

# In Search of a Metaphor for Instructional Development

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**Abstract.** The use of metaphors is helping certain professionals discover new dimensions of their practice. The method holds attractive possibilities for instructional developers. This article explores this potential through an analysis of the functions and limitations of metaphors as applied to instructional development. Existing metaphors are critiqued, and new metaphors are presented.

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Metaphors have become popular and useful descriptive tools in several disciplines recently. Writers in educational evaluation, for example, have used such metaphors as painting, photography, art criticism, the judicial process, and investigative journalism in an attempt to clarify the role, function, and activities of their profession.

When a shift from traditional paradigms or practices occurs, a metaphor can provide an organizing principle for new ideas. Metaphors can serve such a function in instructional development (ID), a profession that is still in the formative stages of growth.

## Rationale for the Use of Metaphor

Ortony (1975) presents a three-fold rationale for the use of metaphor. Each aspect of the metaphor has practical value and utility for characterizing an emerging branch of study. The first aspect is "compactness," the power of a metaphor to condense a larger construction. Communication can take

place without the need for long, detailed, explicit (and possibly boring) explanations. More importantly, the metaphor is closer to a real-life continuous experiencing of the referent than is any verbal description.

The second aspect considers the possible "inexpressibility" of some facets of the referent that can be captured by the metaphor. Where definitions are hazy or boundaries uncharted, a metaphor can establish temporary limits and allow time for theory and research to catch up with practice. The use of metaphor should help practitioners discover unexplored areas of instructional development.

The third aspect of the metaphor described by Ortony is its vividness. It gives both emotional and cognitive meaning to the referent and often calls to mind sensations from all modalities simultaneously.

The communicative and emotive powers of a metaphor are considerable; however, there are limitations to this method of conceptualizing. Students in literature classes often have difficulty comprehending that Poe's "Haunted Palace" is figuratively a disturbed mind or how Sandburg's Chicago can laugh "the stormy, husky, brawling laughter of youth." It must be explained to them that these metaphors are not designed to represent or accurately depict the referent object, action, or state of mind but rather to communicate information concerning it in a meaningful way. A metaphor thus cannot provide an isomorphic representation of the ID process; instead it should provide an understanding of this process.

## Selection Guidelines and Requirements

As easily as they can lead, figurative uses of language (metaphors, similes, and analogies) can mislead. "A metaphor used successfully can give in-

sight and comprehension; used unsuccessfully it can generate confusion and despair" (Ortony, 1975, p. 52). Certain guidelines are needed for testing the utility of any metaphor.

1. There should be reasonable fit of salient attributes; that is, the characteristics called to mind by the metaphor should have some connection to the referent. This is not so that the referent can be accurately represented, but so that aspects of the metaphor cannot be inappropriately attributed.

2. The comparison should have face validity. It would be difficult to explain a banana by comparing it to a boomerang, despite the several shared characteristics of these items. This criterion is the major downfall of using the painting metaphor for evaluation. "The good metaphor satisfies while it startles" (Goodman, 1968, p. 79).

3. The figurative item or process should be familiar to the addressee. It would be useless and perhaps even harmful to use an obscure metaphor. It is critical that the author of a metaphor realize what that image communicates to the addressee.

Along with the preceding rationale and selection guidelines, the special demands that the ID referent places on the metaphor selected must be considered.

The professional practice of ID has become broad in scope and, in addition to the original areas of product and course development, now includes faculty development and organizational development (Durzo, Diamond, & Doughty, 1979). An appropriate metaphor would apply equally well to each of these areas.

To be used successfully a metaphor should be independent of the size of the ID project and should apply whether its developer is working alone or with other developers on a project with a single client or multiple clients. The metaphor must also be independent of the setting in which the ID work is done and thus should apply to ID in schools and universities, health services, business and industry, government, and the military.

Of the metaphors that have been suggested for evaluation, many apply best in situations in which the evaluator is the data gathering instrument. This method does not appeal to evaluators who are more quantitatively oriented. No single metaphor can completely cap-

ture all philosophical stances. Despite the demands placed on them by the breadth of the ID field, instructional developers should not despair of finding one or several metaphors that can help them form a better sense of identity as developers.

### Examples of Metaphors

Given the power of metaphor, it is not surprising that several have already appeared in the ID literature. The referent for these existing metaphors is most often not the instructional developer but the educational technologist or media generalist. Because ID is usually classified as instructional technology, the applicability of these metaphors should be carefully considered. The first selection criterion is designed to prevent the misunderstandings that can result when the metaphor provides too much information about the referent.

#### Educational Engineer

This metaphor has its roots in an article by Charters (1945). Bern (1967), in his follow-up article suggests that the concept is perhaps a quarter-century older. Melton (1959) and Galser (1965) both use this term in predicting the development of a new professional specialty in education. A recent article by Lutz (1980) which calls for the "selection, training, and assignment of a cadre of professional educational engineers" (p. 357) reflects the persistence of the image. Does the instructional developer fill this role? Each of these authors offers a slightly different perspective.

