EXCELLENCE IN INSTRUCTIONAL DEVELOPMENT

REACTIONS TO A SYMPOSIUM

RESEARCH, THEORY AND
INSTRUCTIONAL DEVELOPMENT:
A VIEW FROM THE TRENCHES
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These two articles are written versions of the presentations given in reaction to the Excellence in Instructional Development: A Symposium conducted at the Miami Beach AECT Convention. Each reactor was asked to respond from his own frame of reference—the opinions expressed are those of the reactors and do not reflect, necessarily, the opinions of the editors of the Journal.

RESEARCH, THEORY & INSTRUCTIONAL DEVELOPMENT: A VIEW FROM THE TRENCHES

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For practical purposes, this paper, reacting to the *Excellence in Instructional Development Seminar,* will discuss first the relationship between research and theory and the day-to-day existence of the instructional developer, and then conclude with some comments on the papers themselves. The earlier discussion also provides a framework upon which many of the specific reactions are based.

Research, Theory, and Practice

The real world of instructional development is not easy. The developer* is constantly caught between what he or she knows *should be* done and what, in reality, can be done. The developer must deal, on an almost daily basis, with time pressures, budget limitations, the inac-

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*For the purpose of this paper, the developer is defined as the individual responsible for directing and coordinating a team of content specialists and evaluators (if available) through the systematic design, implementation, and evaluation of courses and curricula.

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cessibility of information, and the built-in biases and goals of everyone involved in the project. In addition, there are the priorities of curriculum committees, of departmental committees, and various administrators which, if overlooked, can almost guarantee failure of any project. Perhaps, in the long run, the most successful developers are those who see their projects implemented and surviving while knowing full well that what has been produced may not necessarily be the best possible course or curriculum but that it represents the best of what could be done under existing circumstances.

The instructional developer, however, cannot perform in a research vacuum. The developer must know what research says, must understand the strengths and weaknesses of various theories, and be able to *defend* the particular process or design model that is being followed. New approaches and theories must be discussed, analyzed, and understood. As developers, we must set aside some of our time to find out what is and what is not working elsewhere and why. We must not only understand the rationale behind different theories but also the implications of their implementation in the design process. The instructional developer must know the research and theory base on learning and on change. We must understand the various roles of evaluation, what it can do for us, and how, if we don't have access to a professional evaluator, we can still build evaluation into our project.

However, as we do our research, we must realize that often what we are reading and hearing may not be all it appears to be for several fundamental reasons.

1. Many of the theories and models have not been field-tested or implemented and were designed apart from the practical world of instructional development.

2. Many of the models that have been implemented were supported by grants and research funds that will not be available to others hoping to use the same approach. There is a world of functional difference between "soft" and "hard" money projects. Many approaches that do work under experimental conditions become impractical because they require more time, more talent, and more money than we often have available to us.

3. Practical research studies in instructional development are scarce since it is extremely difficult to conduct classical experimental designs within the framework of regular course offerings. Of growing importance to our field are the "quasi" experimental approaches described by Campbell and Stanley[1] and others.

4. Failures and problems associated with various approaches are rarely fully reported. How often have you visited a program that you have read about or discussed a particular model or theory with its major advocate only to find that key limitations or negative factors were omitted from what you have read or heard?

The Balance Between Research, Theory, and Practice

It is the understanding of existing research combined with experience that allows a developer, playing his or her hunches, to make the right decisions. During meetings with faculty, the developer does not have the time to explore alternatives extensively or thoroughly investigate all related research and writings. Decisions have to be made immediately and can rarely be delayed. However, if we've planned ahead, our actions will usually be the correct ones. Although most development meetings contain some surprises, the topics being covered and the goals of the session can be anticipated. Developers should enter every meeting with a clear idea of where it is heading under his or her direction, and, therefore, planning is essential.

If the session will include a discussion about the first units in a course or curriculum, the developer should already know and bring to the meeting extensive data about the students' knowledge, attitudes, and priorities. If there are going to be prerequisite problems or if the potential for exemption exists, this must be on the agenda of the developer for very early discussion since these factors will have impact on the total course design. If objectives and evaluation are to be discussed, they should be considered and developed without intimidating the faculty member in the process. This is extremely important since many of the existing models, while they may generate hundreds of objectives, tend to antagonize the faculty as they are forced through the process. While the faculty must understand the design process being followed and be able to describe it in general terms, the less the developers discuss complex models and theories with the faculty the better. Most simply want to get on with the project and are not usually interested in the jargon, models, and theories of our profession.

