

MCTE 628, Instructional Systems Design

Portfolio #1-3: Chapter 3, Writing Objectives

- Exercise A: *Classify Behaviors According to Domain*
Exercise B: *Classify Learning Outcomes According to Domains*
Exercise C: *Identify Correctly Stated Learning Outcomes*

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Learning: An Internal Phenomenon

Perhaps the paramount qualifier pointed out in this chapter on objective writing is the lasting effect of our efforts as instructional designers. Few things in life are permanent, therefore it is very noticeable when something is pointed to as having a permanent effect. Seels and Glasgow point out that: "*Learning* is a relatively permanent change in attitude, behavior, or cognitive scheme due to experience. The goal of the instructional designer is to plan the experiences that will change current behavior or cognition to some new, as yet unlearned behavior or mental processing." (Seels & Glasgow, 1998, p. 57). It is my opinion that the learning ventures that have stayed with us over the years, are simply well learned topics that were presented by teachers who practiced successful forms of instructional design, probably without knowing the term. Each of us carries these changed behaviors as a product of either highly positive or negative, *embedded* (internalized) medals or battle scars of our own *experiences* in our learning path.

In my position as Media Center Director in the early-to-mid 90s, I established a small learning center and computer lab. During those years, and also the eleven years I've spent working with CBT and authoring issues, one of the most engaging things about my study of learning is that we ALL think about it in different ways. I believe this is because we all construct knowledge very individually — and internally. *Learning*, for me, is a very private endeavor. Our authors wisely point out that not all learning is a product of instruction, but that most learning happens without the additional structure of *deliberate* instruction. (p. 57).

Many times, in order to meet school standards or reduce the workload, the presentation of learning content is presented by means of a "by-rote" examination. This, to me, is almost the "checklist" manner of controlling content. The word *control* is fairly strong. I must admit that in many teaching situations, this use of a checklist may sometimes be useful and perhaps even necessary. By all means, we all have been exposed to the structure of knowledge presented in this manner. Although a checklist approach (and assessment) can clearly represent the content to be covered, can it truly represent REAL learning? Can a learner's successful (or lack of success in) performance of knowledge and skills really be made manifest in such a setting? From interacting with high school students in the computer lab, I don't believe this is the best way to approach instruction — or *learning*. In real life, we do not do things by checking things off, one by one. Most times, we hopefully adhere to a carefully planned list! But, it is a *flexible* list.

This, therefore, is my small metaphor to explain my thoughts on this chapter on writing objectives. Is a checklist needed for the *teacher* or for the *learner*? If excellent objectives are to be written, and if the goal is to help the learner to learn, then the ultimate checklist will not be one that mirrors rote and redundant bits of content — but objectives that

enhance and amplify ... the learner. In the ideal situation, the checklist is for the benefit of the learner AND of the teacher. This point-by-point method, therefore, demands the same level of importance for teacher or for student. What this shows, to me, is that learning is simply too complex to impute *simple* resolutions for teaching. What this means to each of us, as instructional designers, is that we join the effort to provide the simplest, yet most excellent avenues to *help the learner to learn*.

As we approach new projects, each situation will call for the writing of unique objectives. It is essential to remember that, while instruction is intended to provide the setting for learning, it does not *ever* provide the actual learning. This is because learning is done by each student. One of this chapter's strongest impressions was that the authors confirmed my above-mentioned belief that learning is "an internal phenomenon." Instruction, on the other hand, is a purely external event. (p. 57).

