

Exploring Three Instructional Development Models and a Review of the Case Against Model Use

Forward

Author's Note

The mantra of every instructional designer is, "Know your audience!" There is good advice within this, but it isn't only for instructional designers: it applies to all communicators. This essay is written to doctoral level readers in the field of instructional systems design. This audience's strong familiarity with the vocabulary and concepts permit this author to forgo what would transform this work from an essay to a treatise. Therefore, this author dispenses with the need to define the more common terms and concepts, such as *instructional systems design*, *instructional design theories*, *learning theories*, *instructional development methods and considerations*, *ADDIE*, and *curriculum theory*. Instead, the reader is directed to the definitions and explanations in Charles Reigeluth's, *What Is Instructional Design Theory and How Is It Changing?* (Reigeluth, 1999).

Introduction

Instructional designers are often called upon to produce materials and strategies to support teaching and learning within environments that would seem to defy the probability of a successful outcome. Further, customers and managers would seem to expect successful outcomes while preserving schedule, budget, and quality. Traditional training of instructional designers (IDs) usually includes review and discussion of a systemized approach for developing instructional solutions. Such approaches will likely include instructional design models (where *design* can be substituted with *development*) that convey graphically, sometimes with extensive supporting text, the complex process by which an ID will develop instructional solutions. *Models*, as applied in the context of instructional design, can be used by IDs to convey between individuals meaning of complex concepts, relationships, and processes, as well as to guide, manage, or control efforts to

develop solutions or instructional products (Gustafson & Branch, 2002). Models can also be used to facilitate study or research of the same concepts, relationships, processes, or management efforts (Hirumi, 2002). *Instructional Development* models specifically address the complex process IDs face when confronted with challenges as described at the beginning of this paragraph.

Gustafson and Branch, in their book, *Survey of Instructional Development Models (4th Ed.)* (Gustafson & Branch, 2002) present an instructional development model taxonomy to 1) clarify the underlying assumptions of the different models, and 2) identify the conditions under which each model might be most appropriately applied. The Gustafson and Branch taxonomy identify three categories to which a model might belong: classroom-oriented, product-oriented, or systems-oriented (Gustafson & Branch, 2002). These categories reflect the set of assumptions a model's creator(s) has (have) made regarding the conditions in which both the development of instructional materials and its subsequent delivery will take place (Gustafson & Branch, 2002).

Instructional development models that are classroom-oriented might be of interest to professional teachers who: regard their primary role is to teach; perceive that the result of their labors is one or a few hours of instruction; have little additional resources to bring to the effort; work mostly alone; and have little to no instructional design skill or experience. (There are additional characteristics that might be named, but these characteristics reflect the nature of the expected outcome of an instructional development effort and the resources available to support that effort.)

Instructional development models that are product-oriented might be of interest to organizations that either identifies an internal need or an outside opportunity to create an instructional solution, which might be delivered more as a packaged product than as a personalized, immediate solution, such as with the forgoing category. Accordingly, professionals, who might use a model in this category, would likely be those who: perceive the solution as a self- or instructor-delivered package; have significant resources that can be leveraged for the effort; will work in a team environment with a broad range of expertise; and will have instructional design skills or

experience. Further, we commonly assume that a technically sophisticated product will be produced, and this product, following extensive revision efforts, will be disseminated widely.

Instructional development models that are systems-oriented might be of interest to similar organizations as that of product-oriented models, but in this case these organizations perceive the need for a course or an entire curriculum rather than a focused product. And as such, these professionals, who might use a model in this category, would likely be those who: identify the instructional need as requiring a course or curriculum; have extensive resources to support the effort; will work in a team environment, also with a broad range of expertise; will have a higher level of instructional design skill or experience than is often the case for product development projects; and will conduct extensive front-end analysis or needs assessments. Other contrasts to product-oriented projects include that systems-oriented model users may have a vastly reduced dissemination target as their intended results do not usually have a market focus, and that the dissemination team (if there is one) will not be the same as the development team.