The writings of Gagne, Markle, Snow, Merrill, and others are important to the practicing instructional developer. However, there is often a major difference between the ideal, where the design of every lesson follows the recommended procedures, and what we can realistically hope to do. Faced with the pressures of rapid implementation and limited as we are in both time and resources, I would like to propose the following working relationship between those approaches requiring extensive analysis

and design and instructional development—*Utilize the in-depth approaches when attempting to find out why certain elements aren't working or why certain students aren't learning.* It is here that we will gain maximum payoff for maximum input. Across-the-board utilization of many theories and models is simply not cost effective.

Some Brief Comments on Specific Papers

Kaufman on Needs Assessment[2] In this paper Kaufman briefly summarizes his approach to the area which identifies six categories of needs assessment and then presents, in some detail, a realignment of needs assessment into two major headings, internal and external. While he relates to the overall design process, he argues that although much of what we do approaches needs assessment from within the organization, external needs assessment is very important and obviously much more difficult to accomplish because it may be regarded as posing a threat to the fundamental purposes of an organization. While I do have some problems with the "external" — "internal" classification system proposed in this paper, I feel that the overall statement Kaufman presents on needs assessment is sound and clear. However, I feel more comfortable viewing needs assessment from the two fundamental decision areas in which these data are of major importance: establishing the priorities on which project selection is made, and in the design of the project itself.

In addition, we must remember that the goals and objectives of any program will depend on *who* is given the opportunity of having input into the system, and this is usually controlled by the instructional developer.

Gagne on Learning Hierarchies and the Training of Instructional Developers.[3] Asked to discuss what kinds of skills and competencies should be aimed for in training specialists in instructional development and to describe how the concept of the learning hierarchy might be used in planning such programs, Gagne lists five general categories of learned capabilities and shows how the learning hierarchy would be used to identify essential prerequisite skills for any specific intellectual skill. Gagne recognizes that in his discussion in general because the specific tasks that an instructional developer may have to do are virtually limitless.

While I certainly agree with the concepts presented in this paper, I am concerned with how to fully implement this approach on a day-to-day basis without antagonizing faculty. Can we, perhaps using other procedures, achieve the same goal with less frustration and in less time? Finally, in any discussion of the training of instructional developers, I would like to see more discussion on the qualities that an instructional developer must have that can't be taught. I'm increasingly convinced that it is certain human qualities that in the long run determine the success or failure of developers, and, therefore, our most important decision may not be in the design of our academic program but in how we select our students.

Merrill on the Concept Elaboration Theory.[4] Merrill's Concept Elaboration Theory is presented as an alternative to the Gagne-type learning hierarchy. Merrill concedes that Gagne himself does not specify that hierarchies are necessarily devices to sequence subject matter, but he points out that they have, nevertheless, been so used by others. Concept Elaboration Theory is a procedure for representing the content structure of complex subject matter, for determining an optimal sequence for teaching complex subject matter, and for determining an optimal presentation strategy for complex subject matter. The difference between these two theories might be illustrated as follows. If you were to teach someone a complicated task, you might begin by teaching him prerequisite skills first. After learning them in some order, the student would ultimately be able to perform the terminal task. This would be a Gagne-type approach. You might, however, approach the teaching job differently. You might teach a simple version of the task but one which still applies its underlying principle. You would then successively elaborate the simple version until the student learned to perform the terminal, much more complex task. Merrill feels that the Concept Elaboration Theory would give the learner overall understanding of the task much sooner.

While I agree philosophically with the approach being suggested, I am not sure if we can realistically hope to put this process into operation when we must deal on a daily basis with faculty. The process we use must be clear, concise, sequential, and, equally important, humanistic. On a lesson-by-lesson basis, how detailed can we really be?

Markle on Teaching Concepts.[5] Starting with some fundamental and totally supportable instructional design axioms, Markle discusses the concept of learning hierarchies and the process and problems associated with classification. The difference between a hierarchy of intellectual skills and a less well defined "knowledge structure" is discussed with emphasis on the impact these differences will have on the design process. The job of the instructional developer, according to Markle, will be to identify the knowledge structure in various subject matter areas and to redesign materials so that they become more accessible to beginners in a new discipline.

While again I support the concept being presented, I find myself somewhat uncertain as to when it makes sense to place all the elements of a course I am working on in hierarchial order. Perhaps, as I mentioned earlier, we should take the time to do this when something isn't working. One advantage the instructional developer has by being outside of the subject area is that he or she can ask key questions of the faculty that will evolve and help articulate the knowledge structure within the discipline.