The Charters metaphor parallels Lumsdaine's (1964) description of educational technology as a prescriptive science that applies behavioral psychology to instruction. Programmed instruction designers would fit this conception of the educational engineer, as would performance engineers as described by Gilbert (1978).

Using an odd collection of "data," Bern (1967) purports to prove the pervasiveness of the trained engineer in education. Electrical and industrial engineers are believed to have the skills required for using modern hardware in the design of "much needed control systems" for student minds (p. 235).

The project described by Lutz indicates a broader vision of the engineering metaphor. The team of educational

engineers are variously labeled linking agents, problem solvers, and process generalists. "The collegial partnership of administrator, teacher, and educational engineer helps to identify district resources, analyze specific student needs, consider special conditions and influences pertinent to engineering changes, and resolve differences that could impede solutions" (Lutz, 1980, p. 357).

The outcomes mentioned range from curriculum guides and in-service teacher training to individualized student conferences and improved parent communication. In ID jargon, the team of engineers accomplished course development, faculty development, and alteration of organizational variables. The outcomes indicate that the activities of the professionals extended beyond the role definitions Lutz supplies. Rather than "making specific practical applications of knowledge gained by research" (p. 358), the engineers guided and facilitated the problem-solving process.

The engineering metaphor, then, breaks down when carried over to current instructional development practices. It cannot account for the variable human element so critical in development. Consultant-client interactions and student learning experiences defy prediction and control. The metaphor would have the educational engineer apply learning research to practical problems. What is unknown about human learning, however, so overshadows what is known that many prescribed applications of theory could as easily be wrong and harmful as right and helpful.

#### Architect

Moll and Kaufmann (1978) offer another metaphor, aimed specifically at ID. They parallel the work of a developer with an instructional client to that of an architect with a house-building client. This comparison highlights the service nature of development, the ultimate inviolability of the client's wishes, and the creative collaboration that occurs. An examination of the house-building process will illustrate the utility and the drawbacks of this metaphor.

*Step 1. Finding the professional.* The best selection of a professional is made by questioning those who have had experience with different developers. Without such contacts, developers are often hard to find. (Unlike architects,

developers are seldom listed in the Yellow Pages!)

*Step 2. Getting to know you.* This "courtship" phase allows the architect to gather information needed to formulate a plan.

*Step 3. What will the client do with it?* Outcomes and special conditions are identified (e.g., in house building, the need to accommodate a billiards table; in ID, the need to provide laboratory experiences).

*Step 4. Dream statements.* The architect creates numerous alternatives for the client. After weighing the advantages and disadvantages, the client determines which arrangements suit his or her needs.

*Step 5. Reality statements.* The best arrangements are drawn up in a blueprint, and the expertise of various other professionals is used if appropriate. (In ID, these may be computer programmers, film librarians, measurement specialists.)

*Step 6. Gathering.* The builder replaces the architect and collects materials and fixtures that match the blueprint and the client's taste.

*Step 7. Assembling.* Materials are delivered. The architect is consulted when specific elements cannot be provided and substitutions must be made.

*Step 8. Moving in.* The house is "field-tested" with furniture and occupants. Inadequacies are noted.

*Step 9. Remodeling.* As families change, needs change, and modification of the house may be required. The client must decide whether to contact the original architect, find another architect, or attempt to remodel the house without assistance.

*Step 10. Starting over again.* The house is no longer adequate, and the client decides to build a new one.

Although the house-building metaphor provides an interesting view of the ID task, it is misleading in several ways. Throughout the metaphor, the goal of a "comfortable, homey fit of house to family" models the "comfortable teaching-learning situation." Most instructional development activities, however, require that instructional effectiveness be the primary consideration.

A second inappropriate aspect of this metaphor is that the architect always designs a product; the instructional developer does not. The architect automatically agrees that the client

needs a new house because the client wants a new house. Most in-house instructional development agencies will not permit that assumption to be made. The metaphor assumes that the client would not find a satisfactory home by consulting a realtor. If certain family needs are common enough to support large subdivisions of similar homes, an existing construction design might be found to suit present needs. The approach of instructional developers also differs from that of most architects in that sometimes they determine at Step 2 that the project does not merit the effort involved and suggest terminating the relationship.

The house-building metaphor is probably useful for describing the kind of "off-the-shelf" ID process most teacher clients would engage in with a district curriculum designer; however, it does not apply as well to other settings. This example clearly demonstrates how metaphors used in instructional development can restrict understanding as easily as they can improve it.

#### **Craftmaker**

Mager (Note 1) uses a metaphor to describe the instructional technologist as a craftsman who brings power to instruction through skillful analysis and sensitive application of technique. The dictionary defines a craft as a skill in planning, making, or executing that combines manual dexterity (i.e., technical expertise) with artistic ability.

