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ABSTRACT

This paper offers a definition for the word "effective" and then discusses implications of research on the environment in relation to designing effective instruction. Similarities and differences involved in designing effective instruction are presented across four different contexts: K-12, higher education, human services, and corporate. The paper posits that the primary reason instruction and training fail to achieve intended goal(s) is due to instructional designers' tendency to overlook or underestimate environmental issues. With this in mind, it is suggested that environmental issues be thoroughly addressed before instructional designers proceed with the design process. A model of E=PxSxS (effective, product, stakeholders, setting) is used to frame the discussion about developing effective instruction or training. (AEF)

Essential Elements for Developing Effective Instruction in Any Setting

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Introduction

While there are numerous books, journal articles, and models of instructional design, few of these resources discuss the impact that environmental forces have upon decisions relating to instruction and training. There are forces within and outside of educational institutions, businesses, and agencies that play a significant role in decisions of whether or not to use instruction or training. Issues relating to government legislation, insufficient resources, incompatibility with societal goals, and lack of strong support can cause instruction or training to be ineffective. The importance and high cost of training and instruction point to a need for instructional designers to make certain that the end result is effective.

In this paper we offer a definition for the word *effective* and then discuss implications of research on the environment in relation to designing effective instruction. Similarities and differences involved in designing effective instruction are presented across four different contexts: K-12, Higher Education, Human Services, and Corporate. We posit that the primary reason instruction and training fail to achieve intended goal(s) is due to instructional designers' tendency to overlook or underestimate environmental issues. With this in mind, we suggest that environmental issues be thoroughly addressed before instructional designers proceed with the design process. Our views and model for designing effective instruction have been formed as a result of our experiences and from an examination of research and theory from a variety of fields.

Definition for Effective

The word *effective* has many meanings. Capable of producing a desired result or effect is one of its meanings. Similar definitions include "ready for service" and "prepared for use or action". We all know of people, ideas, and technological innovations that have the potential to accomplish a desired effect or result, but never advance past a state of readiness. An essential part of being effective is having the potential or the ability to achieve. However, this does not encompass the entire sense of the word.

Another meaning associated with the word *effective* is the actual production of an intended or desired outcome or result. Words related to this meaning include operative, working, and active. Emphasis in this meaning is on actual use for achieving results whereas emphasis in the previous meaning is on potential ability of someone or something to produce intended outcomes.

We believe that the definition for effective should include both potential and production. The definition, "producing or capable of producing a desired effect," found in both Webster's College Dictionary (1990) and The American Heritage Dictionary (1983) implies that a separation of two meanings is acceptable. Ability to perform without achieving the expected results is an ineffective use of time, talent, and other resources. Truly effective individuals, ideas, and innovations are not only capable of, but actually produce an intended or desired effect.

Application of Effectiveness to Instructional Design

When a request for training or instruction is received, most instructional designers conduct a needs assessment to examine gaps between current and desired human performance and gather information that assists with problem solution. If human performance deficiencies are identified, designers typically begin work to determine tasks and corresponding knowledge, skills, and attitudes to be included in the instruction or training. In essence, they jump right into planning a solution before considering many of the essential elements required to develop instruction that is effective.

Instructional design models, textbooks, and courses focus on the procedures and techniques for developing quality instruction, curriculum, and training. Unfortunately, this becomes the sole goal for most novice and even

some experienced instructional designers. No matter how well designed an instructional product might be, it is ineffective if it is never used.

Effective instruction and training should be the goal for all instructional designers. If our argument for an all-encompassing definition for effective has been convincing, then it should be clear that a well designed instructional product alone does not guarantee effectiveness. In addition to being well designed, effective training or instruction must be "operative", "active", or "working" to eliminate or at least reduce human deficiency problems. Based on our knowledge and experience, instructional designers are not adequately prepared with strategies to help ensure that the latter occurs. Educational institutions, human services organizations, and businesses are more likely to use instruction or training if certain issues discussed later in this paper are addressed.

Role of the Stakeholders and Setting in Instructional Design

Creating effective instruction or training requires instructional designers to perform tasks beyond the design of quality products. Almost all instructional and training products, from the most simple to the most complex, are designed to be used in a particular setting or environment. Therefore, instructional products must be appropriate for the setting in which they will be used. In addition, the implementation of instructional and training products is impacted by the stakeholders, people who can affect or are affected by its implementation. Many instructional designers underestimate the influence of stakeholders and the setting.

