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About this issue...

JID's First Theme Issue: ID Consultation

This issue of JID introduces another first in its brief history: one issue devoted almost exclusively to one theme. In this instance, the topic is ID consultation.

Most of us working in ID today know that the quality of a developer's work is often dependent as much (if not more) on his or her ability to deal effectively with clients as it is on his or her conceptual or technical skills. Our business, after all, is a people-business. In the past authors have tended to concentrate heavily on the conceptual and technical aspects of our field (ID models, ID approaches, administration of ID services, media design, etc.). Lately, however, the developer-client relationship has been the subject of an increasing number of articles published and presentations made at professional meetings. There seems to be a growing interest in the role of the instructional developer as consultant.

Four articles in this issue deal with aspects of ID consultation.

- Theme issue editor Barry Bratton provides an extensive review of the publications and presentations on this topic since 1973 to show the extent of knowledge in the area. He offers a series of suggestions and questions to stimulate further inquiry.
- David Rutt discusses several consultation models and focuses particularly on the assumptions underlying them. He raises the question: Do developers adhere to a single model of ID consultation?
- Bill Coscarelli and Jerry Stonewater speculate about ways to identify the ID client's decision-making style. They theorize that the ability to recognize a client's style will aid the developer in building and maintaining an effective relationship.
- Authors David Leitzman, Suella Walter, Rodney Earle, and Charles Myers provide us with a very practical mechanism for ensuring a sound relationship with clients. It is a formal, explicit contract negotiated between the developer and client. Their article includes the elements of such a contract, suggestions for negotiation, and a sample contract.

Because this is our first theme issue, the Editorial Board would appreciate your reaction. Please address your comments to JID Editor Ken Silber. — B.B., Issue Editor
The Instructional Development Specialist as Consultant

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Abstract. Successful instructional developers, as well as their clients and employers, are coming to realize that in addition to conceptual and technical ID skills, appropriate interpersonal “people” skills to cultivate an ongoing collaborative relationship with the client are required for development efforts to succeed. This article views developer-client interaction from the perspective of the consultation process. It reviews the current level of knowledge about consulting skills as it applies to ID, summarizing and relating six theoretical and research-based and six practical, intuition-based conceptions of the consulting process itself; consulting styles; client styles; necessary consulting skills; and training approaches for consulting skills. The article concludes with an analysis of four areas in which more inquiry regarding the ID consulting process is needed.

In a recent JID article, Durzo, Diamond, and Doughty (1979) suggested four major areas of inquiry for the instructional development field:
- Organization and administration of instructional development programs;
- Instructional development process and developer-client interactions;
- Instructional design process; and
- Evaluation.

The authors pointed out that while all four areas have not received equal attention by researchers, each is supported by scholarly inquiry in a number of subordinate and related areas. For example, Figure 1, taken from the Durzo et al. (1979) article, shows the major heading of "Instructional Development Process and Developer-Client Interaction" with its supporting areas of inquiry. Included among the supporting areas are consulting skills and techniques.

The purpose of this article is to examine the current level of knowledge about consultation as it applies in the instructional development context. This will be accomplished by reviewing the published literature and professional presentations focusing on instructional development consultation. The article closes with some observations on the status of inquiry in this area including suggestions for further investigation.

Overview

As the knowledge base and interest in instructional development (ID) continues to grow and mature and as the instructional development specialist (IDS) becomes increasingly accepted by the education and training communities, there is the recognition that the practicing IDS must possess many skills. Experienced, successful instructional developers, as well as their clients and employers, are realizing that a knowledge of the ID process and the possession of conceptual and technical skills are insufficient for the effective practice of instructional development; possession of the appropriate interpersonal “people skills” to facilitate the development and maintenance of a successful collaborative relationship with the subject-matter expert (SME) — teacher or trainer—is also required (Silber, Note 1; Rose & Riegelert, Note 2; Rutt, Note 3).

Davies (1975) warned of the consequences if the human relationship aspect of ID is ignored.

Instructional development and evaluation in a vacuum would be fairly simple and mundane processes. Fortunately, development and evaluation only make sense in the context of people, and yet — in an almost desperate attempt to realize the task we sometimes tend to ignore the relationship side of the instructional situation. No matter how pertinent our development and evaluation procedures, no matter how sophisticated and scientifically based our techniques, little will be achieved if the quality of human relationships is overlooked or ignored. A project that is task oriented, without being also relationship oriented, thereby increases the probability of its own rejection. (p. 372)

For purposes of this article, the generic term “consultation” will be used to denote the relationship established between the IDS and an SME. Colton (1974), Rutt (Note 4) and Leitzman, Walter, Earle, and Myers (Note 5) refer to it as a “helping relationship.” Lippitt (1999) offers a definition of consultation which, when translated into the context of instructional development, pictures the IDS as a professional helper (the consultant) who provides assistance to a help-needing system (the SME client) about instructional problems. Both the IDS and SME see the relationship as voluntary (at least psychologically) and temporary; neither views the IDS as a part of the SME’s professional field even though the IDS is employed by the client system or larger supersystem. The SME client, according to this definition, may be one individual, a group of persons, or an entire department or school. The IDS is an internal consultant as opposed to an external agent hired temporarily for an honorarium from outside the institution.

Over the past several years there has been a growing interest in the instruc-
tional development field about the consultation process described above. This interest is reflected in the following review of pertinent publications and professional presentations.

**Review of Theory and Research**

Six publications that discuss ID consultation in terms of either documented theory or research data will be reviewed.

The most extensive theoretical discussion of the IDS-SME relationship to date was prepared by Davies (1975). He examined the relationship between instructional developers/evaluators and clients in the context of a theory of advice. Davies argued that the fundamental role of the developer/evaluator is giving advice to clients and allowing them to make the final decisions. He discussed the relationship in terms of three models. In the *product model*, the client is a customer who provides the developer/evaluator with an explanation of what is needed and leaves it to him or her to create the solution. The interaction between the developer/evaluator and client is minimal: It is assumed that the client understands the problem well enough to request the proper solution and the responsibility for preparing the desired solution lies with the developer/evaluator. In the *prescription model*, the relationship of the developer/evaluator and client is analogous to that of the physician and patient. The emphasis is less on a product and more on maintaining a "healthy" instructional state through periodic developer/evaluator-client contact. The *product-process model* employs elements of both of these models but views the relationship as "a system of decisions, reached by agreement, concerning what is expected in terms of both the results to be achieved and the changing roles (of the parties involved) to be exercised as advice is given and accepted. The relationship is essentially a dynamic one, as compared with the static relationship assumed in the previous models, continuously changing until a final termination is achieved" (p. 359).

Davies postulated six results which can be achieved as a consequence of a positive product-process relationship: improved student performance, improved allocation of resources, improved client skills in ID and evaluation, improved client-developer/evaluator relationships, improved relationships within the client system, and improved developer/evaluator skills.

The bulk of Davies' paper is a discussion of the relationship activities which parallel ID task activities. Grouped under three broad headings, the relationship activities include entering, maintaining and terminating an IDS-SME relationship. Entering into a relationship includes initial contacts with a client and the negotiation of a formal and psychological contract. Maintaining a relationship consists of three phases: diagnosing the client's real...
or perceived needs, offering alternative courses of action to the client, and implementing a chosen course of action. The terminating stage consists of a review and evaluation of the relationship with eventual reduced involvement or complete termination. The article contains no research evidence, descriptive studies, or self-reports in support of these theories.

Coscarelli and Stonewater (Note 6) advance the theoretical argument that if the SME's decision-making style can be identified, the success of the IDS-SME relationship will be improved. Drawing on a theory of decision-making types in therapeutic settings, the authors asserted that the SME's decision-making style can be charted on a two-dimensional matrix: information-gathering style (systematic or spontaneous) and data analysis style (internal or external). They presented four hypothetical examples of verbal IDS-SME interactions to typify each type. The theory awaits empirical investigation.

Rosenberg (1978) drew upon research on supervisor-teacher conferencing to explore strategies for improving the IDS-client interaction. He suggested that, like supervisors during teacher conferences, instructional developers may use verbal behaviors which are judgmental and discourage client participation or they may employ behaviors which indicate concern and invite client involvement. Rosenberg proposed that the developer-client relationship should be studied by analyzing the verbal interactions. A system for coding the interactions was offered, the system included various categories for IDS talk and client talk. (See Figure 2.)

Price (Note 7) conducted an exploratory study of the verbal behaviors of six practicing instructional developers during their first meeting with new SME clients. The interviews were recorded on audiotape and coded by independent judges according to a classification system developed by Price. The system consisted of four phases (introduction, problem identification, solution discussion, closing), six content categories (subject-matter, objectives, teaching methods, media, evaluation, other), and twelve process categories (reinforcing, soliciting, prompting, explaining, opening, clarifying, informalizing, structuring, summarizing, declaring, dispensing, other).

The results of the study showed several commonalities of developer behaviors regardless of the client or the client's problem: The largest percentage of time was spent in the solution discussion phase; the content of the discussion most frequently centered on instructional methods; and the process behaviors consisted mostly of explaining, offering opinions, and reinforcing the client.

Rutt (Note 4) investigated the consultation styles of IDS practitioners based on an Instructional Development Consultation Styles Inventory. The written inventory, developed by Rutt, contained a series of scenarios of IDS-SME verbal encounters, and subjects were asked to choose one of several alternative responses provided by the experimenter. Each response represented one of four theoretical consultation models gleaned from the literature. Data were collected via a mailing to IDS practitioners in higher education institutions in the United States. The major finding of the study was that the practitioners do not adhere to one particular consulting model regardless of the phase of the relationship (entry, analysis/diagnosis, or problem-solution), the innovation discussed (instructional strategy changes or media usage), or the system level (curriculum, course, or unit).

Savage (1975) designed and evaluated an experimental training system to improve the empathic capabilities of the IDS when interviewing an SME client. Participants in the experiment, students enrolled in the instructional development curriculum at a major university, were subjected to a three-phase treatment adapted from a training program for personnel counselors. The dependent variables were pretest and posttest scores on an affective sensitivity scale (ability to assess the affective state of

![Figure 2](image-url)
others) and a coorientational measure (ability to predict the belief system of another).

In the first treatment phase, subjects viewed a videotaped lecture-demonstration to improve their skills as interviewers and to learn to discriminate among different types of interviewer responses. Then the subjects watched a second videotape containing counseling session vignettes and were asked to properly label the observed inter-

practitioners in the client relationship.

Thigarajan (1973) informally described his personal experiences with subject-matter experts and observed, "The SME has a different priority, a different loyalty and even a different language, and even our own side has accused us of 'speaking funny' at times. Neither person's role is clearly defined in most instructional development projects." (p. 2).

Colton (1974) identified ID as a help-

ing profession and listed a series of "protocol rules" he felt would help developers establish good working relationships with clients. His first rule was to make certain that the roles of the IDS and teacher are clearly defined. He insisted that it is the developer's responsibility to explain the "jointness" of the enterprise and to build an atmosphere of trust.

Silber (Note 1) has provided the most detailed analysis to date of the specific interaction behaviors recommended for an IDS. He identified 22 "people skills" the IDS might use over the course of his or her relationship with an SME. These skills are presented in Table 1. Silber emphasized that his list was not exhaustive; that not all the skills would be called for in every ID project; that the skills may not occur in the sequence he presented them; and that the nature of

and ideas, and showed them how to begin.

2. Facilitator—He asked questions, provided information, described the overall plan, allowed them to make the decisions, and provided support services such as typing and library research.

3. Counselor—He projected a caring attitude; listened, evaluated, and analyzed their ideas and gave immediate feedback; and provided pleasant comfortable physical work surroundings.

Osterman (Note 8) offered techniques for the IDS to ascertain the scope of a proposed ID project. One determiner of the scope is information about the client. The author felt the IDS must get information about the client's personality, motivations for seeking consultation, level of commitment to engage in ID, and his or her view of the role of the teacher. Osterman believed the IDS must be skilled in consultative interviewing to learn such information. He provided a model for working with different types of clients, including a checklist for evaluating the initial IDS-SME conference. He also included a very slightly modified list of Silber's interaction skills.

Deden-Parker (1979) focused on the skills necessary for the IDS to practice effectively in business/industry settings. Drawing from the counseling profession, the author said that during the initial conference the IDS must hold back his or her personal ego-concerns and give full attention to the client in a visible way. The techniques include positive body language, questioning and paraphrasing the client, initiating potential alternative courses of action, and rein-

viewers' responses. Feedback was provided to tell the subjects how accurate their discriminations were. In the second phase, each subject was videotaped as he or she watched experimenter-produced film vignettes depicting typical IDS-SME encounters.

The videotape was shown to the subject with a trained counselor present to help the subject recall his or her reactions to the filmed vignettes. The final training segment consisted of dyadic role plays in which the subjects were assigned to either an IDS or SME role. Subjects designated as clients were coached to display a particular affect during the simulated interview; the affect was not made known to the "IDS." The subjects then reversed roles and the process was repeated. The simulated interviews were videotaped and replayed to each "IDS" as a trained counselor helped the subject recall his or her feelings and responses to the "client."

Savage reported a significant positive effect was achieved on the sensitivity scales while no difference was noted on the coorientational measure. He concluded that the training system was useful for increasing the empathic identification of instructional developers toward clients and that such training should be incorporated into the curriculum for preparing new instructional developers.

Review of Supporting Literature

Six publications are briefly reviewed which, though the conclusions lack a theoretical or research framework, serve to demonstrate the interest among

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"... our present knowledge of the area can best be described as a mile wide and an inch deep."

the interaction, the situational context, and the individuality of the IDS would determine how and to what extent the skills would be used.

Rose and Riegert (Note 2), using a case study approach, described a developer's interaction skills from the client's perspective. Citing their first experience as SMEs in an ID project, they identified three roles played by the IDS:

1. Salesman—He (a male) convinced the clients they could do the job, showed them the results of other projects, reinforced their level of expertise forcing the client's contributions.

Each of the six articles reflects intuitions and opinions based on practical ID experiences. As such, they contain a certain face validity. The ideas contained in them provide a fertile field for empirical investigations.