Faust on Instructional Strategies.[6] First, identifying the problem, then stating the objectives, and, finally, selecting a mode of instruction makes eminent sense. All too often we find solutions seeking problems. In this paper, Faust emphasizes instructional strategies as they relate to meeting a single instructional objective. While also discussing the classification of objectives, the major portion of this paper describes a model of an effective instructional design approach which relates the classification of specific objectives to the instructional strategy which will be selected. Faust's statement, "Each objective and each component are not treated as a completely new challenge requiring the invention of a completely new strategy," should have been embossed on several of our more highly publicized models. However, we should remember that, when cut too fine, the writing of objectives has caused many faculty to lose sight of why the course was taught in the first place.

Snow on Individual Differences and Instructional Design.[7] In this paper, Snow writes that individual human differences are far more complex and fundamental than has been recognized. Where differences have been acknowledged, he feels that they have usually been used to select

out people who did not conform to a mythical average. Snow points out that there is an interaction between individual differences and instructional conditions —ATI (aptitude-treatment interaction) —which can produce varying degrees of learning success or failure, depending on how appropriately instructional conditions are matched with individual differences. The individual differences Snow refers to include more than just general intelligence; they include other aptitude variables, such as General Achievement Motivation (achievement via independence or achievement via conformity) and Anxiety. Students, for example, who are able, conforming, and anxious seem to need more step-by-step structure in the progress of instruction, whereas students who are able, independent, and non-anxious seem to need less teacher structure of this sort. He concludes that instruction that takes these individual differences into account and which tries to accommodate them by appropriate learning conditions should produce greater learning success.

I'd love to have the time and resources to apply trait-treatment principles to everything I do; unfortunately, I don't have either. This approach has helped us identify why *certain* students aren't succeeding and has provided us with some excellent indications of what we can do to correct the problem. We must always, however, keep in mind that some students may never succeed and others will learn whatever we do. The final percentage of failure may, in the long run, rest on the resources available to us. We also must remember that as course design becomes more complex (many courses include lectures, seminars, laboratories, tutorials, and independent study) the process of analysis also becomes more complicated.

Baker on evaluation.[8] Not to have evaluation as an integral part of the development process is idiotic. Unfortunately, it happens all the time. Baker uses a dance metaphor to discuss formative evaluation (the hustle) and summative evaluation (the minuet). She argues that summative evaluation is too often merely a contrived exercise of limited practicality; when conducted by the organization itself, its results are likely to be suspect; when conducted by more objective outsiders, it may be perceived as threatening. Summative evaluation, she feels, is subject to political pressures; when requested, it is often intended to promote

or debunk some program. Formative evaluation, she concludes, has much greater practical value, is perceived as much less threatening, has a real effect on development, and is much less subject to political pressure.

While I generally agree with this paper, I believe that formative evaluation begins earlier in the design process than Baker suggests and includes those elements of needs assessment associated with project design. We have, for example, found it extremely important, long before a course or program is outlined or a student manual or instructional unit produced, to gather detailed information about our students. What skills and attitudes do they bring to our class? Are our assumptions about prior learning correct? Why are they there in the first place and where are they going? In addition, when our project is related to a specific profession, key questions must be asked of recent graduates, of practitioners, and of their employers. We must also determine in advance what criteria those who will judge the project are going to use to determine its success. These questions are all part of the formative evaluation process and their answers will not only provide the basis for many design decisions but also the basis for comparative data used in the summative stages of evaluation.

The instructional development process must represent a blend of research, theory, hunches, and experience. The coordination of these elements must rest with the instructional developer.

[1]Donald T. Campbell and Julian C. Stanley, "Experimental and Quasi-Experimental Designs for Research on Teaching," *Handbook of Research on Teaching*. Edited by N. C. Gage, Rand McNally and Company, Chicago 1963.

[2]Roger Kaufman, "Needs Assessments: Internal and External," *Journal of Instructional Development*, Vol. 1, No. 1, Fall 1977.

[3]Robert M. Gagne, "Types of Capabilities and Learning Hierarchies in Instructional Design," *Journal of Instructional Development*, Vol. 1, No. 1, Fall 1977.

[4]M. David Merrill, "Content Analysis Via Concept Elaboration Theory," *Journal of Instructional Development*, Vol. 1, No. 1, Fall 1977.

[5]Susan M. Markle, "Teaching Conceptual Networks," *Journal of Instructional Development*, Vol. 1, No. 1, Fall 1977.

[6]Gerald W. Faust, "Selecting Instructional Strategies Or Once You've Got An Objective, What Do You Do With It?," *Journal of Instructional Development*, Vol. 1, No. 1, Fall 1977.

[7]Richard E. Snow, "Individual Differences and Instructional Design," *Journal of Instructional Development*, Vol. 1, No. 1, Fall 1977.

[8]Eva L. Baker, "The Dance of Evaluation: Hustle Or Minuet," *Journal of Instructional Development*, Vol. 1, No. 1, Fall 1977.