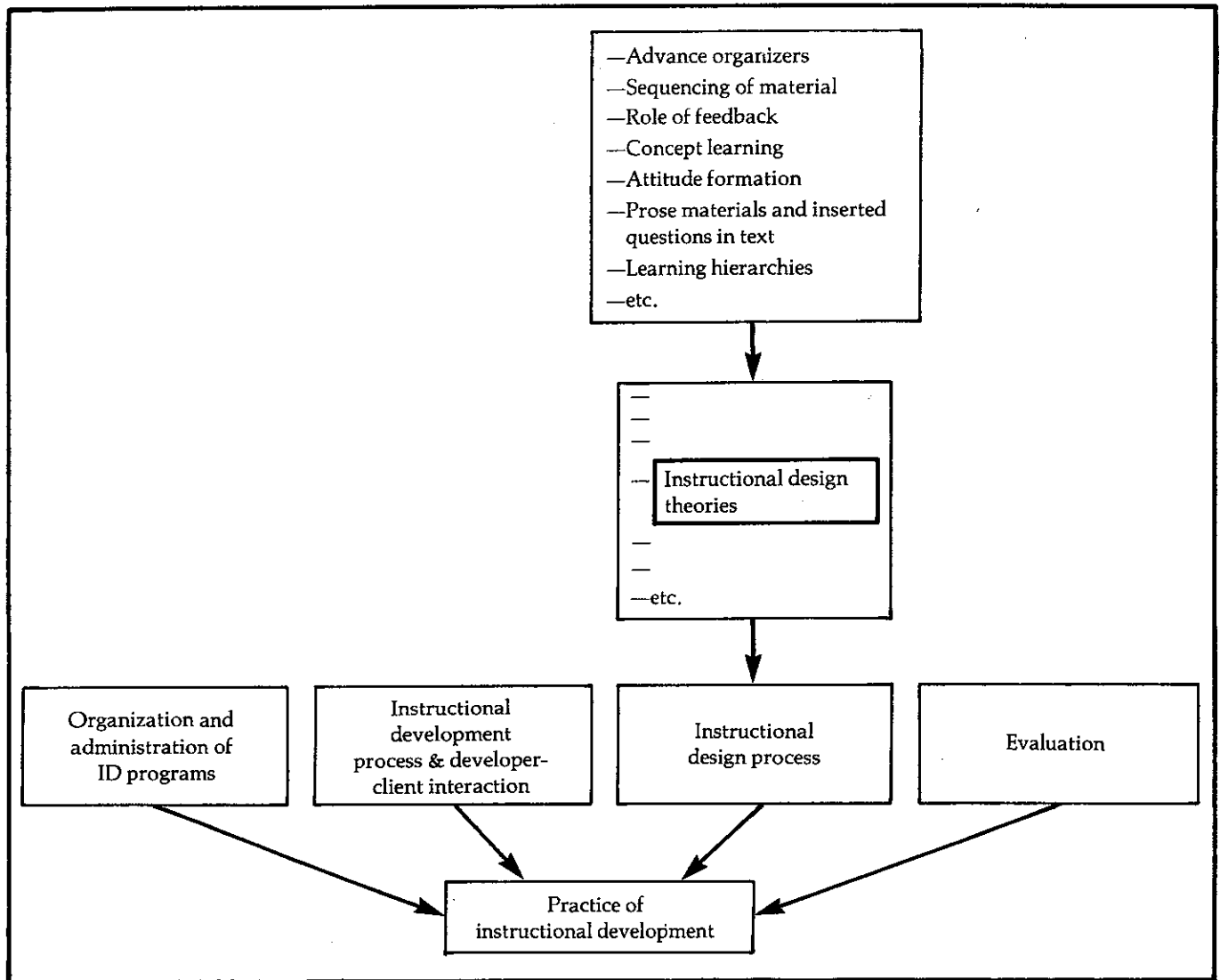


Figure 2. Selected areas of inquiry related to instructional design theory.

study focused on faculty development for their orientation.

Butterbaugh's (1971) study led him to conclude that instructional development programs "presently run the gamut of every nature and extent imaginable" (p. 26). A review of the literature on instructional development confirms Butterbaugh's work and verifies the accuracy of the activities suggested by Bratton and by Alexander and Yelon. Durzo (1978a) concluded that "the literature describes many roles undertaken by various agencies; however, it does not offer any clear answer to questions about the optimum combination of roles which an instructional development agency should play" (p. 118).