Gustafson and Branch present a variety of models that exemplify the aforementioned categories, but for the remainder of this essay, we will only focus on three of those presented in the book: one instructional development model from each of the categories. Further, the tone of this essay will reflect a core value held by professional IDs, who, having won this value by virtue of long and not necessarily easy experience, consider that "...program substance and instructional design are what really matters when it comes to learning; they also realize that the delivery system itself does not inherently possess the capability to help people learn in any organized manner" (Sink, 2002, p. 22). We must strive to consistently remind ourselves to retain a results-oriented focus that can often become lost to over attending to our process models.

3 Models, 3 Approaches to Instructional Solutions Development and Process Control

Morrison, Ross, Kemp: a classroom-oriented ID model

The design process suggested by the Morrison, Ross, and Kemp (MRK) model consists of nine interrelated steps:

- Identify instructional design problems and specifying relevant goals
- Examine learner characteristics
- Identify subject content and analyzing task components that are related to instructional goals
- State instructional objectives for the learners
- Sequence content within each unit to sustain logical learning
- Design instructional strategies for each learner to master the objectives
- Plan instructional delivery
- Develop evaluation instruments
- Select resources to support learning activities

The model is circular and the nine listed steps are interdependent. IDs do not have to consider the steps in any particular order to complete the instructional learning systems design. An important difference of the MRK model from many other models is that this model is learner-centered: it provides a good application of the systems approach wherein the ID process is presented as a continuous cycle, while retaining an emphasis on how to manage the instructional design process. Revision surrounds the nine steps of the model, where each outer ring illustrates feedback loops to allow the ID to make changes in the content or treatment of the steps at any time during the development cycle. The model's concept is to improve any weak parts of the instructional solution as they are discovered. The ID who would use this model begins by asking six questions related to 1) the required level of learner readiness, 2) the instructional strategies

and media that would be most appropriate for the content and the target audience, 3) the level of learner support required, 4) the measurement of achieving the objectives, and 5+6) the strategies for how to conduct formative and summative evaluations (Morrison, Ross, & Kemp, 2001).

Seels & Glasgow: a product-oriented ID model

The Seels and Glasgow (S&G) model has three primary steps: needs analysis, instructional design, and implementation and evaluation. The instructional design step (step nr. 2 in the S&G model) consists of seven independent sub-steps: task analysis, instructional analysis, objectives and tests, instructional strategy and delivery system, materials development, formative evaluation, and an iterative feedback and interaction loop on the previous six sub-steps. The overall division facilitates a project to be planned, resourced, and managed in three distinct steps. The S&G model seeks to incorporate efficiency in project planning, resource allocation, and product development control, with the assumption that IDs are often asked to manage a project or work within an established project management framework. While the steps and sub-steps are graphically depicted in such a way as to suggest a linear implementation, the steps may be conducted concurrently with iterative cycling (Gustafson & Branch, 2002).

Dick, Carey, and Carey: a systems-oriented ID model

The systems-oriented model by Dick, Carey, and Carey (DCC) presents an iterative process that can be applied on a wide variety of instructional development projects and is perhaps the most well known of systematic design models. The DCC model represents "...the standard to which all other ID models (and alternative approaches to design and development of instruction) are compared" (Gustafson and Branch, 2002, p. 59). The DCC model consists of nine steps, plus an iterative revision step on six of the model's steps.

Intrinsic to the model is the view that instruction is a systematic process in which every component (i.e. teacher, students, materials, and learning environment) is crucial to successful learning. Technically, systems represent a set of interrelated parts, all of which work together toward a defined goal. The system parts depend on each other for the input and output, and the

entire system uses feedback to determine if its desired goal has been reached (Dick & Carey, 1990, p.3).

In the DCC model, each step is critical and should not/cannot be skipped; some steps might be completed concurrently, but they all must be done. Because the DCC model is highly systematic and sequenced, project design efforts can be standardized and made task specific. Implicit in the model is a project management framework to support resource planning, which is crucial since the solutions of system-oriented projects are often complete courses or an entire curriculum and require diverse, and sometimes large, teams to complete. Such projects require a high level of coordination and management to ensure successful completions.