Examination of the role that stakeholders and the setting have in the instructional design process commonly begins and ends during the needs assessment. The possible causes of deficient performance can be attributed to lack of knowledge/skills, lack of motivation/incentives or environmental barriers (Harless, 1978; Rossett, 1991). To determine possible causes or contributing factors, the setting is examined for insufficient resources, deficient equipment, deficient process, conflicting demands/standards, and other flaws. Also stakeholders are consulted and observed to gather information concerning performance problems. If the setting is in order, instructional technologists rule it out as a possible cause of deficient performance. If the setting is flawed in some way, they make recommendations to fix it. In either case, most instructional technologists do not think further about the role that the stakeholders or the setting play in decisions whether or not to use instruction or training.

Organizational change theory has long noted the impact that events, resources, various people, and their power bases can have on whether an idea, product, or technological innovation is used in a setting. Many journal articles and books providing practical suggestions to help bring about change in elementary and secondary schools, colleges and universities or businesses can be found in the literature (Berman & McLaughlin, 1978; Fullan, 1982; Havelock, 1973; Havelock & Huberman, 1978; Mayhew, 1976; Rogers, 1995; Zaltman, Duncan, & Holbeck, 1973; Zaltman, Florio, & Sikorski, 1977). These publications offer good suggestions usually in the form of recommendations and guidelines, but the advice is not specific to instructional design.

Drawing on organizational change theory Diamond (1989) emphasized the importance of considering institutional priorities, faculty support, and other environmental issues in his development model. When designing or redesigning a course or curriculum Diamond (1989) suggests that instructional designers do the following:

> Before a project is begun, a number of factors must be consider: (1) how important the project is to the academic department, school, or college, and when appropriate, even to the institution, (2) how the project will be received by others, (3) whether the necessary support is available, and (4) if the required faculty commitment will be made (p. 21).

Although the Diamond model was developed for higher education, similar environmental impacts affect instruction in other settings. Instructional designers, regardless of the setting, should understand what environmental elements are likely to impact training or instruction and how they will affect it. This requirement for an understanding of environmental issues goes beyond the concepts and practices that are traditionally taught in the instructional design field.

Model for Creating Effective Instruction

Our experiences indicate that while well designed instructional products are an essential factor, usage is largely dependent upon the appropriateness of the instruction for the respective stakeholders and setting. Therefore, instructional designers, regardless of the setting, should understand and address elements that are likely to impact training or instruction. When issues relating to the setting and stakeholders are left unaddressed, the result may be losses of time, personnel, money, and other resources. Neither schools, universities, businesses, nor human service agencies can afford such losses.

A model of **E =PxSxS** will be used to frame the discussion about developing effective instruction or training (see Figure 1). Respectively, the letters stand for effective, product, stakeholders, and setting. The multiplication symbol is used between letters rather than an addition symbol because if any factor is missing the end product will be zero or ineffective. This model is generic in the sense that instructional technologists in any setting can use it. In addition, novice instructional technologists will find the model easy to comprehend, while most experienced designers will appreciate having guidelines and suggestions for addressing stakeholder and setting issues.

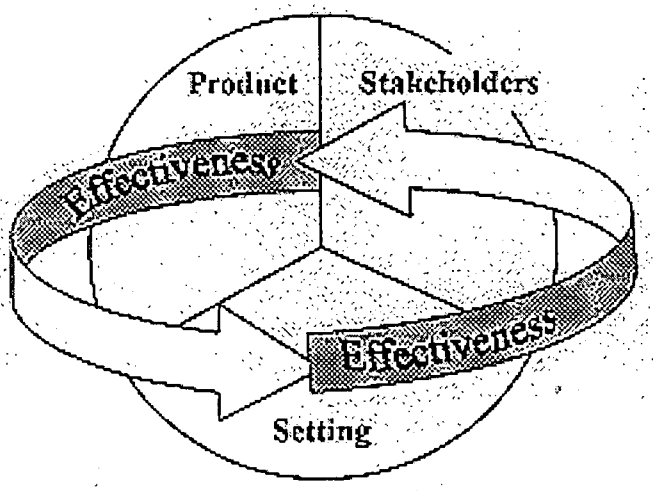

Figure 1. E=PxSxS: A Model for Designing Effective Instruction or Training

Product

With the rise of "quality" management programs, many organizations, including educational ones, have become more concerned about improving the quality of products at all levels (Rossett and Krumdieck, 1992). "Quality Products" in this sense means "fitness for use" or "conforming to specifications". Designers satisfy this standard by demonstrating credibility, striving for the "ideal" instruction, producing the promised deliverables, delivering instruction on time and within budget, and conducting formative and summative evaluations. The design and development of quality instructional products is the primary goal of many designers. Therefore, designers are well aware of the standards for achieving quality products illustrated in design models and discussed in texts and articles.

Suggested Questions Pertaining to Product

- Are the deliverables (products and/or services) appropriate and sufficient for addressing the deficiency problem?
- Do you or other team members have the necessary skills to design and develop the instruction or training?
- Has the developed instruction or training been field tested to see if it actually eliminates human performance deficiencies?