Several major questions about the role of agencies remain unanswered:

- *When does it make sense to establish an instructional development program or agency?*

- *Which of the many roles that the agency could play will be optimal under what circumstances?*

- *Is there any way to know what types of activities will produce the most significant results for a campus?*

- *Should instructional development agencies have faculty advisory committees?*

- *How are agencies that report to central administration perceived by faculty on unionized campuses? on non-union campuses?*

Characteristics of the Agencies

What kinds of staff, budget, and administrative reporting structure should an instructional development agency

have? Alexander and Yelon (1972) indicated that instructional development programs would have more influence on instruction if they were located within the administration of an institution at a level where they can have a high impact on a large number of faculty members. Of the 14 agencies represented at their conference, 9 were located in the administration of their institutions. Bratton (1978) reported that 56 percent of the centers contacted in his study were located high in the administrative structure of their institutions. Durzo (1978b) also observed in a review of literature that the prevailing suggestion was that "an effective instructional development program requires open access to the top level of institutional administration" (p. 31).

Staffing of instructional development

Table 1. Typical activities of fourteen instructional development agencies^a

A. Service

1. Conduct faculty workshops, seminars, institutes, and training programs on learning, instruction, and associated topics. (8)
2. Assist departments in analysis, planning, and design of curricula. (7)
3. Assist faculty to develop instructional materials. (7)
4. Internal publications: handbooks, project reports, and notes on instructional development topics. (7)
5. Consult with individual faculty members. (5)
6. Provide test scoring and analysis services. (5)
7. Provide instructional TV services. (5)
8. Administer and score standard tests (admission, placement, etc.). (5)
9. Provide media equipment (store, repair, and distribute). (4)
10. Maintain reference library on instructional development topics in higher education. (4)
11. Advise and assist community agencies outside university (schools, colleges, hospitals, UNESCO, and WHO). (4)
12. Maintain laboratories for faculty research and development in instruction. (3)
13. Provide administration with technical advisory services, re: instructional development. (3)

B. Research and development

1. Learning system design: instructional models, materials and procedures. (14)
2. Instructional programs: underprivileged students, honor students, foreign language students, simulation and gaming, and professional curricula (medicine, law, and pharmacy). (14)
3. Instructional evaluation. (8)
4. Training programs for faculty and teaching assistants. (5)
5. Individualized instruction, independent learning, computer-aided instruction, and programmed instruction. (5)
6. Educational tests and measurements. (4)
7. Impact of college on student development; recruitment. (3)
8. Organizational planning and governance. (2)
9. Cost benefit analysis of instructional systems. (1)
10. Instructional applications of media. (1)

C. Courses taught

1. Instructional design and technology. (8)
2. Educational psychology. (6)
3. Statistics and research design. (3)
4. AV media. (3)

Note. Numbers in parentheses refer to the number of agencies reporting the activity.

^aSource. L. T. Alexander & S. L. Yelon (Eds.). *Instructional development agencies in higher education*. East Lansing, Michigan: Michigan State University, Learning Services, 1972, pp. 4-5. Reprinted by permission.

programs is another area of important concern. What kinds of people should an instructional development program employ? Alexander and Yelon (1972) observed that instructional development agencies are staffed primarily by professionals from the behavioral sciences. Butterbaugh (1971) found that

the directors of programs which he studied had doctorates from the areas of administration, educational research, educational psychology, instructional communications, and educational measurement and evaluation. Bratton (1978) reported that more than 60 percent of the professional staff of agencies

surveyed came from education, psychology, and communications. Putting the questions of staff background aside, Diamond, Eickmann, Kelly, Holloway, Vickery, and Pascarella (1975) argued that three staff *functions* were necessary for instructional development programs: development, evaluation, and production.

Yet, despite this general guidance, some key questions about agency characteristics remain:

- What skills or competencies are required to do instructional development and what kinds of people have those skills?

- Should instructional developers reflect a traditional discipline base (e.g., history, chemistry) in order to build credibility with faculty? Would a person with a discipline background be effective working in that discipline or would he or she be a potential threat to faculty?

- Is it better to have a large, central instructional development agency or to have instructional developers resident within academic departments (e.g., a chemist who teaches half time and works on chemistry course development half time)? Under which circumstances is one approach better than the other?