Model Similarities

The three models present a different orientation comprising different target results and resources necessary to reach those results. The models are robust (each has one or more books to complement it, providing significant levels of detail), complete (each represents a full development process cycle with appropriate iterations to ensure the best results are reached), and clear (each model presents an appropriate level of detail and a graphical design to convey relationships and possibly sequence). Each model includes: analysis to establish what strategies would best suit the content, the context, and the learners; establishment of instructional or performance objectives; identification of the most appropriate media; development of instructional strategies; consideration and development of formative and summative evaluations; and strong project management.

Epistemological Discussion of Model Foundations

Overview

Visscher-Voerman and Gustafson present a very useful, if not critical, philosophical analysis that informs and supports instructional approaches (which IDs probably pay too little heed to) in their research article, *Paradigms in the Theory and Practice of Education and Training Design*

(Visscher-Voerman & Gustafson, 2004). Visscher-Voerman and Gustafson begin the article on the premise that expert IDs follow processes that are "...much more heterogeneous and diverse than [that suggested by most] ADDIE models" (p. 69). They collected 24 case study data from *expert* (as indicated from the peers of those studied) IDs and found that those studied did indeed deviate significantly from traditional ADDIE models in the manner by which they conducted their work. Visscher-Voerman and Gustafson derived four different philosophical paradigms from the literature and compared the design processes the subjects used for a specific project. The four paradigms grew from a need to explain the differences in arguments the different IDs presented that reflect their values for why they did or did not perform a particular process step. Visscher-Voerman and Gustafson write:

"While we were searching for an explanation for the differences or similarities between strategies, our realization grew that a focus on the level of argumentation would be helpful. Designers provided such argumentation when they explained why they conducted certain activities. They seemed to have different, and sometimes contrasting, argumentation for conducting or not conducting certain activities. Or, they had different perspectives on the worth and value of certain activities, which in most cases were tenable from the designer's perspective" (Visscher-Voerman & Gustafson, 2004, p. 76).

Then Visscher-Voerman and Gustafson arrive at the following:

"While searching for a structure in these differences in argumentation, we found an anchor point in the philosophical literature. Philosophy provided a useful background for helping trace back the origins of the different design approaches to different basic types of design paradigms, each reflecting different stances toward the world in general, and toward design in particular. This led to the formulation of a conceptual framework consisting of four design paradigms" (p. 76).

The four design paradigms are the following:

- *Instrumental paradigm*: planning-by-objectives
- *Communicative paradigm*: communication to reach consensus
- *Pragmatic paradigm*: interactive and repeated tryout and revision
- *Artistic paradigm*: creation of products based on connoisseurship

Each of the four paradigms has its underpinnings on one of the four philosophical movements “...that reflect basically different stances or rationalities toward truth and truthful acting in science” (p. 77): *modernism, critical theory, pragmatism, and postmodernism*. While this essay could delve into each of the four movements and associated instructional design paradigms, this author will strive to retain focus and only consider the foundations that inform and influence the three instructional development models reviewed here.

Visscher-Voerman and Gustafson specifically associate both the MRK and the DCC models with an instrumental rationality (p. 77). An instrumental rationality requires a pre-specified and absolute standard, which in turn seeks a consistent relationship between goals, learning situations and processes, and design outcomes. “Consequently, design processes are good if designers conduct activities that are aimed at reaching this product consistency. Therefore, the formulation of goals and objectives is regarded as a central activity” (p. 77). The goals and objectives are referred to throughout the development process to provide focus that the outcome will meet those objectives. In modernism, “...the end (the solution to the problem or outcome of the process) is defined independently from and prior to the means (the way to solve the problem)” (p. 78). We call this type of reasoning *end-means rationality*, or alternatively, *functionalistic, procedural, or instrumental*. We therefore arrive at that both the MRK and DCC models have their philosophical foundations in modernism, which spawned the scientific method.

While Visscher-Voerman and Gustafson do not specifically associate the S&G model with a particular paradigm; however, reviewing the characteristics they provide would place the S&G model within the pragmatic paradigm: the end result must be proven practical and effective with and for users in the specific user context. By employing practical user testing, the fundamental

rationale is a focus on outcome (product) validity, which is highly practical and effective. Visscher-Voerman and Gustafson explain that:

“In pragmatism, the modernist notion of a knowable, objective reality is not only criticized but also found irrelevant. In fact, pragmatists reject such notions, arguing that we should primarily be concerned with practical instead of theoretical issues. Pragmatists refuse to participate in the ongoing dispute on epistemological assumptions between the modernists and their critics. They argue that people may all see the world differently, but also have to deal with the very same world. So why does an epistemological perspective really matter? Pragmatists call a statement true when it works....” (p. 82).