Observations and Suggestions for Inquiry

The preceding review represents an exhaustive examination of the literature
in ID consultation. There is little doubt that the topic has become increasingly important to the ID field in the last 5 years. At the same time, our present knowledge of the area can best be described as a mile wide and an inch deep. Much of the writing falls in the categories of personal opinions and how-to-do-it approaches. Each writer has selected an area of personal interest and explored it. (Interestingly, no author thus far has published or presented further work on the topic; this may change in the future.) The efforts to date do provide, however, stimuli for inquiry:

1. What does occur behind the office doors when developers and clients interact? Price (Note 7) demonstrated that the verbal interactions can be captured and analyzed; Rosenberg (1978) suggested an alternative method of systematically codifying IDS-SME verbal interactions. Descriptive studies of both verbal and nonverbal interactions are needed as well as validated instruments and procedures for gathering such data. Can trained observers be placed within the IDS-SME meeting without influencing the interaction? Can audio and video recordings provide complete and accurate information? What behaviors do experienced ID professionals engage in when consulting with clients? Are there basic consulting skills regardless of the client, the setting, the phase of the relationship, the client problem?

2. What constitutes a "good" IDS-SME relationship? Philosophical treatises with accompanying suggestions for inquiry or verification would be insightful. What moral and ethical considerations, if any, surround the relationship? How do IDS practitioners who are successful at initiating and maintaining a client relationship define a good relationship? Leitzman et al. (Note 5) suggested that a formal contract negotiated between the developer and the client is one mechanism for starting and carrying on a good relationship. What does the literature from other "helping professions"—counseling, psychiatry, law, social work, theology, to name a few—contribute to our understanding of the IDS-SME relationship?

3. What is the client's view? Rose and Rieger (Note 2) showed that clients are aware of some IDS behaviors. What cues do they use to judge the relationship? How do they define a good relationship? Can client types be identified, per Coscarelli and Stonewater (Note 6),

**TABLE 1.** People functions/skills involved in working with content specialists to develop instructional systems. (From "Organizational and personnel management structures needed for the successful implementation of instructional development in educational institutions" by Kenneth H. Silber, unpublished manuscript, 1975, 23-28. Reprinted by permission.)

A. Establishing a Relationship

1. Breaking the Ice
   a. Be pleasant and cordial.
   b. Be warm and open.
   c. Identify who you are and "where you are coming from."
   d. Draw out client—who is he or she?

2. Setting the Tone
   a. Be task oriented but light-hearted as well.
   b. Be equal (not authority or servant)—both people have different things to contribute.
   c. Be open, with two-way praise and/or criticism possible.
   d. Make clear that your role is to help, not threaten, client.

3. Communicating Nonverbally
   a. Keep tone of voice pleasant, calm, equal.
   b. Keep body language open and equal.
   c. Keep environment conducive to open and equal interchange.

4. Identifying Expectations
   a. Why is client seeing you—what prompted client to come to you?
   b. What does client expect to be outcome of work together?
   c. What do others expect to be outcome of work together?
   d. What does client think you can do for or with him or her?
   e. What does client expect to do him- or herself?
   f. How much time is there to complete project?
   g. How much time is the client willing to put in?

5. Listening
   a. Listen carefully and accurately.
   b. Listen to both verbal and nonverbal (tone, body language) messages.
   c. Be able to repeat back exactly what client said.
   d. Be able to synthesize and interpret what client said.
   e. Do not interrupt client.

6. Identifying Type of Client
   a. Identify client's attitude toward ID and you. Is it:
      1. cooperative or blocking?
      2. equal or superior?
      3. philosophically for or against?
      4. pragmatically for or against?
   b. Identify client's personality. Is it:
      1. open or defensive?
      2. smart or slow?
      3. traditionalist or empiricist?
      4. worker or sluffer off?
   c. Begin to identify techniques to avoid and to use with client.

7. Contracting
   a. Do it as soon as possible, but not so soon as to destroy relationship.
   b. Determine in the contract:
      1. what is to be done,
      2. by when, and
      3. by whom,
   c. Determine modes of accountability for all parties.
   d. Be clear that both are expected to fulfill your part of the contract.

B. Gathering Data About the Problem

1. Identifying Current State of System
   a. Identify what course or program is now:
      1. content,
      2. instructional techniques,
      3. role of instructor, and
      4. use of media.
   b. Identify where course or program is now:
      1. successful?
      2. student happy?
      3. instructor happy?
      4. problems?
   c. Avoid solutions at this point.
and matched with IDS consulting styles?

4. How should IDS consultants be trained? What skills are most important for ID students to master in order to interview clients effectively? Following the lead of Savage (1975), what are the best methods for teaching these skills? Price (Note 9) and Dement-Parker (1979), for example, suggest didactic teaching sessions, role playing, observation of model developer-client interactions, and supervised internship experiences. To what extent are courses/experiences in ID consultation being offered by graduate training programs? Who are qualified to teach such courses?

A Final Word

There is much to learn about the IDS-SME relationship. The questions raised here are not meant to be exhaustive; they are intended to prompt discussion and inquiry.

But a word of caution is in order. While the intricacies of the IDS-SME relationship may hold a fascination for some at the moment, it would be unfortunate if the topic were to become a passion of the field. As Durzo et al. (1979) have shown; there are many areas for inquiry in our field (see Figure 1). We must remain conscious of the fact that the interaction between the IDS and SME is only one means to the important end of improving instruction and training. Inquiry in all areas is necessary for the ID field's continued growth.

Reference Notes

1. Silber, K. H. Organizational and personnel management structures needed for the successful implementation of instructional development in educational institutions. Unpublished manuscript, Governors State University, 1975.


<table>
<thead>
<tr>
<th>TABLE 1. People functions/skills involved in working with content specialists to develop instructional systems. (Continued)</th>
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<tr>
<td>2. Eliciting/Probing</td>
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<tr>
<td>a. Ask questions.</td>
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<tr>
<td>b. Start with general questions (e.g., &quot;what are your goals for this course?&quot;).</td>
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<tr>
<td>c. Don't accept incomplete or shallow responses.</td>
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<tr>
<td>d. Ask more specific questions.</td>
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<td>e. Ask more difficult questions.</td>
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<td>3. Generating Examples</td>
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<tr>
<td>a. Get to concrete level.</td>
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<td>b. Have client generate examples to clarify answers to questions.</td>
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<tr>
<td>c. Place yourself in role of student and act out how client would teach/evaluate you.</td>
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<td>d. Ask &quot;would this be an example of X?&quot;</td>
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C. Working Toward a Solution

1. Training/Informing
   a. Explain how an approach you use might help solve the problem.
   b. Explain the approach in general.
   c. Use or draw simple charts or graphics to help.
   d. Elicit both cognitive and affective responses to approach.
   e. Suggest further resources for client to learn about approach.
   f. Use resources that model, as well as contain, content.

2. Brainstorming
   a. Use when stuck.
   b. Try to list all possible ways of solving problem—no evaluation.
   c. Place premium on number of alternatives generated.
   d. Then return and evaluate list.

3. Suggesting
   a. Instead of asking, begin to make suggestions related to difficult areas or problems.
   b. Make them tentatively (e.g., "what if we look at it this way . . .").
   c. Do not feel threatened if suggestion is ignored or criticized.
   d. If suggestion is no good, then either:
      1. Make a new suggestion.
      2. Ask client to build on or suggest an alternative suggestion, or
      3. Return to "eliciting/probing" to discover why suggestion was no good.

4. Redirecting Thinking
   a. Use if client either uses old approach/terminology or if client gets hopelessly enmeshed and tangled.
   b. Say "I think we're (emphasize we-ness of it) having this problem because we're doing X; but our new approach suggests that we should do Y instead. Would it help if we tried that now?"
   c. If redirecting does not work at first, keep trying it.

5. Synthesizing
   a. Do periodically—this is a must.
   b. Give sense of where you are.
   c. Tie together all information gained from other functions up to this point.
   d. Put synthesis tentatively ("I think where we are now is . . .") and check with client for agreement.
   e. If OK, go to C3.
   f. If not OK, follow same procedure as in C3d.

6. Decision-making
   a. Force decisions to be made (both content and method).
   b. Keep written record of decisions reached.
   c. Look at how a new decision affects or is affected by prior decisions.
   d. Try to discourage too much changing of decisions.

D. Challenging the Client

1. Challenging Intelligently
   a. You do not have to agree with all the client's content or method statements.
   b. Challenge those you disagree with selectively—pick major ones.
   c. Challenge in an academic manner—calm voice, have data to back your position.
   d. Know when to withdraw challenge:
      1. If belief is too deeply held to change,
      2. If it threatens whole project and relationship, or
      3. If you're at an impasse.
   e. Lose some challenges purposely to assert you're human, too.

Table 1 is continued on page 8.
for Educational Communication and Technology, New Orleans, 1979.*


References

Colton, F. A basic approach to the design specialist-teacher relationship, Audiovisual Instruction, 1974, 17, 24-25.


*Also see articles by these authors in this issue of JID.

**TABLE 1. People functions/skills involved in working with content specialists to develop instructional systems. (Continued)**

2. Persuading/Corolling
   a. Use especially on method decisions.
   b. If client disagrees, and you see it is a must, try to change client's opinion.
   c. Present two-sided argument—i.e., the client's does have a valid point of view, so look at it as well as your own.
   d. Look at consequences of both ways of proceeding.
   e. Try to demonstrate that your way is:
      1. better,
      2. casier, or
      3. more fun, etc.
   
   f. Try compromise if necessary
   
   g. Try an empirical approach—"Let's do one part this way and one part the other way (NOT my way and yours) and see what happens."
   
   h. Try a give and take approach—"We did the last one one way, let's do this one another way."

   i. Beg if necessary
   j. Demand if you can.

3. Confronting—Personal or Contract
   a. Use if person breaks contract or tries to sabotage project (e.g., misses meetings, doesn't do assignments).
   b. Begin calmly.
   c. Present agreement and violations.
   d. Ask reasons for violations.
   e. Ask for recommitment to project and assignment.
   f. If rationality doesn't work, either
      1. try D2.
      2. argue emotionally, or
      3. threaten organizational retribution.

4. Empathizing/Consulting
   a. Use after confronting, challenging, training, or to help establish relationship.
   b. Put yourself in client's position.
   c. Side with client against others (usually administrators) or unreasonable rules/expectations.
   d. Tell client story of when you were in same position.
   e. Explain how client is really better off now.

5. Managing the Development
   1. Assigning Work
      a. Use if work is to be done separately.
      b. Write them down.
      c. Split fairly evenly.
      d. Get client's commitment to do it.
      e. Spell out clearly what the assignments are.
      f. Spell out clearly when they are due.
      g. Spell out consequences of not having assignments done (cognitively—e.g., the project will be two weeks behind—rather than threateningly).

6. Critiquing Materials Together
   a. Be sure both you both have something to be critiqued.
   b. Begin by telling client what is good with the work produced.
   c. Ask for rationales from clients for things you think are incorrect.
   d. Try to raise concerns as questions rather than blatant statements.
   e. Make all criticisms constructive—not just "this is wrong."
   f. Make suggestions of alternatives or of how it can be improved.
   g. Do NOT offer to redo it yourself.
   h. Offer to work with client on correcting it.
   i. Return to "training/informing" if necessary.
A Framework for Investigating Consultation in Instructional Development

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Abstract: Instructional developers often work in conjunction with subject matter experts. The consulting relationship that is established has gone largely unexplored. A framework for examining this relationship includes four consultation models. Two dimensions of the instructional developers task environment that may influence the use of these models of consultation are identified and discussed. The results and implications of a study using this framework are reported.

The instructional developer (IDr) employs various strategies of instructional development when working with a subject matter expert (SME) to solve some type of instructional problem. In most cases in higher education, the SME, and not the IDr, will implement the solution to the problem. This type of relationship can best be categorized as a “consulting relationship” following Steele (1975) who defined consulting as: any form of providing help on the content, process, or structure of a task or series of tasks where the consultant is not actually responsible for doing the task itself but is helping those who are. Steele also pointed out that the recipient of such help—the client—has the option to freely reject it at any time. In addition, Steele also made it clear that consulting is not necessarily a “strict occupational role” but rather a function that can be applied to many areas. It is a set of skills within a number of different frameworks or models which reflect different professional points of view.

The IDr may thus be considered a consultant because help is provided to a SME who has the option to accept or reject such help. In addition, following Steele, the IDr is not concerned with doing the task (such as teaching or running an autotutorial lab) but rather with helping the SME implement the task and solve an instructional problem more effectively.

In establishing a consulting relationship with the SME, two systems will function concomitantly: the instructional development system and the human system (Arnn & Strickland, 1975). Normally, the primary emphasis during an instructional development effort is the instructional development system. The use of this system does not necessarily guarantee an appropriate and successful solution to an instructional problem. It is also necessary that the human system be considered in the instructional design effort. In thinking about the instructional development process, considerations about the human system of interaction between the IDr and the SME have unfortunately been omitted. It is through the establishment of a consulting relationship that the human system can be effectively managed toward the attainment of a desired goal.

An extensive amount of research completed in recent years has directly influenced the instructional development process. Such research has involved inquiry into many topics, including: aptitude−treatment−interaction, learning hierarchies, concept formation, and message design (Baker, 1973). In contrast, it appears that little information is available beyond heuristic guidelines to aid the IDr in establishing a relationship with the SME (Haney, Lange, & Barson, 1968, and Kemp, 1971). A review of many of the texts used by IDrs also reveals little about the consulting relationship (Briggs, 1977; Davis, Alexander, & Yelon, 1974; Gagné & Briggs, 1974; Gerlach & Ely, 1971).

The purpose of this paper is to explore various aspects of consultation as it pertains to instructional developers, propose a framework that may prove useful in exploring this important area, and discuss the implications of initial research using this framework.

Consulting and Instructional Development

With the increased formalization of instructional development, the role of the IDr emerged. It is obvious that the IDr will use the instructional development process to solve instructional problems. The question then arises as to how this process might be used. That is, will the process be used by the IDr alone or in concert with another IDr? Certainly, the instructional development process is not the exclusive property of the IDr in terms of use. Figure 1 presents a number of possible configurations that might exist when instructional development is used. Though cells 2, 3, 4, and 7 are possible and may exist, for the purposes of this paper the relationships that stem from cells 5, 6, 8, and 9 will provide the focus for further discussion.