Stakeholders

Achieving commitment and support from stakeholders gets less consideration in the realm of instructional design than does the design and development of quality products. Typically, the designer gets a contract and jumps into designing instruction. Time spent on gaining the support of others within the institution or business is often forgotten until it becomes a problem. If commitment and support issues are dealt with early on it is believed that success and effectiveness will increase. Most instructional designers can relay horror stories of working hard on a project requested by an organization leader or decision maker only to find that half way through the project a powerful mid-level opinion leader or group of opinion leaders are not in support or agreement on the project. Part of addressing acceptance issues is paying attention to the top decision-makers and opinion leaders within the

institution. Winning the support of these people can mean the difference between a product that sits in a binder on a shelf and one that is torn and tattered from use. The designer should also collaborate with others, especially SME's (subject matter experts) and the intended recipients of the training. The input that SME's and recipients can provide will smooth the road toward implementation.

Suggested Questions Pertaining to Stakeholders

- Has the need and logic of the training or instruction been communicated to the stakeholders (people who can affect or will be affected by its implementation?)
- Is stakeholder participation sought, welcomed, and their advice used?
- Do key decision-makers support the instruction or training?
- Do the institution's opinion leaders support the instruction or training?
- Is union support necessary for the training or instruction to be conducted, and if so has it been received?

Setting

Analysis of the setting for which the instruction or training is being designed is often under emphasized. Setting refers to the physical environment, the culture, and the resources of the institution or organization. Setting can also involve such things as the technological, social, political, and economic conditions or trends.

Suggested Questions Pertaining to the Setting

- Do you have an understanding of the culture that guides the school, university, business, or other institution in which the instruction or training is intended?
- Can resources required for the training or instruction be acquired and/or developed?
- Are facilities, equipment, and other items necessary to conduct the training or instruction available when needed?
- Is the instruction or training aligned with technological, organizational, and societal trends?

The suggested questions are fairly comprehensive but may need to be modified to fit your particular situation. Based on our own experiences and interviews with colleagues we propose the following generalizations with regards to the development of quality products, identification of stakeholders, and issues involving the setting for the contexts of K-12, Higher Education, Corporate, and Human Services. These suggestions are based on preliminary discussions and will be backed up by more intensive research in the near future.

Our experience and investigation has led us to propose that in K-12 contexts the perception of quality concerning products hinges on relevance and applicability of the instruction or training in the classroom. When working in the K-12 context it is important to involve teachers, students, principals, and superintendents. Typically, K-12 teachers have to feel a sense of ownership before they will implement new lessons or other types of instruction in the classroom. To achieve this, their involvement is necessary at all levels of the design and development process. Finally, the K-12 setting poses some significant time constraints as well as possible physical environment issues, especially in elementary schools. If instructional designers are not sensitive to limited budgets and teachers' scheduling issues, their instruction will be ineffective because it will not be used. In Higher Education contexts we found that the perception of a quality product is often tied to the credentials of the instructional technology professionals and theoretical grounding. Some of the stakeholders who are important to involve include deans, department chairs, professors and students. It is also important to understand the culture of the environment, how people work together, and students' learning styles and preferences. Human Services agencies tend to equate the quality of a product with the emotional reaction of those involved as well as the relevance of the product to the needs of the agency. Diverse perspectives must be sought from staff and clients in order for instruction or training to be effective in this setting. Finally, the economic constraints and culture of the setting are very important to the success of training or instruction in Human Services institutions. The last context discussed in this concept paper is Corporate. Corporate clients usually need to see a change in attitudes, skills, or behavior to consider training or instruction effective. Many corporate clients take quality a step further and demand measurable results tied to the bottom line. Top management, unions representatives (if applicable), and the individuals affected by the training or instruction must be involved in the design and development processes. Finally, the culture of the corporate setting is extremely important. Instructional technology professionals must investigate the culture and economics of the setting if they are going to be successful.

Conclusion

Most instructional designers faced issues of product quality, stakeholder acceptance, and appropriateness for the setting. All three must be considered in appropriate detail if designers expect to be effective. The first step in producing effectively designed instruction is to follow a systematic design process such as those suggested by Gagné, Briggs, and Wager (1992) or Dick and Carey (1990). In addition to these systematic processes, designers should add to their repertoire of activities a more intense consideration of the stakeholders and setting for which the instructional is being designed. As educational institutions, businesses, and other organizations face increasing pressures to be more accountable for costs, instruction or training that fails to achieve desired results is looked upon with greater disfavor. A focus on quality along with stakeholders and setting issues will improve the probability of instructional designers' success with creating effective training or instruction.

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