These two philosophical foundations, modernism and pragmatism, present strengths and limitations and will be summarized in the next topic.

Model Strengths and Limitations

Model Strengths

The clearly defined steps of the S&G and DCC models are a strength for situations wherein multiple resources must be managed, especially so if those resources are inexperienced. Novice designers might favor the DC model, since it is rigid and prescriptive in terms of the order of the steps to be followed. The adaptable approach of the MRK, by permitting practitioners choice in the sequence of steps (or if the steps require being done at all) reflect the dynamic and challenging environment found in many situations, especially the classroom, is also a strength. Experienced designers might favor the MRK model since it allows more creativity and helps the designers to start the design process from any step the context requires.

The strengths found in modernism (i.e., Instrumental Paradigm) are the following:

- Provides planning and tracking mechanism
- Provides useful communication tool

- Facilitates documentation based on planning
- Makes process teachable
- Leads to measurable effects and to internally consistent products

And the strengths found in pragmatism (i.e., Pragmatic Paradigm) are the following:

- May lead to quicker results for lower costs
- May be efficient
- Helps to create design specifications
- Leads to products that are matched to user needs (Visscher-Voerman & Gustafson, 2004, p. 87)

Model Limitations

The DCC model is limited by one of its strengths: its rigidity can be a problem in certain circumstances where adaptability is important, such as can occur when there are changes in project mid-stream that impact resources, technology, schedule, budget, or stakeholder(s).

Likewise, a strength of the MRK model limits its usefulness in situations where rigid adherence to process and leadership over a largely inexperienced team is required.

Limitations stemming from the philosophic orientations of modernism are:

- Goals cannot always easily be described at the start of a project
- Ignores the fact that goals may change during the project
- May be inefficient
- Product may not meet end-users' real needs

Limitations stemming from the philosophic orientations of pragmatism are:

- Obscures planning and management of process

- Potential risk of conflicting opinions between user and client
- May be inefficient, because of trial and error
- May result in endless revision, when listening too much to users
- Hinders measurement of effects because of absence of clear starting points (Visscher-Voerman & Gustafson, 2004) p. 87)

The Case Against the Use of Models to Develop Instruction

Why Should We Heed Criticism?

There exist many arguments against the use of models to develop instructional solutions. An essay without treatment of such arguments is one that is self-promoting and unrealistic. To remind us of why we were likely drawn into this field – to find solutions to better the situation of our fellows at work, our children who will one day inherit and lead, or to simply improve someone's chance for a better future – we should consider the following folk wisdom: "Criticism is the highest form of flattery." We can depend upon change, and we need to constantly consider how the changes that take place around us can and should influence how we conduct our work. We need criticism to assist us to change and improve with the requirements of the situations within which we work and live.

"The Attack on ISD" – Training Magazine, April 2000, by Gordon and Zemke

In an article published in Training Magazine in April 2000, Jack Gordon and Ron Zemke presented arguments against the use of ISD models. Their article generated a number of rebuttal articles, white papers, and seminars on why ISD is not dead, still useful, and continues to be relevant to the field (Clark, 2004a). The arguments in the original article were:

- ISD is too slow and clumsy to meet today's training challenges
- There's no "there" there
- Used as directed, it produces bad solutions

- It clings to the wrong world view

The claim to being slow and clumsy is: “You see these massive ISD systems, with panels and committees and boards who have to sign off on everything. It ends up being a big political mess.”

The counter is: “...no matter what model the organization is using, if their culture is bureaucratic in nature, a new model is not going to help.” The only addition this author would add is that IDs need to regard their process constantly to judge if they are needlessly pressing the process in a bureaucratic fashion.

The claim of “...no ‘there’ there” is: “ISD attempts to change training from an art into a science and when used as directed, it would produce predictable, reliable results in learning.” The counter is: “Designing instruction is both art and science -- which makes it a craft. Thus, a good designer uses the tools of the trade, knowledge and skills, and then combines these with a personal touch to create a quality product.”