Approaches Taken to Instructional Development

One of the most important debates in the literature of instructional development relates to the manner in which instructional development agencies choose to approach the process of instructional improvement. Abedor and Gustafson (1971) described two different emphases that characterize the operation of instructional development programs: (1) an emphasis on product development (courses, materials, etc.), or (2) an emphasis on people development. According to Abedor and Gustafson "product-oriented" agencies are primarily concerned with the end-products of instructional development—entire courses, programmed texts, media, simulations, etc. They reported that the "people-oriented" agencies focused more on the growth of the faculty involved in the project and on helping the faculty to become developers in their own right than on the specific outcomes of the projects.

There are trade-offs to be made in

choosing a focus. Product-development agencies may tend to produce discernible results more quickly, but people-development agencies may produce longer-term changes because they are changing the people who develop the courses and materials. The solution seems to be to incorporate some aspects of each approach in a program so that agencies have a balance between product development and people development. This sounds easier than it is.

Turning to the research for guidance leaves the following questions about approaches to instructional development unanswered:

- What is the long-term solution that offers an institution the most return for the dollar—product focus or people focus?
- What is the optimum method for combining people development and the development of courses and materials?
- How much do faculty learn about instructional development by participating as a client in the process?
- What types of staff skills and program activities are most useful for the optimum mix between people and product development?

Scope of Instructional Development Projects

Another area of debate in the literature relates to the scope of the projects undertaken by instructional development programs. Essentially the choice is whether to focus the resources of the agency to support a few large-scale projects (while providing some informal assistance for small-scale activities)—the major project approach—or to focus on supporting numerous small projects (while taking on an occasional large-scale project)—the shotgun approach. There is no easy answer to this question in the literature, though most practitioners hold strong opinions about the matter.

Among the questions remaining about the scope of ID projects are:

- What is the impact on agency credibility when it turns down small projects to support large ones?
- Which approach is more effective in producing campus-wide improvement of instruction?
- Which approach is more acceptable or seemingly useful to faculty clients?

- In terms of agency/program accountability, which approach is most defensible? Under what kinds of campus conditions does each approach make the most sense?

- Are staff requirements different for each approach? Do staff require the same skills or different ones?

Project Generation and Selection

How does an instructional development agency or program generate its projects? There are essentially two ways to accomplish this task—through internal selection or external selection. Because these approaches are not mutually exclusive in a strict sense, many programs employ some aspects of each. In the internal approach the staff of a development agency works with the central administration, deans, department chairpersons, and faculty to identify high-priority needs and to recruit the appropriate faculty to help carry out projects. Little effort is made to promote the services of the agency to the faculty at large, though faculty “off the street” with ideas or needs may be a source of projects as well. Rather, the primary focus of this approach is to support those projects which will have maximum impact on the institution. Diamond et al. (1975) listed the primary advantages of this approach:

Advantages

1. Better balance between priorities and projects.
2. Fewer rejected projects.

Disadvantages

1. The overall effort will begin slowly.
2. Requires extensive administrative cooperation at both the department and college level. (p. 28-29)

On the other hand, the external approach is generally a widely publicized faculty grant program in which individual faculty members and departments are encouraged to submit proposals describing course design projects and requesting financial and staff support from an instructional development agency or committee. Diamond et al. (1975) have also characterized the primary advantages and disadvantages of this approach:

Advantages

1. Generates many project requests.

2. An excellent method of advertising administrative commitment to instructional improvement.

Disadvantages

1. Many projects will be low priority and of questionable quality.
2. Faculty who are turned down may be antagonized.
3. Close control of projects may be lost unless specific operational guidelines are built into the funding process.
4. Coordination of projects to meet specific institution-wide goals may be limited.
5. Political consideration for institutional balance may force awarding of grants to some high-risk, low priority projects. (p. 32)

There are some questions about the process of generating and selecting projects that have not as yet been considered in the literature:

- Which selection method (external or internal) produces the greatest impact on an institution's instructional program?
- What are the unanticipated outcomes of each approach (both desirable and undesirable)?
- What data should be collected to determine whether projects should be supported by the agencies?
- How are priorities for selecting instructional development projects established by agencies and committees? How should they be established?
- How do faculty feel about the various approaches for selecting projects?
- In what kind of political climate and setting is each approach most likely to be appropriate?