Defining "Learning" And Learning Outcomes

My entire computing experience has been in the arena of the emerging technologies of hypermedia. This is due to an early concentration on multimedia, authoring, and graphics. For this reason, I can only compare our current studies with what I have learned within this field. In attempting to define "learning" or "learning systems," therefore, I must stay within the realm of my own knowledge. On special occasions, certain tools are placed in our pathway, that truly become "bibles" to live by. Their importance and usefulness never lose their magnitude. David Jonassen and Heinz Mandl, editors of Designing Hypermedia for Learning, present us with one such tool. Although now ten years old (copyright 1989), this book was ahead of its time and holds immense truths for designing instruction during the very end of this century. A decade after its writing, this book is more of a list of prophecies that have come to be — as well as a map for what is yet to come. All papers in the book's collection were from the 1989 proceedings of the NATO *Advanced Research Workshop on Designing Hypertext/Hypermedia for Learning*, which was held in Rottenburg/Neckar, Germany. The primary purpose of the workshop was to discuss and develop possible solutions to problems in designing hypermedia for learning. (Jonassen & Mandl, 1989, p. 4). In my own experience, it is impossible to show a dividing line between instructional design and hypermedia and its place in learning. We have reached a point where ALL learning is closely tied with the Internet, with ... hypermedia.

When we consider all aspects of learning, using today's standards, it is quickly obvious that *interactivity* and *dynamic control* are prevalent in modern instructional design. As we seek to begin projects by identifying and writing meaningful objectives, it is my belief that we must consider first, the collaborative nature of *New Media* and this *Information Age* in which we now live. One extremely valuable aspect of hypermedia in learning, is that it permits the user to govern the sequence in which she or he will access information. It is also possible to add or revise information so that it is more personally meaningful, which is important for settings of collaboration. The learners can also put together and structure their own knowledge base. What is significant is that the learner is meaningfully interacting with and controlling the information in a dynamic and powerful way. (p. 7).

For our studies and professional undertakings, it is essential to realize the change that has taken place in the past decade. The "by rote" learning experience just does not hold much validity or usefulness for today's learner. Hypermedia, unlike most information systems, places the learner in a situation where they *must* be mentally active while interacting with the information. This is a far cry from a typical "checklist" system, and ultimately will provide the most ideal learning setting ... for learners AND for teachers.

Our authors show us that, in order to design instruction, one needs to define *learning outcomes* in a very precise way. The goal of writing excellent objectives derives from this. Our objectives then perform three important functions:

- They guide the instructional design process
- They provide a framework for evaluation
- They guide the learner.

(Seels & Glasgow, 1998, p. 59).

Again, we (as learners, ourselves!) are counseled to *define!* Already, from our studies, it has been shown that there are many conceptions of learning. Jonassen and Mandl list the descriptive theories of learning, which include cognitive or information processing, the behavioral theories, the cybernetic theories, and others. For our purposes in designing instructional systems, learning is thought of in terms of tasks or learning outcomes such as those proposed by Gagné, Bloom, or Merrill. When designing for a hypermedia environment for learning, there are three learning processes that should be additionally considered: information seeking, knowledge acquisition, and problem solving. *(Jonassen & Mandl, 1989, pp. 8-9).*

In my research for this writing, this is the point where all things became very confusing. This, in part, was resolved when our textbook authors stated that, "While taxonomies share certain general characteristics, it is difficult to make comparisons between any two of them. No two learning theorists break learning down into the same number of categories or the same types of learning." *(Seels & Glasgow, 1998, p. 60).* It then became very clear that I was back at my initial assessment of the chapter, which was: learning is internal and individualized. The goal of the instructional designer is not only to present an architecture for individualizing the learning setting in order to help the learner, but must also select the most appropriate way of categorizing each specialized agenda. For once, the expectation is not in abject standardization, at all costs — but engineering the appropriate setting, based on individual needs. This, for me, solidified many concerns for how I will continue to meld my love of the (now) global information base, with the more limiting descriptions for "instructional design."

Perhaps we are in need of a name change: "Selective Learning Environment Design."



Identifying Domains

Our course of studies at Nova lies primarily in the Cognitive Domain. Authors Seels and Glasgow show that Postlewaite, in 1994, stated that the cognitive taxonomy was important for instigating educators to emphasize higher order objectives, rather than "just learning the facts," which was the 1960s and '70s approach. This, then, allowed both curriculum and evaluation to expand their use of *objectives* beyond simple knowledge. (p. 61). After reading this, I was convinced that this stance held the seed for the modern standard, which is "the lifelong learner." Once the learner, by way of curiosity and a desire to learn MORE, is impelled or nudged into seeking more than simple knowledge, the learning setting has just undergone a massive change!