The notion of the IDr working with a SME was first mentioned by Faris (1968) in a “futuristic” job description. From his perspective, the IDr is a person to work with faculty members in the development of instruction, including the analysis, design, and evaluation of instructional practice. He also concluded that the IDr must be capable of guiding the activities of an interdisciplinary team in the performance of the above tasks. This is a clear indication that some notion of consulting, or at least helping, is indigenous to the role of the instructional developer.

Engel (1969) found support for this idea in a survey he conducted to assess the activities of IDrs in higher educa-
It is important to note that Price used what could best be labeled a "collaborative model" in his study. Employing this model implies certain assumptions about a consulting relationship. It appears, from the lack of research in the areas of consulting and instructional development, that it may be somewhat early to presume that this is the model.

A reanalysis of Price's data by the author revealed that when IDRs encountered a variety of instructional problems (to be discussed below), they responded verbally in remarkably diverse ways. Though Price found some support for a collaborative model, his results also lead one to ask if other models of consultation are used by the IDR and if the instructional problem that confronts the IDR has any influence on the use of a certain model. We will first examine a number of models that may prove useful for describing the IDR's consulting behavior. Considering the potential effect instructional problems may have upon consulting behavior, an examination of the IDR's task environment will be undertaken.

Models of Consultation

Consulting is not a strict occupational role, as pointed out above, but rather various skills set within a framework or model that reflects professional points of view (for example, Argyris, 1970; Havelock, 1973; Brookes, 1975; Kuprius & Brubaker, 1976; Klein, 1977; Caplan, 1970; Schein, 1969). These points of view are nothing more than assumptions made by the profession about the role of the consultant and client within the consulting relationship. Davies (1975) has suggested that a number of different assumptions may form the foundation of a relationship, but normally a few will dominate and enable us to classify such relationships. Tilles (1962) identified three such classes of assumptions as purchase-sale, doctor-patient, and constructive. Schein (1969) suggested a similar set of consulting relationships and identified them as purchase, doctor-patient, and process. Davies (1975) identified them as product-oriented, prescription-oriented, and product/process-oriented. In this paper the relationship assumptions are labeled product, prescription, and collaborative/process. In addition, a fourth set of assumptions have been identified that are more relationship-oriented and less task-oriented than the other three. Fol-
lowing the ideas of Blake and Mouton (1964, 1978) this last set of assumptions will be labeled affiliative. The labels used in this paper were adopted because it was felt they communicate more precisely the role of the IDR. These four models and their underlying assumptions now will be discussed.

Product model assumptions
Under this set of assumptions the consultant is viewed as a seller who is approached by a buyer with a problem. It is assumed the client has correctly identified the problem and the appropriate form of the solution and can also determine the conditions for delivery. The consultant is expected to "deliver the goods" as requested, which will usually take the form of information, a service, or a product; e.g., provide books on behavioral objectives, design a test, or produce a filmstrip.

This relationship may be appropriate when there is little question of the articulated need because of the client's expertise or when it is simply expedient on the part of the IDR to "go along with" the client. If one goal of the relationship is to influence the long-term behavior of the client, a number of reservations about this model must be raised. With this model it can safely be assumed that the normal routine of the client will not be disrupted while the product or service is being developed. Some long-term behavioral changes may take place as a result of information flow between the consultant and client, but whether this information leads to "constructive, purposeful, and effective activity" on the part of the client is questionable (Tilles, 1961). The effectiveness of the product developed must also be questioned because it may be something beyond the sophistication of the client.

Prescription model assumptions
Within this set of assumptions, the role of consultant and client are reversed in terms of problem identification and solution. The client initiates the relationship by stating a concern about an existing situation; e.g., "My students don't seem to enjoy my lectures any more," or "I think my class needs more audiovisual aids." The client does not have the skills to diagnose the problem and thus it is up to the consultant to carry out the analysis and diagnosis of the concern to identify the underlying problem (Schein, 1978). The assumptions underlying this model are that the consultant has the authority and skills to carry out a diagnosis and that the solution will be accepted by the client. This model obviously stems from the field of medicine and also appears to be a popular mode of action in the area of management consulting (see Klein, 1977).

Such a relationship has a number of advantages. The most obvious is that the consultant has the upper hand in the relationship, and the authority of a specialist involved in an effort to help the "sick" client. The consultant may emerge from each relationship with new or refined skills of analysis. The client may develop both an increased awareness of the existing situation and knowledge that may prove useful for examining similar situations in the future.

A relationship based upon these assumptions also has a number of disadvantages. When the IDR enters the setting to help the client with the perceived concern, the first thing to be considered is the basis for this concern and if it is the "true concern." The situation is compounded if the size of the client group is large, because it may also be necessary to determine the true client. The client may also be unable, or at best reluctant, to accept or implement the suggested solution. As a result, any long-term effects upon the client may be minimal.

Collaborative/process model assumptions
The logical manner in which to start talking about consultation is to raise the issue of desired results from the consulting relationship (Tilles, 1961). In the case of the purchase model, the desired results stem from the need for some type of information, product or service by the client. The prescription model requires that the results take the form of a prescription to solve an existing concern of the client. With the specification of the results, the client and the consultant are locked into certain role behaviors with concomitant expectations for each other's behavior. The same can be said for the product model.

The collaborative/process model makes no a priori assumptions concerning the desired results of the relationship which may lead to a relatively fixed set of behaviors. Rather, it involves a system of decisions, which are reached by agreement, concerning what is expected in terms of the results to be achieved, the nature of the help required, and the changing roles that will be exercised (Davies, 1975).

Within this model it can be assumed that the client is aware of an existing problem but may need help in further clarification of that problem. The IDR and the SME bring to the relationship certain expectations arising from their respective professional roles. It can also be assumed that the variance in their expectations concerning the relationship can be negotiated to the mutual satisfaction of both parties. This may result in a variety of roles emerging to fit the requirements of the various project outcomes.

The goal of this model is to realize the intended instructional outcomes in terms of either increases student achievement or more effective use of available resources (Davies, 1978). A secondary goal, though one of no less importance, is that the client will be able to apply skills learned during the instructional development process to future instructional problems. For the IDR, this may not mean a reduction in the need for instructional development expertise but rather the promise of a more sophisticated relationship with the client in the future.

"In establishing a consulting relationship with the SME, two systems function concomitantly: the instructional development system and the human system. . . ."

This relationship also has a number of drawbacks. The scope of the project or the available time may not lend itself to the use of this model. Also, the client may not be receptive to the openness that is demanded of such a relationship; or conversely, the IDR may not feel comfortable using this model.

Affiliative model assumptions
Under this set of assumptions, it is necessary that the consultant emphasize good interpersonal relations with the client to be effective. This will be done
even at the expense of task accomplishment. The consultant is concerned with ensuring that the client is satisfied and that a well-ordered environment is maintained. The consultant seeks approval of the client by using ingratiating behavior to increase the chances of approval and reduce the risk of confrontation and rejection (Blake & Mouton, 1978).

It is entirely possible that the consultant will work very hard. Unfortunately, the motivation for this hard work is to gain approval from the client rather than to solve an instructional problem. The result will be a high work-level with low productivity.

When a consultant operates under these assumptions, a number of conditions will exist in the relationship: there is little or no conflict, the client’s suggestions and ideas are totally accepted by the consultant, and the desires and wishes of the client are anticipated. These conditions would appear primarily to benefit the client. However, if productivity is not an issue in the particular environment in which this model is practiced, such conditions may be acceptable.

Phases in Consultation Models

A consulting relationship passes through different stages or phases. The exact identification of these phases is still subject to dispute. An analysis of the consulting models of Brookes (1975), Kurpius and Brubaker (1976), Davies (1975), Schein (1969, 1970), Argyris (1970), Havelock (1973), and Caplan (1970) revealed at least three phases that were held in common. These phases are entry, analysis-diagnosis, and problem solution.

In the entry phase the major concerns are with the client and consultant getting to know one another, establishing the nature of the problem, and identifying methods and procedures for solving the problem. In the analysis-diagnosis phase data may be collected to further clarify the nature of the problem. This may lead to revisions in the problem and procedures for solving the problem and changes in estimates for needed resources. During the problem solution phase the plan for reaching certain goals or solving an instructional problem is finalized and implemented. During this phase the relationship may be reexamined and terminated.

Kurpius and Brubaker (1976) have noted that most consulting models share at least those phases identified above. They have also suggested that differences between models will lie with the emphasis placed upon a particular phase within a certain model. This difference in "emphasis" is manifested in the consultant's behavior during the phase. These behaviors can certainly be identified and classified based upon the assumptions associated with each model discussed above. The matrix in Figure 2 displays the interrelationship between phases and consultation models.

The Task Environment of Instructional Development

The IDR employs a variety of procedures in the process of designing a learning environment. These processes include task analysis, learner analysis, determination of teaching strategies, and evaluation. These procedures and others are brought to bear on the instructional problem with which the developer is faced. It is these problems that constitute the tasks with which the developer must deal. The task environment of instructional development thus consists of all tasks with which the developer is confronted in the design of a learning environment. However, in the area of consultation in instructional development, little work has been done to specifically identify the elements that compose the IDR's task environment and little more than a tentative picture can be drawn.

Engel (1969) noted that most of the work of the programs he surveyed occurred at the unit or course level. Hoban (1973) was also concerned with the level at which IDRs concentrate their effort. He found, like Engel, that the majority of an IDR's time is spent on tasks at the course level with a lesser amount of time on both the single lesson (unit) and "sequence of courses" (curriculum) level.

Alexander and Yelon (1972) identified the service, research, and teaching functions of a number of instructional development organizations in higher education. Their work also provides a more detailed picture of the task environment:

1. Conduct workshops.
2. Assist departments in the analysis, planning, and design of curriculum.
3. Assist faculty in the development of instructional materials.
4. Help write internal publications; i.e., handbooks, project reports, etc.
5. Consult with individual faculty members.

![FIGURE 2. Consultation models by phases matrix.](image-url)
6. Provide test scoring and analysis services.
7. Provide instructional TV services.
8. Administer and score standardized tests.
10. Maintain reference library on instructional development topics for higher education.
11. Maintain laboratories for faculty research and development in instruction.
12. Provide administration with technical advisory services regarding instructional development.

A review of the individual organizational descriptions included with the final report failed to specify the nature of the consulting activities in which the IDr engaged with faculty members.

The problems brought to the IDr in the Price (1976) study were not considered in the analysis of the data. These problems are listed below and provide further insight into the task environment of instructional development:

1. Design curriculum for 4-H.
2. Design 4 half-hour workshops on menopause.
3. Improve graduate education course.
4. Improve a course with media.
5. Evaluate and field test instructional package.
7. Develop course objectives and improve teaching methods.
8. Improve course effectiveness.

The majority of instructional problems in the Price study appear to be at the curriculum and course level. The types of activities with which the IDr is concerned involve writing objectives, test design, evaluation, media design and production, and content reorganization.

"Consulting is not a strict occupational role... but rather various skills set within a framework or model that reflects professional points of view..."

The results of Engel (1969), Hoban (1973), Alexander and Yelon (1972), and Price (1976) converge to provide us with a preliminary view of the instructional developer's task environment. It appears that most design tasks are at the course level, though the IDr will encounter some on unit or curriculum levels. These design tasks will call for either some type of instructional strategy modification or the introduction of media as a possible solution to the instructional problem. The instructional design modifications involve such activities as writing objectives, designing tests, reorganizing content, and evaluating. The introduction of media usually involves television, slides, or overhead transparencies.

Davis, Agedor, and Witt (1976), drawing upon their experiences with the Educational Development Program at Michigan State University, constructed a matrix to organize the instructional tasks with which they were confronted. They have identified "as a first approach" that most instructional development projects range along two dimen-

sions: (a) size or scope of the system under development; e.g., several courses or a curriculum, one whole course or part of a course (unit); and (b) the type of innovation or improvement requested by the client; e.g., revision of instructional strategies or an infusion of some type of instructional media or technology that does not constitute revision of the entire course. The matrix in Figure 3 illustrates these two dimensions of system scope and innovation type. The findings of Engel (1969), Alexander and Yelon (1972), Hoban (1973) and Price (1976) concerning the task environment of instructional development can be organized into the cells of this matrix. It, therefore, seems reasonable to conclude that, at least for the present time, this matrix provides a useful mechanism for organizing the task environment of the instructional developer.

The Task Environment and Consultation

Consulting consists of a complex array of skills that must be appropriately matched to a given problem setting for certain desired outcomes to be achieved. Such matching involves a complex set of decisions on the part of the consultant. A basis for the consultant's decision-making process has been proposed by Gallesch (1974). She contends that the decision as to which services will best serve client needs is crucial. Yet, explicit and truly discriminating choices are probably rare. The decision-making process used by the...
consultant is influenced by a number of variables. One is the consultant's "set" (i.e., the perceptual framework and methods of organizing data) shaped by early experiences in a training mold. Galleschick asserts that once "imprinted" the consultant's set is unwittingly constrained as the client organization is surveyed and possible interventions are considered. Another restriction comes from lack of knowledge; most consultants have limited acquaintance with intervention strategies. And, most have a rather narrow range of skills and too often try to fit the task to their particular skills. Consultant values, usually implicit, further limit options (Gallessich, 1974, p. 142).

It is reasonable to assume that each of the factors identified by Galleschick influences how a consultant operates within the task environment. We may also assume that each consultant has an idiosyncratic manner for responding to the task environment based upon some type of internalized consulting model. This model may manifest itself in a series of behaviors that could then be used to identify an individual's consulting model-in-use. The next step is to determine if the behaviors are congruent with any of the theoretical models of consulting. Much of the consulting research reviewed by the author has dealt with an attempt to identify a general consulting model that is usually based upon collaborative assumptions. Considering the complex task environment of the IDR, it would seem inappropriate to suggest the use of an invariant model of consulting when one considers the comments of Gallessich.

Clark and Ford (1970) have pointed out that little is known concerning the analytical framework used by consultants to examine a particular situation. Their research tracked the use of analytical models employed during the consulting relationship. It was discovered that consultants engage in "model switching"; that is, the consultant switches from one analytical framework to another in an attempt to understand the organization-to-environment relationship. In a similar fashion, the IDR may also engage in model switching as the client relationship progresses or new tasks are encountered.