The claim to “Use as directed...” is: “...inward focus that concentrates the designer's attention on building the "right" kind of training program instead of addressing a real business issue.” The counter is: “ISD does not start until one has decided that training is indeed the answer to a performance problem or required business result.”

The claim that ISD lacks proper world view is: “The ISD model assumes that a job is a known quantity. It assumes the presence of a master performer who knows how to do the job in the best possible way. It assumes we can derive a set of best practice procedures from that master performer and then teach them to everybody else. But in the reinvention sweepstakes, jobs and procedures are up in the air. There often are no master performers and no best practices.” The counter invokes consideration that actual instructional development situations are often ill-defined and without master performers, but that well trained IDs will identify the sought after best practices through careful practice of the instructional design *craft*.

By February 2002, Ron Zemke and Allison Rossett authored a response to the original article and identified that the article was an attack, as opposed to a critique, and as such found three flaws in

the Instructional Systems Design process: the process, the practice, and the new technology challenge (Clark, 2004b). Each of these flaws is discussed to a good level of detail, and the reader is left with the sense that in specific circumstances, these flaws are real, but that the ISD process remains viable.

Out of the Box Instructional Design by Diane Gayeski

Diane M. Gayeski, Ph.D. of OmniCom Associates wrote an article for the ASTD publication *Training and Development* in 1998 where she pointed out that "...traditional step-wise, linear models for instructional design no longer fit today's learning and performance improvement environments" (Gayeski, 1998). Gayeski adds that the process is too behavioristic, and subject matter expert-driven, too time consuming, and might provide the wrong solution. There is some truth to this, which becomes apparent through reflection on the epistemological foundation of the instructional development process model: it is likely safe to assume that Gayeski is referring to a process model that is based on the instrumental paradigm, which guided both the development of behaviorism (B.F. Skinner) and the earliest practices of instructional systems design. The influences of modernism are end-means focused (as earlier stated) and do not represent well the changing dynamic of current work environments: by the time the pre-determine ends are reached, they might have changed.

Design Shouldn't Always Mean Instructional Design by Tom Werner

Tom Werner posted an article on Brandon Hall Research Blog where he critiques the application of instructional design models as at times being inappropriate. Werner writes, "I think it's our confusion between design and instructional design — we think that instructional design is always the most useful type of design for helping people learn" (Werner, 2007). He continues by qualifying that he means "instructional design models" and provides details. Werner identifies a number of other models that can be applied to invoke learning, such as presentation design, design of team-building experiences, information design, game and simulation design, and design of user-generated content. "Instructional design is one type of design. But instruction is not the

only means through which people learn.” Again, a good point for IDs might be: how ready are we to recognize the need for and then be ready to apply a different model that may better meet the needs of the situation?

Instructional Design For Cultural Difference by McLoughlin and Oliver

While McLoughlin and Oliver in their article, *Instructional design for cultural difference: A case study of the indigenous online learning in a tertiary context*, do not specifically advocate against the use of models to develop instructional solutions, they do point out that current models are limited because they “...do not fully contextualize the learning experience, and are themselves the products of particular cultures” (McLoughlin & Oliver, 1999, p. 1). McLoughlin and Oliver in their detailed and highly appropriate article (when considering the globalization of the economy and workforce) focus on how in common practice of instructional development we account for (or try to) specific learning needs, preferences and styles of learners, but fail to account for cultural variables. McLoughlin and Oliver write:

“The design of Web-based instruction is not culturally neutral, but instead is based on the particular epistemologies, learning theories and goal orientations of the designers themselves. Recently, theorists have argued for a cultural dimension in the design process and the need to provide culturally sensitive learning environments”
(McLoughlin & Oliver, 1999, p. 1).

The authors provide a well substantiated argument and include ten principles for IDs to practice culturally inclusive instructional design.

Summary

This essay presented three instructional development models in sufficient detail to explore their application characteristics, foundational epistemology, and their strengths and limitations through comparisons and contrasts with respect to each other. Further, this essay presented a limited number of what turned out to be a fairly impressive collection of arguments or criticisms against

the use of instructional development models; however in the interest of time and essay length, this author chose four such articles.

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