The Affective and Psychomotor Domains were also introduced in our reading. If we follow Seels' and Glasgow's definitions, it is obvious that the Nova Southeastern experience also deals with the affective domain:

"The taxonomy is ordered according to the principle of *internalization*. Internalization refers to the process whereby a person's affect toward an object passes from a general awareness level to a point where the affect is internalized and consistently guides or controls the person's behavior." (Seels & Glasgow, 1998, p. 62).

My research brought me to an expanded concept of domains and their part in our goal of writing objectives. Any given individual might have learning competencies and physical aptitudes that favor the content of one domain of learning over another. What is really important to observe, however, is that the content types just suggested "do not refer to subject domains but rather to *kinds of outcomes that are likely to occur within every domain*." In any setting, the learner will be called upon to attain a concept, learn the elements of an entity, discover a procedure, or comprehend a process. Instructional strategies are governed by these fundamental types of outcome. It really doesn't matter if a learner's strength is cognitive, affective, or psychomotor, when learning a concept within that domain still calls for the learner to have a definition, examples, and non-examples. It still calls for practicing the identification of previously undetected or unknown examples, in order to grasp the concept. (Merrill, 1998).



Writing the Objectives: The Essence is *Effective Communication*

Our textbook provides a very concise and simple instruction for writing objectives. We must first realize that objectives for a project come from the goals, which are our general statements of intent. To get to a point where we can derive objectives from goals, the designer uses a process for identifying the behaviors that are associated with the goals, and then effectively describes those behaviors in observable and measurable terms. (Seels & Glasgow, 1998, p. 64). When we choose the format for constructing the architecture of the learning tool, this is really another way of saying that we are choosing

the best way for making the desired behavior *explicit*. When the best format is chosen to state the objective, everyone understands not only which *behavior* is expected but also, the standards for success in accomplishing the objective. (p. 68).

A central issue, then, is writing objectives so that everyone understands what the learner must do, under what conditions the task must be done, and how well it must be done. (p. 69). This is a key concept in instructional design — where learning outcomes are described in terms of "observable student activity." Our authors advise us to focus on using *precise verbs*, and to construct statements that contain *unambiguous words*. (p. 66). My experience, both in the generalized world of computing as it pertains to communication, as well as in instructional design, is that these are simply good rules of order for EFFECTIVE COMMUNICATION. This indicates to me that often, products of instructional design that are NOT effective probably began with efforts that weren't in keeping with processes that lead to clear, uncomplicated, skilled human communication.

Unfortunately, if an examination is made of much of the current and available training materials, it would reveal that much of it includes instructional strategies that are *not* consistent with the goals of the instruction. Regardless of learner's styles, inconsistent instruction is ineffectual and unproductive instruction. (Merrill, 1998).



We Are Entering a New Paradigm

We, at Nova, are literally commanded to understand the elements of instructional design. It is my opinion that, as totally, or almost-totally Web-based participants in our own education, all online students at Nova are "inheriting" a healthy dose of understanding of the ISD process. It isn't necessary that every student chooses a career path in instructional design, but I think it is essential that we take these premises back out into our work places. In striving to learn the procedures for writing effective objectives, each student also prepares him or herself for attaching those same standards for ANY project that demands a list of goals or missions. This will include everything from curriculum development in any educational setting, to developing and maintaining large corporate projects. If we are to believe current projections that the distance-learning market is growing at a 25% annual rate in the United States (Stein, L. [1998, September], as cited in Griffiths and Gatien, 1999.) and that this is driving one of the most pertinent emerging growth sectors in the U.S. economy — the \$3.5 billion per year 'business' of post-secondary education (McClenney, K. M. [1998, August], as cited in Griffiths and Gatien, 1999.) (Griffiths and Gatien, 1999) — then it seems to go without saying that each of us will personally oversee some portion of relaying information to the next set of learners!