Additional support for the idea of model switching comes from the work of Arbes (1972). He explored the manner in which student personnel administrators responded to situations within their job context, while also identifying describing the consulting behavior of the IDRs. Whether the IDR holds a preference for any of these models is not known. It has also been established that the task environment in which the IDR operates is complex. Little research has been carried out to determine the aspects of this environment. Some preliminary evidence indicates that at least two dimensions compose the task environment: system level and innovation type. It appears that variations in these dimensions may result in the differential selection of a consulting model (Price, 1976). Whether this behavior stems from either the framework of a general consulting model or in response to particular aspects of the task environment is not known.

Rutt (Note 2; 1980) used the framework discussed in this paper to examine the consultation styles of 83 IDRs throughout the country through the use of the Instructional Development Consultation Style Survey. This instrument employed the matrix in Figure 3 to compose six scenarios. The matrix in Figure 2 was used as the basis for writing the 12 responses (3 × 4) for each scenario. The following conclusions were reported which begin to shed light on the nature of consultation in instructional development:

1. The IDRs in this study equally favored the product, prescriptive, collaborative/ process, and affiliative models.
2. The task environment influences the type of consulting model the IDR chose with the system level exhibiting slightly more influence than innovation type.
   a. When an instructional problem was at the curriculum-system level, and especially if it involved instructional strategy changes, the IDRs chose to employ the product model.
   b. When the instructional problem was at the unit-system level, and if it involved media augmentation, the IDRs in this study chose to employ the collaborative/ process model.
3. The IDRs in this study chose to move from a product model orientation to a more collaborative/process model orientation in working with the client as the relationship progressed. This is somewhat moderated when the instructional problem was at the curriculum-system level.
Implications

One dimension not "controlled" in the study reported above was that of the client dimension. The type of client could possibly influence the IDr's selection of a consultation model. Coscarelli, Stonewater, and Shrock (Note 3) have suggested a typology of client styles that may prove useful in studying this dimension. Until this dimension is examined, it is impossible to estimate the effect of the client on the consulting relationship.

It is important to note that the size of the project influenced the model selected by the IDr. At the curriculum level, the IDr thought it appropriate for the client to determine the problem, and at the unit level, the IDrs selected a model that would have them working as equals. The reason underlying the selection of a model that allows the client to determine the problem may, in part, be due to both a lack of experience and consulting skills for coping with projects of this scope. With projects at the unit level that involve media, the IDr may feel more comfortable with such projects and therefore are willing to become more assertive and establish a collaborative relationship with the client.

It is interesting to note that under no circumstances was the prescriptive model selected. It would seem that at certain times during the consulting relationship it would be appropriate to tell the client the best course of action. It is possible that this model is used but does not dominate during a phase of the relationship. Perhaps it is not used because of some feeling on the part of the IDrs that it is not the professional responsibility of the IDr to tell the client anything or, alternatively, do not feel professionally secure in doing so. One thing is abundantly clear: if IDrs are to improve their professional effectiveness, more work is needed to understand the nature and effects of the consulting relationship in instructional development.

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Understanding Psychological Styles in Instructional Development Consultation

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Abstract: The thesis of this article is that relationship building is a critical component in any client-designer instructional development project; failure to establish and maintain an effective relationship will reduce the probability of successful project completion. The article outlines Johnson's Decision-Making theory as a conceptual framework from which designers can work to facilitate effective relationships. The theory classifies clients into four styles according to discrete, observable criteria. The discussion of the theory is followed by examples of clients of each style and for each client, possible designer responses are indicated.

Introduction

No matter how pert our development and evaluation procedures, no matter how sophisticated and scientifically based our techniques, little will be achieved if the quality of human relationships is overlooked or ignored. . . . Helpful and rewarding relationships, however, rarely occur by chance, they need to be deliberately entered into and consciously managed as an important resource. (Davies, 1975, p. 352, 372)

Davies makes two important points in the remarks above: a quality relationship between developer and client is a necessary condition for change, and that the relationship must be attended to and managed as carefully as any portion of the instructional development process. In the jargon of the discipline, quality relationships with clients are prerequisite to effective intervention. Just as in the classroom, failure to master prerequisites decreases the probability of subsequent learning taking place.

It is the thesis of this article that an understanding of client psychological types and an ability to differentially respond to various types is a particularly effective designer strategy for relationship building and managing. In specific, if the designer can identify a client's psychological style and respond with behaviors that facilitate change for that style, then a successful relationship is more probable and instructional change more likely.

In the following sections, a theory of client psychological styles is outlined, examples of typical client behaviors for each type are presented, and example designer intervention strategies that facilitate relationship building and managing for each type are discussed. We have chosen to introduce this theory not only because it is drawn from a strong theoretical base, but also because we have found it to be a scheme that is easily understood and used by both designer and client alike.

Theoretical Background

Drawing from Jungian theory (1971), Johnson (1978) theorized that a client's psychological style is defined by how in-
individuals make decisions, His decision-making paradigm includes two dimensions: the way information is gathered (systematic or spontaneous) and the way data is analyzed (internal or external). From these dimensions four psychological or decision-making types emerge: systematic internal, systematic external, spontaneous internal, and spontaneous external.

![Diagram of Data Gathering and Analyzing](image)

**FIGURE 1.** The four psychological types.

Information gathering and data analysis are two independent processes. An individual's style of gathering information does not affect the style with which the information is analyzed, for these are independent events, Figure 1 will aid in visualizing the relationship.

Information Gathering

There are two basic styles by which information for decision-making is gathered by the client. These styles have been labeled as spontaneous and systematic and are differentiated by three characteristics: the way individuals react to events, make commitment to new ideas, and orient themselves to goals. These characteristics can be inferred from observing client reactions to new ideas during consultation as well as through classroom observation of teacher-student interactions.

**Spontaneous Style.** The spontaneous client reacts holistically to events, is quickly committed to new ideas, and is flexible in goal orientation. Each of these characteristics is explained below:

1. Reaction to events. In reacting holistically to events, spontaneous clients respond to total experiences, as opposed to breaking experiences into component parts and reacting to each part separately. They either tend to like something or dislike it in toto. If asked and feel that it will help solve many instructional problems. This excitement that leads to acceptance of an idea is the way spontaneous clients have of determining whether or not they like the task analysis technique. However, spontaneous clients can just as quickly change their minds about the value of one technique when presented with a new approach. The person is not being "wishy-washy," but is simply determining feelings about an idea. This quick internal commitment is a characteristic of lifestyle in general, though the spontaneous person is quite capable of being cautious about actions and commitments.

3. Goal orientation. The third characteristic of the spontaneous client is a flexible goal orientation. The spontaneous person will move from goal to goal, thought to thought, idea to idea, barely noticing the movement. The client experiences a thought-chaining process that when carried to its extreme represents a stream-of-consciousness flow of ideas. This person will often begin a conversation on one topic and end up talking about a completely different and unrelated topic. The client will generally be able to gather a great deal of information in a short period of time but will do so in an unstructured fashion. Because of their chaining of thought processes, spontaneous clients are comfortable in sudden changes in work and will often show a need for a high variety of tasks. They can structure goals for themselves but are more likely to move from one goal to another with unnoticed flexibility.

**Systematic style.** The systematic client reacts to component parts of an event, is cautious in making commitments, and sets goals in a deliberate and methodical manner:

1. Reaction to events. Systematic clients tend to break experiences into component parts and react to each component separately. The systematic client would analyze teaching by listing the troublesome areas: "My lectures are good and hold the students' attention, the assignments are poorly organized, and I need some help there as well as with my test design." (The spontaneous person might say "I need some help with my course—it's not going as well as I'd like.") Only after examining the collective parts of the experience will the systematic person offer a summary of
the experience. These individuals need detailed information about an idea before they experience it. Before beginning a project they will likely ask the designer many questions about the instructional development process and the tasks they will have to perform. The need for detail is necessary before a systematic individual is comfortable with a project.

2. Commitment to new ideas. The systematic person will also be cautious in making psychological commitments. He or she will evaluate each alternative and only personalize the one selected. They may, for example, ask detailed questions about the difference between an information processing approach to task analysis and a hierarchical one before selecting an approach to use. One approach may seem reasonable or desirable to them, but they will not choose until they have weighed the evidence. Both the spontaneous and systematic client may gather a great deal of information before acting, but the systematic client will not make a psychological commitment until all data are gathered and analyzed, while the spontaneous client will commit to an action very quickly, and then gather more data to further evaluate the approach. Once the systematic person has made a commitment, however, a great deal of data is required to change it.

3. Goal orientation. Finally, the systematic person is very methodical in goal orientation, moving from thought to action in a very deliberate fashion. He or she will be very aware of the goals he or she set and of movement from one goal to the other. If necessary, he or she can be flexible and change their plans but will want to establish new goals for these new plans. The systematic person tends to establish long-range goals and work deliberately toward them.

Data analysis

Once clients have gathered information about a particular topic, they need to process that information to reach some judgment about its worth. Individuals present two different styles of analyzing the gathered information: internal and external processing.

External style. The external processor is quickly identified by a preference, indeed a need, to think outward. He or she is never certain how he or she feels about an idea or experience until he or she talks about it. If asked to do something he or she has not thought about before, an external processor is likely to say “let’s talk about it” or just as easily begin a discourse on its pros and cons to discover how he or she feels. Every complex decision will require a good deal of discussion before it is resolved. External processors need to hear the words to make sense out of them. They tend to think and talk simultaneously. For the external, thinking comes clearly in what they have thought through previously.

Thus, the four types can be differentiated by spontaneous or systematic information gathering—reaction to events, commitment to ideas, and orientation to goals—and by internal or external data analysis. Figure 2 summarizes the defining attributes of the theory.

The above section should help the reader to identify clients in each of the four types. However, the question of

<table>
<thead>
<tr>
<th>Spontaneous</th>
<th>Systematic</th>
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<tr>
<td><strong>Reaction to events</strong></td>
<td><strong>Component parts</strong></td>
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<td>Holistic</td>
<td>Summary reaction at first</td>
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<td>Summary reaction at first</td>
<td>Summary reaction at end</td>
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<tr>
<td><strong>Commitment to new ideas</strong></td>
<td></td>
</tr>
<tr>
<td>Quick</td>
<td>Gather all data, then</td>
</tr>
<tr>
<td>Personalize each, then</td>
<td>personalize only one</td>
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<tr>
<td>gather more data</td>
<td>selected</td>
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<tr>
<td>Change commitment</td>
<td>Reluctant to change</td>
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<tr>
<td>easily</td>
<td>commitment</td>
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<tr>
<td><strong>Goal orientation</strong></td>
<td><strong>Deliberate</strong></td>
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<td>Flexible</td>
<td>Methodical</td>
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<td>Thought-chaining</td>
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FIGURE 2. Summary of type attributes.

when they think and talk at the same time. Not all internals are high verbalizers however—some are quiet and will talk only when something is important. The best way to determine whether or not someone is an external processor is to listen to what they say and how much they talk. Invariably, they will be thinking aloud.

**Internal style.** The internal processor will want to think about things before talking about them. If asked a question he or she has not thought about before, there is likely to be a long pause before he or she answers or the internal processor will want to “think about it first.” Internal processors are likely to be confused or irritated about an issue if they have to discuss it before they have thought about it privately. Internals can be high or low verbalizers—again the key is to listen to what they talk about. Internals will generally talk only about appropriate designer responses that will facilitate the designer-client relationship remains. The following are examples of clients from each style and appropriate designer responses to each.

(Notes: At present there are no research data to support these recommendations. The examples we offer are based on our own experiences as designers and should be viewed as speculative until further evidence accrues.)

While a designer may have a particular decision-making style that fits into one of the four types, it has been our experience that most designers operate from a systematic stance, most likely systematic-internal, during the consultation. This may represent a deviation from the normal operating style of the designer when faced with his or her own decision-making tasks.

Continued on page 21.
Frequently Cited Materials for Teaching Instructional Development

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A large list of materials to teach instructional development has been developed over the past 15 years. However, little work has been done to identify the extent of those materials or their possible application for developing ID skills. The situation is reminiscent of a jigsaw puzzle in which some of the pieces are present while others are missing.

In 1977 the AECT Division of Instructional Development (DID) gave support for a project to begin identifying materials for teaching ID that were actually being used. This was Project Jigsaw. The primary purpose of Project Jigsaw was to organize and disseminate information concerning products developed by DID members for teaching ID or products which were being used to teach ID but which had been developed elsewhere.

After designing and pilot testing an information gathering plan, all 1,200 members of DID were surveyed in January 1978. The study achieved a 64 percent return rate for the questionnaires after two follow-up mailings.

The primary conclusion which could be drawn from Project Jigsaw was that a great variety of materials were being used. The majority of items cited, or 135, were cited only once. Sixteen of the 135 citations were discarded because they were not relevant. Thirty-one items were cited either two or three times and, out of a total of 190 citations, only 24 were cited four times or more. Of these 24, only three were cited 20 or more times.

The following list of ID teaching materials available and reported to be in use includes those most frequently cited in order of number of times cited and gives the best reference information available.

**ID Teaching Materials Most Frequently Cited**

<table>
<thead>
<tr>
<th>Title/Description</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Kemp, J.E.: Instructional Design: A Plan for Unit and Course Development (2nd ed.). Belmont, Calif.: Fearon, 1977.</td>
<td>20</td>
</tr>
<tr>
<td>Designing Effective Instruction. Palo Alto, Calif.: General Programmed Teaching, 1970. (Filmstrip/tape)</td>
<td>11</td>
</tr>
</tbody>
</table>

*n.d. No date given.*
The Following Materials Were Each Cited Two Or Three Times


*<sup>n.d.</sup> No date given.
EDITOR'S NOTE

The following article represents the second of JID's ID Training Modules. While not instructional in its own right, it presents the results of a study that identified those materials that could be used to teach ID. It is an appropriate follow-up to the first ID Training Module installment in the summer 1979 issue of JID which provided a list of selected references related to the practice of ID.