Instructional Development Process and Developer-Client Interaction

Instructional Development Models

There are dozens of models describing how instructional development is conducted in various centers and programs across the country (Stamas, 1973). Two of these models are portrayed graphically on the following pages. (See

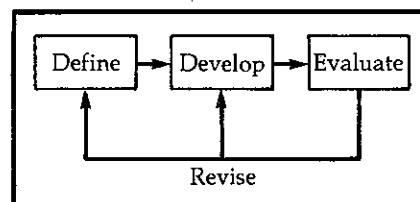


Figure 3. Systematic approach to instruction (a simple model).

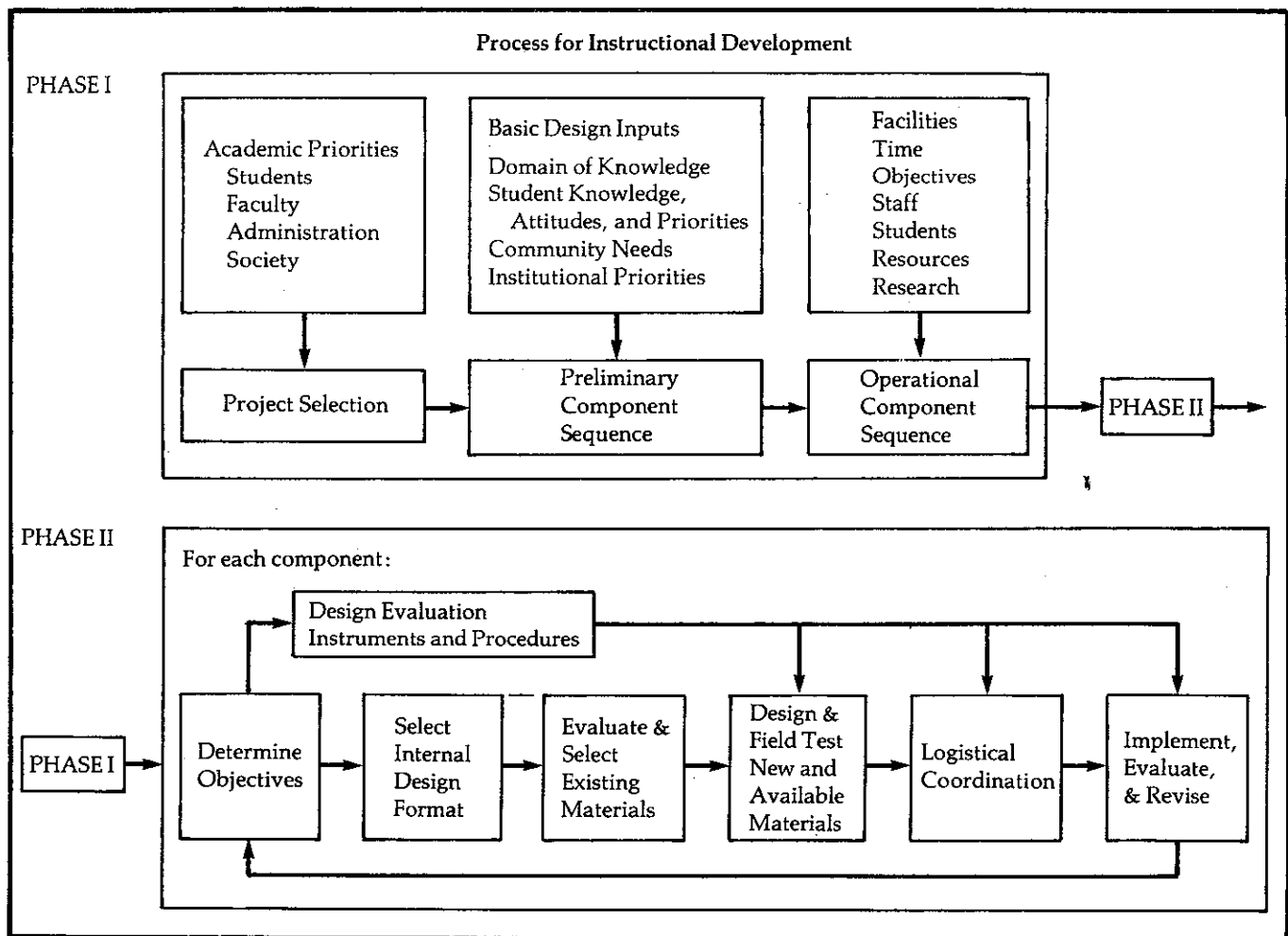


Figure 4. Instructional development process model. (Developed by R. M. Diamond, Center for Instructional Development, Syracuse University.)