As I've stated before, in eleven years of computing, all of my experience has been in the area of Web-based structures and/or hypermedia. It was ten years ago that Jonassen and Mandl edited an almost prophetic book concerning the hypermedia environment for learning. Daily, Nova students immerse themselves in one aspect of this technology or another. Yet, there are many current concerns about the use of "behavioral objectives,"

which I propose are the strongest feature for describing the online learning environment. These proponents claim that there are many limitations in the "construction of knowledge" that is supposedly imposed by a predetermination of goals for students. They also focus on the resulting instructional design emphasis on teaching or delivery methods (computer-based). Our authors even point out that some educators take the stance that these problems cannot be resolved when an ISD procedure is used. Others believe alternate versions of the ISD paradigm are evolving, and solutions will be reached (*Seels & Glasgow, 1998, p. 74*). Jonassen and Mandl concur with the latter, stating, "There are at least three general approaches to structuring and developing hypermedia:

- Deductive — a top-down approach, with a content or expert's knowledge structure
- Inductive — a bottom-up approach, where the design supports verified patterns of access and use in navigation through unstructured hypermedia
- Instructional systems development — or, ISD, which is a systematic process for designing instructional materials."
(*Jonassen & Mandl, 1989, Pp. 21-22*).



The Effect of Variable Factors On Learning Projects

In this discussion, I have attempted to show that the effectively written objective is but a part of an understanding of the ISD process. Once all factors are taken into account, the objectives for any given project are also going to have an impact on the construction and completion of the project. My best personal example of this is my recent Web development project with Lucent Technologies. Starting with a scrutinizing task analysis, I was able to then determine goals for this task-based instruction manual. The list of written objectives was then derived from a compilation of necessary tasks and individual-based goals for learning. One thing that was not addressed in our text, however, was certain logistical factors, such as company budget. "The development of interactive training is a rigorous and costly activity when done correctly." (*Metcalfe, 1997, p. 3*). It is difficult, even impossible, to create a desired learning environment if financial factors are not considered when writing the objectives for the project. After studying this chapter, in fact, I am left with the feeling that much in the way of "ineffective instructional design" probably originated in goals not being met due to factors OUTSIDE of the actual learning content.

Current projections show that training class costs in a corporate setting average typically around \$300, per person, per day. (*Socrates Group, 1999*). The Socrates Group is a highly qualified, inter-disciplinary group of professionals who "work with MIS (*Management Information Services or Systems*) organizations throughout the U.S. and Canada, helping them chart a path through the turbulent waters of emerging technology." (*Socrates Group, About Us, 1999*). I have chosen an example from the corporate world, as it is that arena that drives these technologies, with the world of education that

(eventually) follows suit. It is believable, however, that we can gain an appropriate estimate for the costs involved in the construction of training systems, even for Education. My purpose here is to tie the writing of effective objectives within a broad but strong understanding of learning — to the sometimes over-riding features of cost-inhibitors. This, as instructional designers, will be a prominent part of our job requirements. The ability to factor in every bit of information will not only affect our abilities to write effective content, but will also determine if the project is even able to get off the ground.



Conclusion

ISD is a fairly prescriptive approach to designing materials. It IS founded in regulation and precept. Many critics feel that ISD and hypermedia are inconsistent, yet from the beginning of this writing, I've attempted to show that, in my eleven years of experience, they have actually been very closely tied. Moreover, they truly are mutually supportive. Because of the adaptable structure of hypermedia, almost *any* instructional design can be mapped onto the global knowledge base. Because of the collaborative abilities of many hypermedia systems, learners can become designers of instruction themselves! The gap between learners and designers is beginning to disappear. (*Jonassen & Mandl, 1989, p. 23*). This is part of the solution that is being adapted, and certainly will have an effect on our methods of writing objectives and structuring learning systems.

The impact of the Internet, of hypermedia, is certainly changing the way learners learn. It is demanding new and innovative methods for constructing settings in which we learn. The instructional designer's largest challenge, perhaps, lies in keeping up with new behaviors that will be expected out of the 21st Century learner — advanced learning outcomes according to domains, and being able to describe goals and objectives in ever-more-concise terms. For this year of 1999, our real world — and particularly our world of learning — will continue to be reshaped by the virtual world. (*Gens, 1998*).

The year in which we say goodbye to this millennium, we will also say goodbye to some systems and approaches over which we have had a part in making effective and positive changes.



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