Frequently Cited Materials for Teaching Instructional Development

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<td>University Consortium for Instructional Development and Technology. Institute packages. Los Angeles, Calif.: University of Southern California, n.d.</td>
<td>27</td>
</tr>
<tr>
<td>Individual manuals from IDI. San Diego, Calif.: Technological Applications Project, 1972. (Multimedia).</td>
<td>24</td>
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WINTER 1979-80, VOL. 3, NO. 2
Spontaneous External

The spontaneous external client is likely to arrive in your office with a holistic reaction to a problem. “Boy, is my class falling apart, it’s just miserable.” This client may have already embraced a solution to the problem. “I think slides will help them learn more,” and may well have brought along 150 slides to have shot. This client has made a holistic assessment of the situation and has decided that because slides are the solution to the problem, then slides need to be obtained right now. As you talk with the client, you are likely to find that this individual moves from idea to idea very quickly and effortlessly. One minute the client is talking about student evaluations, the next the weather, back to slides, and perhaps to an offering of an opinion about the class. If you suggest that slides may not be the solution to the problem and make an alternative recommendation, the spontaneous individual is likely to switch commitment from the use of slides to the new solution without much consideration of the time and effort already expended.

Therefore, when working with the spontaneous external be prepared to: help the client think about the components of the problem and the events that led the client to conclude that one solution is the correct solution. When the client begins to chain a variety of thoughts together that make no apparent sense to you, keep in mind that this person is thinking aloud in a manner that represents most closely the stream-of-consciousness technique. Allow the client freedom to roam, for a startling connection may be made that produces a creative solution to the problem, though the client may not know just how or why that solution was arrived at. At the same time, however, keep in mind that the client can just as easily get off track and lose sight of the project goal. Be prepared for a phrase such as “What was I saying?” and use that opportunity to redirect the client to the problem at hand.

Spontaneous Internal

The spontaneous internal client will exhibit the same holistic reaction to events, the quick personalization of new ideas, and the same stream-of-consciousness approach to thinking as the spontaneous external, but with a major stylistic difference: the stream-of-consciousness approach will take place internally. The client may be talking about the use of slides in the classroom, pause, and then ask you your opinion of analysis of covariance to solve a particular statistical problem. After a few of these interactions you are likely to conclude that the client is unable to focus upon a problem and logically you will become more comfortable in dealing with this type of client, perhaps one of the most frustrating types for someone trained to deal with problems in a systematic manner.

Systematic External

The systematic external client is often the type of client that we all wish to have. This person’s arrival into your office could begin with a statement that

“...if the designer can identify a client’s psychological style and respond with behaviors that facilitate change for that style, then a successful relationship is more probable and instructional change more likely.”
good deal of information that will be relevant to the problem and will find that your conversations follow a very logical flow. The client will explore alternatives aloud in a rational manner: "Slides might work because they illustrate these concepts and they do provide stimulus variation in the classroom, but perhaps motion is an important variable for this idea. I know film costs more than slides to produce so I guess cost of the external might. During the pause, he or she will be covering their analysis in a systematic flow that is best left to them alone. Give the client the time to think about the problem. If they come to you with a solution, do not be surprised if they are somewhat irritated when you question their solution: He or she made a commitment to the solution based, the client feels, on a logical analysis of the problem. As is often the case with in-

"Information gathering and data analysis are two independent processes."

effectiveness will need to be considered as a relevant variable in the solution." He or she will rarely ask you "What was I saying?" and will probably pay close attention to the information you pro-

Systematic Internal

As with the systematic external, this client will explore problems in a logical, ordered manner. The difference here is that they will often prefer to do their thinking on an internal basis. They are likely to arrive at a solution to the prob-
lem, but you will not necessarily know what led them to that end unless you ask for their specific considerations. When you do ask, they will be able to recount in detail the arguments that they have analyzed and the reasons for a partic-

Therefore, when working with the systematic internal: expect that when faced with data to analyze, the client will respond "Let me think about that first!" rather than talking immediately as ternal in general, they assume that you have followed their logic. What you perceive as a simple question to clarify a position may be interpreted as a criti-

cism of their analysis abilities.

Summary

Johnson's theory of psychological styles provides a framework for instruc-

tion. In their study of personality development, psychologists have identified four styles as well as designer responses for each.

There are many unanswered questions about this theory and its application to instructional development consultation. For example, is change best facilitated by client-designer similarity or dissimilarity? Can we develop more specific categories of designer responses for each psychological style? Do all clients have a unique style or do they develop attributes of different styles and if so to what extent? Similarly, do we "learn" a particular style all at once, or is the acquisition of a style a developmental process? If it is developmental, how do we provide the necessary support for the development to occur in cli-

References

Davies, I.K. Some aspects of a theory of advice: The management of an in-

"Is change best facilitated by client-designer similarity or dissimilarity?"


Contracting for Instructional Development

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Abstract: Instructional developers may find an explicit, formal project contract to be a useful component in the development process. Such documents clearly define the roles each participant in that process will play, the expectations each has of the other, and the goals for which all strive. We do not view such contracts as legally binding documents, but rather as tools helpful in patterning the behavior of project participants through their mutual understanding and consent. While the process of creating a project contract may have value in building collaborative client relationships, such agreements are often beneficial regardless of the consultant model to be employed. Our description includes a review of the elements of ideal project contracts, some suggestions concerning their negotiation, and an example contract from a recent development project.

Imagine five individuals seated around a table. One of the five is an instructional developer, the others members of a client team. This first meeting will begin to shape their emerging interpersonal relationships and future instructional products generated during the life of their project.

What might their conversation include? Certainly some references to their purpose for gathering together, as well as initial ideas about instructional products to be created. Perhaps some discussion of available resources. Decisions about who is to be involved in the project; their roles, interrelationships, and expectations might also be considered.

All are critical issues. All deserve careful investigation and mutual agreement as to their nature and impact on the proposed project. Failure to explore even one issue can lead to unexpected, perhaps undesirable outcomes.

Relevant Literature

Inquiry into the dynamics of client-consultant relationships is a relatively recent research interest among instructional developers. Few have written from this professional perspective (Davies, 1975; Durzo, 1970).

Research on planned change has considered the effect of interpersonal relationships on the success of a change agent's efforts. The formulation and use of some form of agreement or contract is one recommendation often emerging from this varied literature (Argyris, 1970; Becker, 1978; Berkhard, 1969; Goodstein, 1978; Heller, 1978; Kolb & Frohman, 1970; Mann, 1978). Unfortunately, there is very little guidance as to what such contracts might contain (Dwyer, 1977; Goddu, 1975; Kurpius & Brubaker, 1976). Furthermore, we could find no direction concerning processes one might employ to effect the negotiation and application of contracts.

We hope the work this review stimulates, growing out of our practice of instructional development in a university setting, will initiate inquiry into the methods by which contracts can be negotiated and the ways in which they can contribute to an instructional developer's effectiveness.

We have found the explicitly negotiated written contract to be exceptionally valuable in reducing the incidence of unexpected, potentially harmful outcomes resulting from excessive reliance on tacit understanding between members of a development team. Contracts may also contribute to a client's understanding of the development process early in a project's life.

What Is It?

Contracts as we use them are both explicit and formal. They are written documents describing as many factors related to an instructional development project's success as client and consultant feel appropriate. These agreements are most effective when used to clarify forces likely to threaten a project's completion, and then to suggest procedures which client and consultant can jointly employ in an attempt to reduce such threats.

While we choose to explore only explicit, formal project contracts, there are at least two other types of agreements that may appear in development projects. The first is an informal, verbal understanding between client and consultant concerning their project's intended dimensions. It has most value when all participants in the development process fully understand one another's goals and methods.

Another type, suggested by Schein (1970), is an implicit understanding of tacit assumptions and expectations which participants in an instructional
development project ascribe to each other's behavior. This "psychological contract" can work to strengthen consulting relationships if it can bind subject matter expert and instructional developer through mutual trust. A valid psychological contract appears to be a necessary condition for planned change, but when used alone may prove insufficient to ensure a project's success.

We recognize a role for each of these three contract types. We choose to focus exclusively on the formal, explicit project contract because it has been most useful in our work, it is often suggested as a part of any consultation focused on change (Kurpius & Brubaker, 1976; Lippitt & Lippitt, 1978), and its negotiation procedures have not been previously described.

What Comprises a Project Contract?

The following list summarizes the nine elements we include in explicit, formal contracts.

Contract Elements
1. **Overview**: What is the nature of the project? What needs does it address?
2. **Personnel**: Who will be involved in the project? What will be their roles?
3. **Goals**: What do client and consultant seek to accomplish through this project?
4. **Objectives**: What specific outcomes are dictated by the project's goals?
5. **Resources**: What is needed to attain the project's goals?
6. **Management**: How will the project be administered?
7. **Products**: What tangible outcomes are expected? Who will "own" them?
8. **Evaluation**: How will the project be assessed?
9. **Negotiation**: How are changes in the project agreement to be made?

These nine elements, in our experience, are fundamental to any agreement used to pattern planned change. Together they offer a guiding framework within which the client and consultant's emerging relationship can grow strong enough to resist threats to their project's success. While some elements may seem obvious to the experienced consultant, they all address conditions which clients often find obscure. Reliance on less formal agreements may fail to reduce that obscurity.

TABLE 1. Project Agreement: Special Training in Injury Coding

This informal agreement describes the intentions, obligations, and expectations of those involved in the design and dissemination of the project entitled "Special Training in Injury Coding."

1. **Project Overview**
   Our intention is to develop a training course for investigators using the National Accident Sampling System (NASS). This course will provide information about revisions to and the use of the Occupant Injury Classification (OIC) and Abbreviated Injury Scale (AIS) coding schemes. It should contribute to the improvement of NASS investigators' present injury investigation and coding practices. The course is to be largely self-instructional, requiring about 60 hours to complete.

2. **Personnel**
   **Identification**: The primary client is Ronald Drablos of the Institute for Research in Public Safety, School of Public and Environmental Affairs, Indiana University, Bloomington, Indiana. Members of the primary client's system actively participating in design activities include Nick Tumbar, Bob Romberg, and R. Upplawiri. Others in the client's system concerned about the project include Tom Noga, Contract Technical Manager provided by the Department of Transportation, Washington, D.C., and John R. Tret, the Institute's Director.
   
   The project's instructional design consultant is David Leitzman of the Division of Development and Special Projects (DDSP), Audio Visual Center (AVC), Indiana University, Bloomington. Others in the consultant's system concerned about this project include Tom Schwen, Director of DDSP, and others of his staff who may participate in its activities.

   **Expectations**: The client expects that he will spend as much as 3/4 time on this project. Others in his system will devote less time to design activities but will be kept informed by the client. They will be encouraged to contribute to our efforts as their time permits.

   The client expects that the consultant will:
   - Provide direct support in the identification and use of a systematic design process compatible with the project's goals, resources, and timelines.
   - Review instructional materials as they are created to ensure their conformity with the project's goals, objectives, and constraints.
   - Manage AVC support services so as to provide quality instructional materials within the project's timelines.
   - Document the events of the project.
   - Support the client in discussions about the design process and its products.

   The consultant expects to guide the client in the use of a rational design process appropriate for the project's goals. This process will be explored in a collaborative relationship in which the client and members of his system contribute their content expertise and the consultant his experience with instructional design processes.

   The consultant expects that the client will:
   - Inform all members of his system of the project's progress.
   - Secure needed contributions to the design process from others in his system.
   - Create or locate the initial drafts of all instructional materials, given a design process and format appropriate for the project's goals.
   - Take responsibility for meeting those project timelines which are related to the drafting of instructional materials.
   - Share problems and concerns about the design process, the instructional materials, or the behavior of the consultant.
   - Take full responsibility for the instruction created for this project.
   - Take responsibility for securing any necessary extensions of project timelines.

3. **Project Goals**
   **Content Goals**: The client holds the following goals addressing the content of this project.
Detailed Description and Example

A detailed description of each element follows.

To help clarify the elements a sample project contract incorporating all nine elements is shown in Table 1. It was negotiated using the method and process we will outline in the next section.

Unfortunately, the example cannot convey the interpersonal dynamics underlying the final form in which it is presented. Much of the document may seem to be little more than "common sense." Yet our experience suggests that even obvious elements can mask sensitive issues that require cautious exploration. Taking such "common sense" issues for granted rather than as issues for examination can result in projects which fail to attain their goals.

Project Overview. This element offers a basic description of the project in terms of the environment in which it is embedded and the problems it seeks to address. A need for change should be stated.

Personnel. The individuals involved in the project as well as their specific roles, activities, and expectations must be clarified. The client and consultant explore at least four fundamental issues when negotiating personnel:

- Who is the client; who is the consultant?
- What constitutes the client system or the collectivity of those concerned with the project?
- What is the client system's relationship to the project's intended outcomes and processes?
- What are the expectations held by client and consultant concerning their own and each other's anticipated performance in the project?

Goals. A project's goals are general statements of intent, often derived from specific activities employed by consultants to help clients uncover and clarify their purposes. Such goals are a response to a client's specific needs. This element also includes a statement of the consultant's goals. Goals held by other individuals or agencies making important contributions to the project or imposing constraints on its outcomes are also described.

Objectives. These specific statements of a project's intended consequences are

<table>
<thead>
<tr>
<th>TABLE 1. Project Agreement: Special Training in Injury Coding (continued)</th>
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<tbody>
<tr>
<td>A. (Metagoal) Following completion of the instructional events included in this course, each student will be able to correctly identify traumatic injuries from both official and unofficial information sources, reduce those to a final set of nonredundant traumatic injuries, associate probable contact mechanisms with those injuries, determine the correct code for each injury and its probable contact mechanism, and transfer this coded information to the proper NASS forms in accordance with appropriate NASS rules. This broad goal will be accomplished when the students have achieved goals B through G.</td>
</tr>
<tr>
<td>B. A student learns to choose from official and unofficial information that which describes traumatic injury.</td>
</tr>
<tr>
<td>C. A student reviews traumatic injuries extracted from official and unofficial information sources, compiling them into a single set of nonredundant traumatic injuries.</td>
</tr>
<tr>
<td>D. A student correctly transfers a list of traumatic injuries to their proper codes using the OIC/AIS/ISS structure.</td>
</tr>
<tr>
<td>E. A student identifies probable injury mechanisms, coupling them with a single set of nonredundant injuries.</td>
</tr>
<tr>
<td>F. A student uses the NASS protocol relevant to specific injuries when entering data on the NASS forms.</td>
</tr>
<tr>
<td>G. A student understands that the ultimate purpose of his or her work is to reduce human suffering. To accomplish this final goal, a student must be able to identify human suffering and understand the nature and severity of common injuries; understand the background and rationale for the OIC/AIS coding protocol, understand that the OIC/AIS coding scheme is an abstraction of the reality of human injury; and, understand the process through which data must pass to achieve the ultimate purpose set for the OIC/AIS.</td>
</tr>
</tbody>
</table>

Process Goals. The consultant holds the following goals for this project, each addressing the processes employed to achieve the client's content goals.