A potter or wood-carver possesses several specialized skills that are applied in various combinations to create a unique product. The artistic judgment of the craftsman is used as the technical tools and skills are brought to bear on the lump of clay or block of wood. The final results are determined entirely by the craftsman, limited only by his or her skill and imagination.

Filep (1967) has also used this metaphor in discussing the development and application of computer-assisted instruction. In an interesting way, he extends the analogy to the learner as well. Through hands-on experience with equipment in a process that provides immediate feedback and alters direction as the result of the learner's actions, the learner "creates his own instructional 'work of art' from start to finish, as did the craftsmen of old with their products" (Filep, 1967, p. 104).

Few would argue against viewing the

instructional developer as both technician and artisan. This combination describes experienced developers as well as professionals who are successful in other fields, such as managers (who combine task and people concerns) and musicians (who combine technique and expression). Craftsmen, like architects, are product-oriented, however, and the nature of the work encourages them to work alone, rather than in teams. Seldom do craftsmen work in close collaboration with a client. The metaphor thus conveys a rather isolated role for the instructional developer, one that is not congruent with current thinking (Schwen, Leitzman, Misanchuk, & Foshay, 1979).

The three metaphors presented all concentrate on the behavior of the instructional developer, not on the ID process. They attempt to capture the kinds of things the person does and the roles that are adopted. Effective metaphors for evaluation focus on the actual process, not the people.

#### **Biological System**

Gustafson (Note 2) found the use of a metaphor helpful in formulating an early definition of the field of instructional development. He suggests viewing ID as a system comparable to a biological system. He points to the interdependence of elements in the system, the simultaneous progression of numerous functions (as opposed to a linear process), and the transfer of information from one element to another. Many useful insights into the ID process become immediately evident through this metaphor: the dynamic nature of development, the unpredictability of environmental intervention, and the naturalness and inevitability of "death," or obsolescence. This image encourages reflection and holds much more meaning than can be elaborated on here.

Although the biological system metaphor holds promise as an exploratory tool within the discipline, it would not mean much to one who was unfamiliar with the purposes and practices of ID. This weakness indicates that *function* should be a fourth criterion for judging the utility of a metaphor. Metaphors for exploration may or may not serve as metaphors for explanation.

#### **New Metaphors**

The four metaphors presented (engineering, house building, craft-

making and biological system) probably do not exhaust those present in the ID literature. Metaphors are not easy to find, yet they seem to appear when least expected. The power and utility of metaphors make them worth uncovering, but only if they are then used consciously and cautiously. Sensitivity to the quality of ID metaphors greatly enhances their potential contribution to the profession.

This article would be incomplete without some new metaphors with which to expand the repertoire. The following are presented in an attempt to demonstrate the diversity of possibilities. The reader is encouraged to mercilessly apply the criteria and guidelines outlined above in establishing the merit of each metaphor. Two of the metaphors presented attempt to describe the ID process and to picture the developer's role.

Gustafson's biology metaphor might be extended much further by likening the ID process to enzymatic biochemical reactions. Enzymes are proteins generated by the body that initiate and moderate certain kinds of vital chemical functions. They often act as catalysts: they speed up an inefficient reaction without affecting its essential nature or products. Enzymes are known to be useless under conditions that deviate too much from normal body states; extremes of environmental variables have a disabling effect on the process.

One could also compare ID to choreographing a new ballet—deciding on the movements and their sequence, preparing the dancers, and coordinating costumers, set designers, and musicians. The success of instructional development activities explained with a ballet metaphor would be determined through evaluation conceived of as artistic criticism.

A possible metaphor for the developer's role is legal counseling. As often occurs in instructional development, the events that precipitate the encounter with the lawyer influence the direction of the outcomes. At the client's request, the legal expert may draw up a will or contract, represent the client's interests in dealings with others, or explain applicable rules and practices to enable the client to make a more informed

choice of a course of action.

Perhaps the work of an instructional developer may most usefully be compared to that of a plumbing contractor, who is likely to be a system designer today, system analyst tomorrow, and system repair person the next day. In plumbing, as in education, poor functioning is seldom noticed until the system comes to a halt. It is the plumber's job to locate the snag, remove it, and try to prevent a recurrence by redesigning the transport system or re-educating the users. The plumber might also help create and install a new system for a subdivision or modify an existing single residence to accommodate a new water-softening unit.

The value of metaphor for explaining and exploring the field of instructional development should not be judged by the success of these or any other specific metaphors the reader may have encountered. The potential can hardly be tapped by the uncritical efforts of a few authors. As suggested earlier, the search may end with several solutions rather than one all-inclusive metaphor. The purpose of using the metaphor is to amplify and understand the instructional development profession and those who practice it, with the hope of aiding its growth.

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