Figures 4 and 5). Both of these more elaborately portrayed models stem from the simple model of instructional development presented in Figure 3.

The question of which instructional development model is most appropriate for a setting is one which has not yet been answered and may never be adequately answered. Each institution follows a set of procedures linked to the experiences of the development staff and the setting in which they are working.

The nature of the setting has a powerful effect on the requirement for more or less explicit models. For example, in the case of a research and development firm employing 80 instructional developers with varying degrees of expertise, it makes sense to have a rather explicit set of steps to follow so that the large number of complex projects may be managed easily, because all developers will be following roughly the same steps in all projects. A small liberal arts college with one half-time instructional developer

may not require a publicly stated, graphically portrayed model of development, but the advice from the literature (Durzo, 1978a,b) suggests that it is advisable to have some procedure to follow. Just what procedure that should be is not clear.

There are other unanswered questions about selecting ID procedures:

- *What is the most effective instructional development procedure for higher education? Are there any real differences among instructional development models which cause different outcomes?*
- *How well do developers actually follow the models used at their institutions? Do they actually employ all of the procedures outlined in the models?*
- *Do ID models help faculty understand the process in which they are engaged or are they more confusing than helpful?*
- *Do faculty who design innovative*

courses on their own follow a systematic approach? If not, what approach do they use and how may it be used by other faculty?

Developer-Client Interaction

The heart of any instructional development effort that employs staff to consult with faculty in the design and redesign of courses is the relationship built up between developer and client. Davies (1973a, 1973b, 1974, 1975) has written about the relationship of the client to the developer and has described its importance to the field:

Instructional development and evaluation are essentially concerned with the giving and taking of advice, and, for this reason, a great deal of what is accomplished depends upon the quality of the client-consultant relationship. Creating and nurturing such a relationship, which is essential to effectiveness, demands a special set of skills (1975).

Despite the importance of these skills

IDI Model			
DEFINE	Function 1 IDENTIFY PROBLEM <ul style="list-style-type: none"> ● Assess Needs ● Establish Priorities ● State Problem 	Function 2 ANALYZE SETTING <ul style="list-style-type: none"> ● Audience ● Conditions ● Relevant Resources 	Function 3 ORGANIZE MANAGEMENT <ul style="list-style-type: none"> ● Tasks ● Responsibilities ● Timelines
DEVELOP	Function 4 IDENTIFY OBJECTIVES <ul style="list-style-type: none"> ● Terminal ● Enabling 	Function 5 SPECIFY METHODS <ul style="list-style-type: none"> ● Learning ● Instruction ● Media 	Function 6 CONSTRUCT PROTOTYPES <ul style="list-style-type: none"> ● Instructional Materials ● Evaluation Materials
EVALUATE	Function 7 TEST PROTOTYPES <ul style="list-style-type: none"> ● Conduct Tryouts ● Collect Evaluation Data 	Function 8 ANALYZE RESULTS <ul style="list-style-type: none"> ● Objectives ● Methods ● Evaluation Techniques 	Function 9 IMPLEMENT/RECYCLE <ul style="list-style-type: none"> ● Review ● Decide ● Act

Figure 5. Instructional development process model. (The Instructional Development Institute (IDI) Model, National Special Media Institutes, 1971—now called the University Consortium for Instructional Development and Technology. Source: Twelker, Urbach, & Buck, 1972.)

to the effective conduct of instructional development, little research effort has been invested to determine the most effective approaches to use in working through instructional development projects. Considerable inquiry about organizational development and process consultation has been done in other contexts, but little has been done in the instructional development context.

It is important to determine the following about developer-client interaction:

- *What is the best approach for team building for short-term instructional development projects?*
- *To what degree are conflict management strategies effective in instructional development projects?*
- *Do the goal-setting strategies used in organizational development approaches have advantages over the strategies typically used in instructional development projects?*
- *What kinds of communication-building activities are appropriate for instructional development projects?*
- *How should client objections be handled?*
- *What kinds of decision-making models are most appropriate for instructional development teams?*

- *What skills and techniques work best in developing a high trust level between the developer and the client?*

Summary

The charge then is clear. Instructional developers should begin concerted efforts to answer the questions posed here (and others which have not yet been raised) if the practice of instructional development is to be advanced. We know a great deal about how to facilitate and evaluate learning, but we need to know more about how to initiate, support, and assist with the instructional change process in higher education if our knowledge in the former area is to be fruitfully brought to bear on the task of improving instruction in higher education.

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