A. To enhance the competence of the client system by providing individuals with skill in the use of a systematic, rational design process coincident with the project's content goals.
B. To document the design process and the products created through its use.
C. To acquire additional experience in helping others understand and use a systematic, rational design process.
D. To offer assistance with the technical aspects of the design process and the materials created through its use.
E. To acquire an understanding of accident investigation and related activities.

4. Objectives

The instructional plan developed for this project contains a complete listing of the specific objectives each student will master. These objectives, written in a behavioral style, offer us one dimension for the assessment of our effectiveness in reaching the project's goals.

5. Management

This project is to be completed in a very short time. The plan of our work is indicated by the following timeline:

May 4: Begin with the identification of goals.
June 1: Complete the project's instructional plan, including goals, terminal objectives, and enabling objectives.
June 15: Complete the final revision of the instructional plan.
June 29: Complete the instructional materials for the first two goals.
July 20: Submit all photographic work to AVC for completion.
July 31: Submit all nonphotographic work to AVC for completion.
August 31: Complete all instructional materials for submission to funding agency.
derived from its goals. While their format is a matter of personal preference, useful objectives include a measurable standard of goal achievement.

Resources. What resources will the client, client system, and consultant contribute toward the attainment of the project's goals? Are there gaps between what is needed and what is available? How will such gaps be reduced? Early attention to such questions encourages client and consultant to begin work in this often neglected area.

Management. To attain project goals effectively and efficiently, the consultant may wish to work with a client to devise an administrative strategy, based on an acceptable managerial style, that will coordinate personnel and other resources in pursuit of project goals. Timelines, communication procedures, meeting schedules, budget, facilities, equipment, and supplies, and responsibilities for maintaining liaison with others are often included in this area.

Products. All parties to the agreement must understand and agree to the outcomes planned for the project. Such outcomes might include types of instructional materials, project reports and behavioral or structural changes affecting the client system. Issues of confidentiality, product ownership, and the disposition of any expected monetary earnings should be resolved during discussion of this element.

Evaluation. Planning should begin at an early point for an internal review of the processes used in forming the client-consultant relationship. An external assessment of the project's effectiveness with respect to the problems it is to resolve should also be sketched. This element is often revised as both client and consultant gain insight into the nature of the problems they face and their proposed solutions.

Renegotiation. Project contracts as we employ them are always open to mutually acceptable change. In this way the contracting process is continually relevant to the needs of both client and consultant. The contract can be changed, for example, to remain coincident with a changing consultation model. Withdrawal by either consultant or client is specified should instances of personal or professional conflicts threaten the project. Attention to this element in a formal document reassures all participants that they will not be held to positions which, though initially acceptable, become untenable.

How Do I Use Contracting?

A Method
We have found value in collaborative negotiation, wherein client and developer share the exploration of a contract's elements. Any decisions reached after this mutual exploration are then "owned" by all project participants, resulting in greater compliance with the contract's provisions (Rodgers & Schoemaker, 1971; Schefflen, Lawler, & Hackman, 1971).

Our approach is easily mastered. We begin by listing each contract element on a separate sheet of paper. A few clarifying questions, similar to those provided with out description of the elements, are included to help focus the client's thinking. The rest of each page is then used to record the ensuing discussion.

We bring these sheets with us when we meet to negotiate the contract. We begin by first outlining the elements of a contract, emphasizing the potential contribution each can make toward the project's successful completion.
we give the client the first sheet describing a project's overview and ask for reactions. As ideas are introduced, explored, and evaluated the client records them on the overview sheet.

We have included the following example to illustrate this approach to negotiation. It is drawn from the sample contract included with this report.

OVERVIEW:
What is the nature of this project? What problems will it seek to address? What needs in its environment direct its progress?

RESPONSE: (as recorded by the client)
1. Develop a training course for NASS accident investigators.
2. Teach the revisions to the OIC/AIS classification schemes.
3. Teach the investigator to correctly code injuries.
4. Help investigators accurately link injuries with their cause.
5. Improve on other, less comprehensive training efforts.
6. Shape behavior of trainees to approximate field performance.

Investigation of the remaining eight elements continues in similar fashion. This results in a first draft from which the consultant prepares a formal version of the contract. Both drafts are presented to the client in a subsequent meeting. The first draft serves as a reference to the consultant's formal version need correction. Both documents are preserved should later modifications be needed.

We begin negotiating the contract soon after our initial meeting with a client, but not until we have first acquired an understanding of the client's environment, perceived problem, and proposed solution. This preliminary information can be casually acquired during one or two early meetings. It provides us with a frame of reference within which we can interpret the client's reactions to each of the nine elements.

Complex projects often require two or three meetings to develop a contract acceptable to all participants. This is especially true for those projects which involve a client team sharing responsibility for the project's outcomes. While this may seem to be an inefficient use of time, our experience suggests that contracts are particularly valuable in these complicated development efforts.

The Process
An equally basic process contributes to an analysis of each contract element. Four steps comprise this process:

THREAT -> PROBLEM -> SOLUTION -> PRODUCT

Threats reduce the probability that a project will attain its goals. The client and consultant redefine such threats as problems with which they must cope. The next step is a search for appropriate solutions to these problems. Finally, some form of outcome, or product, is included in the project agreement which resolves the original threat.

The following example illustrates this process. It addresses goals, one critical element of an agreement, but it is equally applicable to the other eight.

THREAT -> PROBLEM -> SOLUTION -> PRODUCT
goal goal goal goal explicit
confusion conflict clarification goal miscalculations

The threat in this example may grow from the client's uncertainty about just what the intervention is to accomplish, a rather common feature in the early phases of our work. To this is added the goals a consultant holds for the project, often posing as unexpected constraints on the client's initial planning. Others with an interest in the project's outcomes may contribute additional goals a search for points of agreement and disagreement becomes possible. Such a search facilitates the definition of the project's general intent. The explicit goal statements which emerge, included in the project agreement, are final products of this four-step contracting process. Not all conflicts will be eliminated, but if they can be made explicit, subsequent planning can find ways to endure them. The advantage offered by contracting is that threats do not remain unstated forces contributing to the demise of a project. Instead, they are incorporated as explicit features of an evolving intervention.

Another example further illustrates the role of this process in the negotiation of useful contracts. The following illustrates a potentially serious threat to a project's successful completion.

THREAT -> PROBLEM -> SOLUTION -> PRODUCT
 Threat—poor focus for the project suggested by an imprecise project overview. Problem—superficial understanding of the needs which the project is to address. Solution—a formal needs assessment conducted within the limits of the project's resources. Product—a needs analysis which can contribute to refined project goals.

"The way in which the agreement is negotiated, like the conduct of the entire project, must serve to involve clients fully in a search for solutions to their problems, not provide an escape mechanism that shifts responsibility for those problems to the consultant."

which further confuse the project's direction. In little time the relationship is threatened by serious goal confusion.

If client and consultant directly address this threat by redefining it as a problem capable of rational solution, the contracting process can contribute to the project's success. In this example, goal confusion is conceptualized as goals in conflict. But how can these conflicting statements be sorted out?

Some form of goal clarification is a plausible solution. If both client and consultant can make their goals explicit, our example suggests that questioning a client's project overview may reveal limited understanding of the needs which are to be met using instructional development. As the consultant probes further, a client's superficial understanding of what is to be resolved may emerge. This serious problem can be countered with a formal needs assessment designed to provide the information and insight that will improve the client's focus and the project's goals.

While we have overstated the case to clarify the process, we do not believe the
example to be unrealistic. Even seemingly obvious contract elements can be clarified and strengthened using this type of inquiry.

Consider a final example. We often find a developer's relationship with a client significantly changing over the life of an intensive, lengthy project. Renegotiation, one of the nine elements, may have particular value in such cases. We have generalized this condition as:

**Threat** ➔ **Problem** ➔ **Solution** ➔ **Product**

*Threat*: subtle, unstated changes in the client's view of self in relation to the project and consultant which create points of conflict between client and consultant.

*Problem*: the project's initial dimensions, as described by the contract's elements, may no longer be valid.

*Solution*: help the client explore such changes, attempting to renegotiate those portions of the contract addressing the client-consultant relationship.

*Product*: revised contract incorporating a changed client-consultant relationship.

Client and consultant recognize at the beginning of their relationship that changes in each other's goals, expectations, responsibilities, or other aspects of their project are likely. These changes need not threaten a project's successful completion if both also recognize that meaningful renegotiation of initial understandings is possible. In this way the project contract continues to clarify their evolving relationship.

**Some Implications for Instructional Developers**

**Why Contracts?**

Our view is that explicit, formal project agreements, or contracts, serve to reduce serious threats to a consultant's success. Recent reports seem to confirm this view (Forman & Richardson, 1977; Coscarelli & Rhode, 1979). Harer-Mušin, Forman, Kaplan, and Liis-Levinson (1979) also support this position, noting that in therapeutic relationships "the process of providing information and obtaining agreement through the use of a contract defines the... relationship as a mutual endeavor to which the therapist contributes knowledge and skill in psychology and to which the client brings specialized knowledge and a commitment to work on his or her problems." (p. 7).

The helping relationship forged by an instructional developer and a client never reaches the depth of a psychotherapeutic intervention. It is, nonetheless, a mutual endeavor subject to similar dynamics. The developer, as consultant, brings to the relationship problem solving procedures and an understanding of the teaching-learning process. This is joined with the client's content expertise and commitment to resolving threats to his or her effectiveness in those cases where consulting teams and individual teachers jointly negotiated a contract focused on problems to be identified and solutions to be implemented.

The use of a collaborative approach in the negotiation of a project's contract does not demand collaborative consultation during the life of that project. We have found contract negotiation as described in this paper to improve the chances of success for any appropriate helping model. Contracts serve only to clarify the nature of an emerging relationship in terms of potential threats to its existence. In this way openly negotiated and formally documented project contracts become useful tools for instructional developers and their clients in any intervention.

**References**


Determining Instructional Costs Through Functional Cost Analysis

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Abstract: Conventional procedures for recording and reporting educational costs require that costs be reorganized in order to coincide with educational outcomes. This article describes a cost analysis model and procedures which permit the realignment of costs with outcomes. The article also briefly discusses full costs versus direct costs, alternative approaches, accuracy of the selected approach, and the cost analysis report. Examples are provided which show how to format data for subsequent analysis.

Introduction

Educational institutions do not typically report costs in a way that coincides with the educational outcomes of interest to instructional developers and evaluators. The evaluator/instructional developer should be concerned with separating the cost of designing instruction from the cost of implementing it. He or she should also seek cost data that relate to an academic year or some other academic period. At most institutions, however, costs are aggregated by jurisdiction—by organizational units such as departments—and by fiscal, not academic, time periods.

Thus, when the evaluator/instructional developer attempts to determine costs for a particular instructional function involving persons from several departments and to organize the costs by semesters or by some other academic period, he or she must assume the role of cost analyst and reorganize costs in a unique configuration. How to identify, collect, and organize these costs is the topic of this article.

A cost model is presented, followed by a discussion of whether the analysis should consider full costs or direct costs. A discussion of data collection concerns and procedures is then provided. The article concludes with a brief section on what a cost analysis report should contain.
The Cost Model

The cost model identifies data that are to be collected and suggests how the data might be organized. There are three dimensions to the model: life cycles, cost categories, and cost centers.

Life Cycles

The life cycle concept is particularly relevant to instructional designers because it clusters costs into three developmental stages: design, investment, and operation. Design refers to the planning and development that occurs to improve instruction; investment refers to capital outlays; and operation refers to the actual implementation of instruction. The stages are operationally defined in Figure 1 in terms of activities.

The primary benefit of using life cycles as a cost dimension is that they isolate the costs of actual instruction (operation) from start-up costs (design and investment). In addition, life cycle costs permit reasonable comparisons among alternative instructional strategies and among design costs associated with various approaches.

Cost Centers

A cost center refers to that which is being costing; it may be a course, a small unit within a course or a program involving several courses. It may also refer to a particular organizational unit or function such as a library or administration. It is frequently desirable to have several cost centers in a single cost analysis—particularly when the analysis is at a program or department level.

Two examples of cost centers which might be appropriate to an interdisciplinary science program sharing a common learning resource center are shown in Examples 1 and 2. These examples demonstrate that naming cost centers is subjective and names can be tailored to needs.

Example 1

- Biology
- Physics
- Chemistry
- Math

Example 2

- Learning Center
- Program Administration
- Biology Instruction
- Chemistry Instruction
- Math Instruction

Cost Categories

Whereas the life cycle and cost center dimensions of the cost model represent functions (e.g., design functions or instructional functions), the cost category dimension represents resources. All resources assigned to or consumed by the cost center are organized into categories. The amount and cost of each resource is determined and reported by category.

The number of cost categories is determined by the level of information needed by decision-makers. It is important that the cost categories account for all resources consumed by the cost center.

The author examined 20 studies containing a total of 119 different cost category labels (Doughty and Beilby, 1974). One study contained a single cost category while another contained 20. The single category study aggregated resources to the point that much meaning was lost. Furthermore, not all resources were accounted for. Cost studies with more than 20 categories present unnecessary detail and even then, may not include all pertinent resources.

Six major cost categories which have—with occasional modification—been used successfully by the author in several cost analyses are:

- Personnel salaries and benefits (includes project staff, design staff, consultant fees).
- Administrative salaries and benefits.
- Services (printing, rentals, travel, etc.).
- Hardware and equipment.

<table>
<thead>
<tr>
<th>DESIGN</th>
<th>INVESTMENT</th>
<th>OPERATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning the format, structure, and</td>
<td>Purchase of hardware or equipment</td>
<td>Classroom instruction</td>
</tr>
<tr>
<td>general content of course or program</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Planning and designing specific content</td>
<td>Purchase of office supplies (option: may be an</td>
<td>Advising/counseling students</td>
</tr>
<tr>
<td>and nature of instructional materials</td>
<td>operation cost)</td>
<td></td>
</tr>
<tr>
<td>to be used</td>
<td>Renovating facilities</td>
<td></td>
</tr>
<tr>
<td>Selecting from existing instructional</td>
<td>Rentals for noninstructional purposes</td>
<td></td>
</tr>
<tr>
<td>materials</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Planning required facilities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personal research to gain knowledge/</td>
<td></td>
<td>Disseminating information about</td>
</tr>
<tr>
<td>information</td>
<td></td>
<td>course or program</td>
</tr>
<tr>
<td>Developing evaluation plan/</td>
<td></td>
<td>Instructional support activities (list</td>
</tr>
<tr>
<td>procedures</td>
<td></td>
<td>of activity and personnel involved)</td>
</tr>
<tr>
<td>Evaluating (course or program)</td>
<td></td>
<td>Preclass review and preparation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rentals for class purpose</td>
</tr>
</tbody>
</table>

FIGURE 1. Life cycle stage activities and costs.
Software.
Facilities.

Subcategories may be added to this list, and it may at times be useful to add other major categories. The important point is to exercise parsimony categorizing resources. A large number of cost categories is cumbersome to work with, may direct attention to extraneous details, and may confuse readers who are not intimately familiar with the cost centers. Detailed lists of resources that comprise the cost categories can be placed in a report appendix or supplied on request.

The Model

Figure 2 presents the cost model dimensions. The entire matrix represents one cost center. The vertical axis represents life cycle stages; the horizontal axis indicates cost categories. Figure 3 is a more complete representation of the cost model. Multiple cost centers are shown. Costs may be aggregated in all three dimensions, i.e., life cycle stages, by cost category, and by cost center.

Full Costs Versus Direct Costs

Before collecting data to satisfy the cost model, the analyst must decide whether the analysis will express full costs or direct costs. Full costs include indirect overhead costs. These are typically expressed as a proportional share of utilities, maintenance, administrative salaries, and service units, such as a library. Direct costs include only those costs incurred directly by the cost center.

Most conventional educational cost studies employ full costs. The underlying assumption is that various departments share overhead according to some proportional rule. For example, a program occupying one-tenth of available floor space will be charged for 10 percent of the utilities, maintenance, debt on interest, etc. Similarly a program with one-tenth of the personnel or students will be charged for 10 percent of administrative costs and 10 percent of the cost of library operations.

The ease of the mathematics involved may help to explain why full costing is so frequently employed.

There are fewer assumptions involved with direct costs than with full costs, and they are easier to defend. No overhead per se is included; facility costs are limited to renovations specific to a program, and administrative costs are used only when interaction between administration and the cost center is documented. Overhead costs can be estimated and added to direct costs if institutional philosophy dictates.

Direct cost determination requires more work from the cost analyst than full costing. Actual resource consumption must be determined requiring original data collection. However, the end result is that the costs reported are limited to those actually incurred by the cost center. The remainder of this article assumes that the direct cost approach will be used and describes how these costs are determined.

Collecting Cost Information

A discussion of cost data collection must deal with the period for which costs should be collected in addition to the procedures for collecting the information. The time period covered by a cost analysis is called the time horizon.

The Time Horizon

There are three phenomena that create a problem for the cost analyst: (a) costs are continuous, (b) calendar years, fiscal years, and academic years do not always coincide, and (c) cost bubbles occur as major expenses are incurred in the development of a program. The problem created is to deter-

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**FIGURE 2.** Cost model for a single cost center.

WINTER 1979-80, VOL. 3, NO. 2
mine the beginning point and direction of the analysis, one of the first decisions to be made.

A cost analysis should follow the cyclic nature of the program being costed. In education, activity is determined more by the academic year than by calendar or fiscal years. Therefore, costs should be organized over an academic year by academic periods such as semesters, quarters, and summer sessions.

The time horizon should include start-up and development costs when the cost center is a newly implemented or modified program. Inclusion of start-up costs may involve an historical analysis of cost records; however, an historical analysis is not feasible if the program is more than 4 or 5 years old or if records are incomplete. If a program is well established, the time horizon may begin with the current or most recent academic period.

To summarize, the time horizon should include: (a) development and start-up costs where feasible and (b) a full academic period, preferably an academic year.

**Data Collection**

Four classes of information are required for the cost analysis:

1. The resources used in each cost center (e.g., a video cassette player).
2. The life cycle stage for which each resource is used.
3. The consumption pattern of the resource by cost center and—if personnel—life cycle stage (e.g., a faculty member spends 30 percent of his or her time in cost center X; 25 percent of that time is for design and 75 percent is for operation).
4. The unit cost of the resources (unit costs for personnel are individual salaries and wages).

The first three types of information are collected via interviews with cost center personnel when the analyst is not intimately familiar with the cost center. The interview process is the key to functional cost analysis. Much of the data is obtained from participants rather than relying exclusively on financial records.

The fourth data set is obtained from financial records and constitutes the control feature of functional cost analysis. That is, total costs obtained via functional cost analysis will not exceed costs achieved through conventional analysis. The difference between functional and conventional cost analysis lies in how costs are distributed within an institution.

Combining the four data sets permits the analyst to apportion the cost of each resource across the various cost centers. The resources may also be apportioned across life cycles within cost centers. Two examples of this process will now be provided.

**Example one—hardware.** The cost of hardware or any capital expense is treated differently than personnel costs.

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*Exceptions are permitted in cases where donated services can be documented. Such donations must be clearly labeled in the report.*
because individuals are paid for services as they occur, but a single payment is made for hardware prior to its use. Obviously, hardware remains useful over an extended period of time and is not consumed during its initial use. In order to reasonably spread costs over time, amortization rates are used. That is, an estimate is made of the hardware’s useful life based on experience or convention (this is a personal preference; 5, 8, or 10 years are commonly selected). The original cost is then amortized over the selected period.

In Table 1 below, the pattern for use for a TV camera has been determined for a full year for the cost center of interest and for other programs. Computed costs are based on the use rates and the amortization period (10 years).

**TABLE 1. Estimating the use of hardware: a TV camera.**

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost base</th>
<th>Amortization rate/cost</th>
<th>Utilization Pattern</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>10%</td>
<td>Cost center:</td>
<td>Other</td>
</tr>
<tr>
<td>TV camera</td>
<td>$5,800</td>
<td>(10 years)</td>
<td>10%</td>
<td>90%</td>
</tr>
</tbody>
</table>

The example suggests that total use of the resource must be accounted for even though some uses are not of particular interest to the analyst.

**Example two—personnel.** Estimating personnel costs is more difficult than estimating hardware and other investment costs. Furthermore, personnel costs are usually more important because salaries often comprise the major portion of a project’s cost. Humans may perform a variety of tasks for a number of cost centers. Thus the analyst is faced with the task of apportioning a person’s time first among cost centers and then within each cost center by life cycle.

The analyst must account for 100 percent of each person’s time. This is accomplished by first asking personnel to estimate the portion of time they spend on each cost center of interest and on all other professional activities which they believe are part of their job. The “all other professional activities’” estimate is a single estimate. The analyst does not need to know the nature of these activities nor the time spent on each. The need is simply to account for all of an individual’s time.

It is sometimes useful to have interviewees talk in terms of the hours they spend working in a typical week (the length of a work week may change with academic periods). The interviewees are then asked to estimate the number of hours they typically spend on each cost center. Regardless of which method used to obtain the data, the end result should look something like this for each academic period:

- Cost center 1: 15%
- Cost center 2: 35%
- All other activities: 50%
- Total: 100%

Having identified an individual’s activity across cost centers, the next step is to identify his or her activity within each cost center. The goal is to categorize activity by life cycle stage.

The author approaches this task by asking each person to estimate the amount of time spent on clusters of activities which have common meaning to the analyst and the interviewee. This may involve some discussion to be sure that both parties agree on the terms.

To simplify the data collection process for interviewees, they are told to consider each cost center as the base (100 percent) for their estimate. This makes it unnecessary to keep a continuous series of percentages in motion during the interview. The subsequent analysis of the data will require the simple multiplication of percentages to obtain a complete picture of an individual’s involvement. For example, assume the following results for a cost center for 1 academic year:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning the course</td>
<td>10%</td>
</tr>
<tr>
<td>Designing materials</td>
<td>25%</td>
</tr>
<tr>
<td>Teaching</td>
<td>40%</td>
</tr>
<tr>
<td>Grading papers</td>
<td>5%</td>
</tr>
<tr>
<td>Evaluating results</td>
<td>20%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
</tr>
</tbody>
</table>

If the cost center was 10 percent of his or her time, each of the above percentages would be multiplied by 15 percent. The result would be that design activities in this cost center would account for about 8 percent of the individual’s total time (and, therefore, salary and fringe benefits) and operation activities would account for about 7 percent.

**Accuracy and Alternative Methods**

At this point the question almost certain to be raised is: How accurate are these data? The best response is: Accurate enough! In studies of health education at Case Western Reserve Medical Center, Lee and Kutina (1974) concluded that regardless of the method used to measure activities of faculty and other personnel, the relationship between major activities will remain essentially the same. It is the relation-

"The primary benefit of using life cycles as a cost dimension is that they isolate the costs of actual instruction (operation) from start-up costs (design and investment)."

...
of interest or they are not actually followed. In academe, production records almost never exist; ditto for journals. Time and motion studies are prohibitively expensive and could result in a lynching. This leaves load reports as the most viable alternative. However, load reports require preplanning and personnel cooperation. Seldom are these prerequisites present.

Interviews seem to be most palatable to personnel. In an interview, the reporting time is scheduled and concentrated into a short session; furthermore, an interested person is present to listen and record the data. The time involved for the analyst may range from 20 minutes to 1 hour per interview, so the cost is reasonable.

Design costs
- Is much of the cost due to development of procedures and, therefore, representative of costs that will not be incurred in future efforts?
- Does the design cost represent the bulk of all design costs that might be required or does it represent, say, 5 percent? Is ongoing design work anticipated?
- Can developed materials be used in other settings?

The Cost Report

The cost report should be designed for the anticipated audience and it should explain the purpose of the analysis (Lent, 1979). It should describe the program and cost centers being reported, present data in tabular and—if possible—graphic formats. Where appropriate, sources of funds (grant or institution) should be explained. In addition, the report should include observations concerning donated time and services, observations concerning nondollar expenditures (Doughty, 1979), and clear statements about what the life cycle costs mean and imply. Any technical data (e.g., lists of resources, amortization schedules, salary schedules) should be consigned to appendices if they are included at all.

The space/time limits of an article do not permit amplification of all these concerns, so only life cycle cost implications will be discussed here.

Once life cycle costs have been established, further explanation of the costs is desirable. This is particularly true if decisions are to be made about continuing the instructional program or expanding the instructional development efforts to other instructional areas. The following questions leading to productive speculation about possible future costs are but a few of those that might be asked about a particular life cycle costs.

Investment costs
- Do the costs represent the bulk of expenditures or will further purchases be required?
- How often will replacements be required?

Operation costs
- How do these costs compare with operation costs of other courses/programs?

- Are these costs likely to increase, decrease or remain about the same?
- What are the unit (per student) costs?
- How sensitive are unit costs to changes in enrollment?

Summary

This article has focused on the basic concepts and "how to's" of functional cost analysis. It has been a brief treatment. Use of this costing approach will reveal surprising subtleties as well as concerns and issues to confront as the analysis evolves. Minor alterations in study design and procedures are required for each cost analysis. Nevertheless, functional costing is eminently practical and is a powerful tool for determining cost information. Furthermore, it is ideally suited to program evaluation and cost effectiveness studies. The same cannot be claimed for traditional, jurisdictional cost models which express costs in terms unrelated to programs.

References


Doughty, P., & Seilby, A. Cost analysis and teacher education: A comment

"... functional costing is eminently practical and is a powerful tool for determining cost information."
Barbara B. Minor,
Publications Coordinator
ERIC Clearinghouse on Information Resources
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Syracuse University
Syracuse, NY 13210

The ERIC Clearinghouse on Information Resources is happy to contribute this new column reviewing selected ERIC documents to the IJD: readers are invited to suggest specific topics for consideration as themes for future columns.

Papers recently entered in the ERIC (Educational Resources Information Center) files include a discussion of attitude measurement, a study of the demographics of instructional developers, and four papers from the 1978 conference of the Association for the Development of Computer Based Instructional Systems (ADCIS). These papers describe evaluation techniques for computer-assisted instruction and computer-managed instruction, as well as a cost-effectiveness analysis and approaches to teaching reading via computer-assisted instruction.

In Measuring Attitudes and Instructional Development: Why and How (ED 167 188), Michael Simonsen points out that attitudes and attitude measurement are critical components of teaching and learning and recommends that the instructional developer collect as much relevant data about that process as possible. It is important, he says, for instructional developers to study the attitudes of learners in order to demonstrate attitude/achievement relationships, promote attitudinal position, reduce attitudinal influence, and assess the impact of specific instruction. He feels that attitude measurement should be valid, reliable, replicable, and fairly simple to administer, explain, and understand. Categories for collecting attitude information suggested by Simonsen include self-reports, reports of others, sociometric procedures, and records. To ensure effective attitude measurement, he says, one must identify the construct to be measured and find an instrument that will measure it. If no existing measure is available, he admonishes the developer to recognize the critical importance of reliability and validity of information in constructing his or her own test. A pilot study should be completed and resulting data must be summarized, analyzed, and displayed for the consumer. A bibliography and examples of the measurement process are included. This 23-page paper was presented at the 1979 AECT convention. It is available from EDRS in microfiche for 83 cents or in paper copy for $1.82.

Dennis R. Schaffer compares and discusses six demographic characteristics of instructional developers from studies conducted in 1973 and 1976 in a 10-page paper, The Instructional Developer: An Update (ED 164 000). From this study, he concludes that the instructional development movement is attracting younger members and more female professionals. Although most instructional developers were found to be in higher education, and engaged in a broad range of professional activities, their geographical location was becoming more dispersed. He found that an overall analysis showed positive growth for instructional development since 1973. This paper published in 1977 is available from EDRS in microfiche for 83 cents or in paper copy for $1.82.

A nonstandard method used to evaluate the various processes and procedures employed by more than 20 PLATO courseware development groups, and to evaluate the method, is described in Critical Decisions: An Evaluation of a CAI Evaluation (ED 165 707), by Esther R. Steinberg. The method used was Flanagan's critical incident techniques, modified to include decisions as well as accidents. Sources of information for the evaluation included personal accounts of a number of staff members, interviews with additional staff members, and papers and reports. More than 125 case histories of critical incidents or decisions were classified, and the processes and procedures that led to successful, unsuccessful, or equivocal results were analyzed. Discussion of this evaluation method includes its limitations, time requirements, advantages, suggestions for improvement, and its utilization. This 11-page paper, presented at the 1978 ADCIS conference, is available from EDRS in microfiche only for 83 cents.

In The Many Uses of Evaluation in the Navy's CMI System (ED 165 709), Nick Van Mante describes the multiple evaluation techniques which can be applied to one computer-based instructional system, and the ways in which the data may be used. He uses the Navy's Computer Managed Instruction (CMI) System as an example to illustrate the application of various evaluation strategies for solving problems associated with delivery system effectiveness, course material comparisons, variations of instructional strategies, and the daily management of instructional progress. Representative data are provided to illustrate the uses of student data to facilitate the functioning of an operational CMI system. The uses are described on the basis of who actually uses the information for decision-making activities, i.e., the instructor, the schools, the system managers, or the instructional materials developer. This 10-page paper presented at the 1978 ADCIS conference is available from EDRS in microfiche only for 83 cents.

Hervey W. Stern considers some of the problems involved in implementing a cost-effectiveness analysis in training and education, and provides a specific example of an analysis that partially meets cost-effectiveness analysis requirements in An Example of the Applic
The four papers from the ADCIS conference reviewed above are also included in the complete collection of 59 papers—New Directions in Educational Computing. Proceedings of ADCIS 1978 Conference (ED 160 072). This 375-page proceedings is also available from EDRS in microfiche only for $1.00.

Papers reviewed in this column are available in ERIC microfiche collections in more than 600 libraries or institutions, or individual copies may be ordered from the ERIC Document Reproduction Service (EDRS), P.O. Box 190, Arlington, VA 22210. Please order by ED number and include payment for the price listed plus postage. For additional information about ERIC, write to the ERIC Clearinghouse on Information Resources, School of Education, Syracuse University, Syracuse, NY 13210.

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Content

The general intent in developing the course was that it should be: individualized, station oriented, competency based, student centered, mediated, and computer managed. The goal was to demonstrate certain nontraditional approaches while, at the same time, teaching the subject matter of the course.

The content of the course is reflected in the titles of the stations: Station 1—Measurement and Evaluation, an Over-

Development

This system has been developed over a period of 7 years. It started in 1973 with one small section out of several large sections. Over the years all of the sections were integrated into the competency-based system. The development activity was essentially Magnorion in nature and is highlighted by the sequence of objectives and learning activities provided by the Student Manual. (See Figure 1.) Designing and implementing a system such as this requires extra effort. Several staff members spent considerable time preparing their assignments.

This system also requires new kinds of behavior from teachers and students. The teacher is no longer a 3-hour per week performer but rather a curriculum designer, consultant, and evaluator. The student finds that it is not possible to be a passive learner. It is his or her responsibility to come to the center, study the materials, ask for help if needed, and take the tests. The student must become an active responder.

Introduction

In mastering the objectives, you should proceed as follows:
1. Read through the objectives for a station. Decide on which one you wish to complete, then study the objective carefully until you are sure what is required.
2. Read over the learning activity options and note the way the objective will be evaluated.
3. Obtain the learning activity options materials. Books required for the options are located together. Filmstrips/cassettes are located by the tape recorders and filmstrip viewers. DISCUSS material with other students. Ask the instructor for help if you have a problem. Copies of mimeographed material are located in the tanks, Station 1/2, 3, 4/5.
4. When you feel ready, obtain a test from the test monitor. Tests must be taken at the test tables in the presence of a monitor.
5. Your test will be scored by computer and the score recorded in the computer memory. You will receive a readout indicating your score and the items you missed.
6. If you reach criterion (usually 8/10), you may go on to another objective. If not, you should restudy, possibly using another learning option, or, perhaps, talk to the instructor—then take the test again.
7. You may proceed as rapidly or as slowly as you wish; however, experience has shown that most students need to work steadily to complete the work in a quarter.
8. Do not be concerned if you take more than once to master an objective. The main purpose of a test is to help you determine if you really know the concept. In a sense, the tests are your eyes and ears, they provide feedback to help you know how you are doing. You cannot fail this course if you keep with it; some of you will just take longer than others.

This course is designed to model many of the procedures advocated by the instructor. It is one approach, among many, to the individualization of instruction. The use of performance objectives, criterion tests, and formative evaluation are components of many currently used instructional programs at all levels of education. Like most such programs, it requires a considerable degree of responsibility of the student. The tests are designed to assure a minimal level of achievement. Many students can probably get by without working very hard. On the other hand, our assumption is that you want to be a good teacher. Mastering the concepts of this course will help you become one. In other words, it is your responsibility to gain the competencies needed to become a good teacher.

The instructor is available to advise and assist, to try and guarantee minimal levels of achievement, but not to preempt your responsibility for your own learning.

FIGURE 1. Sequence of objectives and learning activities.
Station 1: Measurement and Evaluation, an Overview

Rationale: This station is an introductory station. It contains only one objective. It is concerned with the nature of measurement and evaluation, and it attempts to point out the dangers as well as the values of educational testing.

Performance Objective 313-1-10

Statement of Objective: Be able to select valid statements concerning the nature and the uses of measurement and evaluation including such things as fixed standard vs. normative tests, the difference between measurement and evaluation, how test results should be used, and the use of statistics to improve tests.

Learning Activity Options
1. Read: Measurement and Evaluation: An Overview (article located in the back of this manual)
2. Read: Sotola and Stordahl, pp. 255-256 (copy)*

Evaluation
True/False
80% mastery
Use TAS No. 1
Sample Test Item: True/False—an objective list is a free response test.

Score

Form A __________
B __________
C __________
D __________

*For many of the reading options there is a copy in a folder at the station as well as the original book. When this is true, it will be indicated by writing "copy" after the source.

Station 2: Objectives, The Basis of Evaluation

Rationale: The basis of all achievement testing is a set of objectives. This station attempts to acquaint the student with the various ways objectives are written, both good and bad. It also introduces the student to the concepts of norm and criterion referenced testing, formative and summative testing, and various techniques of testing.

Performance Objective 313-2-10

Statement of Objective: Given examples of various kinds of objectives, be able to identify behavioral objectives in the cognitive area, behavioral objectives in the affective area, objectives which tell what the teacher is going to do, objectives which are unsatisfactory because they use non-behavioral terms, and learning activities.

Learning Activity Options
1. Read: "Objectives, Their Use and Misuse in Education" (copy at station and tape)
2. Read: "Affective Objectives" (copy)
3. Use teaching machine program available from the instructor.
4. Watch and listen to filmstrip-tape program, "Educational Objectives."
5. Use computer review program.

Evaluation
Matching Test
Criterion 80%
Use TAS No. 1
Sample Test Item: Under which of the categories in the objective above does this objective fit—"The student will know the presidents of the United States."

Score

Form A __________
B __________
C __________
D __________
Station 3: Improving the Measuring Instruments; Organizing the Data

Rationale: Raw measurement data is seldom of much value. To be useful it must be organized and interpreted. Station 3 deals with the statistical techniques for organizing and interpreting information gathered through testing.

Performance Objective 313-3-10

Statement of Objective: Given the terms "reliability" and "validity," be able to match them with examples of their application and/or factors which affect them.

Learning Activity Options
1. Read: Smith and Adams, pp. 58-65 (copy)
2. Read: Mimeo—Validity & Reliability
3. Use CAI lesson VARE—ask instructor

Evaluation
Matching Test
Criterion 80%
Use TAS No. 1

Sample Test Item: Does the following statement have to do with validity or reliability? The scores vary widely if the test is given again (from the scores on the first administration).

<table>
<thead>
<tr>
<th>Score</th>
<th>Form A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
</table>

Station 4: Standardized Tests

Rationale: Standardized tests of various kinds are widely used in American educational systems. They can be useful tools for the teacher and administration. They are, however, subject to misuse and abuse. Station 4 introduces the student to the different types of standardized tests commonly administered in elementary and secondary classrooms. It also suggests the strengths, weaknesses, and problems connected with the administration and interpretation of these tests.

Performance Objective 313-4-10

Statement of Objective: Be able to identify the issues in intelligence testing. Given suitable data, be able to compute IQ scores using both ratio IQ and deviation IQ.

Learning Activity Options
1. Read: Articles from Psychology Today, Sept. 1972 (copy)
2. Read: Tuckman, pp. 313-357, Measuring Educational Outcomes
3. Watch: Video Tape—The I.Q. Myth (ask Instructor)

Evaluation
Objective Test—Use TAS No. 1
Perform IQ Calculations
Criterion 80%

Sample Test Item: MA = 110 No., CA = 9 yrs. IQ = ________ .
A student's score = 75; Test Mean = 70; Standard Deviation = 5;
Deviation IQ = ________ .

<table>
<thead>
<tr>
<th>Score</th>
<th>Form A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
</table>

FIGURE 2. Examples from the student manual. (Continued)

To get a "B," it is necessary to pass a posttest at 60 percent. To receive an "A," one must achieve a posttest score of 75 percent.

In addition to the individual readout, the instructor can call for readouts which provide such information as: the percentage of objectives completed by the class.

Valuable for program evaluation are two readouts, one of which indicates the tries, successes, and failures for each objective and another which prints most frequently missed objectives and list of students who have failed given objectives.

The posttest is treated separately. Although it is administered on mark-sense cards, it is scored by hand when given, which is any time the student finishes. At the end of the quarter it is subjected to item analysis, and the mean, median, and standard deviation are computed.

Evaluation

There has been no comparative evaluation made of the course; mainly because there were no courses available which were being taught in a conventional manner and which had similar course objectives.

However, the system is being constantly evaluated and revised on the basis of that evaluation. Two kinds of evaluative approaches are used. They might be described as subjective and analytical. The subjective evaluation consists of simply studying the materials. Is this objective clear? Is such-and-such a learning activity really helpful in reaching the objective? The analytical evaluation comes from the data generated by the system. Which items are missed most frequently on the posttest? Which objectives are repeated most frequently? Do students complain about confusing language on a test item?

For several terms a student course evaluation was conducted. In general, most students thought they learned as much or more than in conventional professional education classes (75 percent—Winter, 1975). Forty-seven percent said they intended to try the method in their own classes (Winter, 1975).

Of the approximately 800 students participating in the program since its inception in 1973, all have been required to complete the course at the 80 percent level. More detailed statistics can be made available by writing to the developer.

Attitudes toward the class vary. Some students, particularly the brighter ones, like it very much. Many students, however, do not like it because they are constantly tested and must perform. In
a conventional class they can sit back, listen to the teacher, and be faced with performance only at midterm and final. Also, no doubt, many students feel they are more stimulated and the class is more interesting when involved in a group activity. Some students also find it hard to discipline themselves to get the work done. Until recently, the rate for incompletes was about 10 percent. The last three quarters this has been appreciably reduced by limiting incompletes to only those who made a "reasonable" effort to complete the course. Many teachers also found it hard to adjust to this style of teaching. Perhaps some miss the feeling of being the center of the classroom. Others believe that group-focused activities, such as lectures, small group activities, or simulations are better ways of teaching.

On the other hand, many enjoy this style of teaching. Rather than lecturing, the teacher finds himself/herself interacting with a large number of students on an individual basis.

The instructional system entitled Measurement and Evaluation appears to be one that has gone through a process of systematic development even though the traditional data collection to verify the nature of the problem isn't available. What data are available indicate that considerable time was spent developing the content, sequence, and materials for a basic module of an instructional development competency; i.e., measurement and evaluation. In addition, the data that have been collected addressed the analysis of student performance on various objectives. More data could be collected on a comparison of traditional vs. alternative forms of teaching, however.

While not perfect in the ID sense, this little package does provide a concise and competent output of learning for students who plan to be working in this area of measurement and evaluation. We think you'll find it worthwhile. —Reviewed by Curtis J. McCarty.

<table>
<thead>
<tr>
<th>Raters Name</th>
<th>______________________</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSTRUCTIONAL SYSTEMS RATING CRITERIA</td>
<td></td>
</tr>
<tr>
<td>1. Author(s)</td>
<td>______________________</td>
</tr>
<tr>
<td>2. Title</td>
<td>______________________</td>
</tr>
<tr>
<td>3. Year of Publication Publisher Cost Options</td>
<td></td>
</tr>
<tr>
<td>4. Intended Audience</td>
<td>______________________</td>
</tr>
<tr>
<td>Format (check all that apply) Individualized Small Group Lecture Other</td>
<td></td>
</tr>
<tr>
<td>Linear Branching Media Suggested Provided Type</td>
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</tr>
<tr>
<td>Explain:</td>
<td>______________________</td>
</tr>
<tr>
<td>Content Organization</td>
<td>1 2 3 4 5+ Comments</td>
</tr>
<tr>
<td>Instructions Clarity</td>
<td>1 2 3 4 5+</td>
</tr>
<tr>
<td>Complete</td>
<td>1 2 3 4 5+ Comments</td>
</tr>
<tr>
<td>Evaluation Test Data Available Yes No</td>
<td></td>
</tr>
<tr>
<td>If Yes, How would you rate it? 1 2 3 4 5+</td>
<td></td>
</tr>
<tr>
<td>Are there comments from user groups Yes No How would you summarize them?</td>
<td></td>
</tr>
<tr>
<td>Nature of Evaluation: Formative Summative Combination</td>
<td></td>
</tr>
<tr>
<td>Development Is this the work of a team or an individual Can't tell Institutional commitment + Commercially produced</td>
<td></td>
</tr>
<tr>
<td>What do the students have to say about it, if anything?</td>
<td></td>
</tr>
<tr>
<td>Packaging and Production (What comments have you)</td>
<td></td>
</tr>
<tr>
<td>Summary Lumping everything together in a bunch, what is your overall reaction?</td>
<td>1 2 3 4 5 6 7 8 9+++</td>
</tr>
</tbody>
</table>

FIGURE 3. Prototype rating form.