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The purpose of this journal is to bridge the gap between theory and practice by providing reflective scholar-practitioners a means for publishing articles related to the field of Instructional Design.

JAID’s goals are to encourage and nurture the development of the reflective practitioner as well as collaborations between academics and practitioners as a means of disseminating and developing new ideas in instructional design. The resulting articles should inform both the study and practice of instructional design.

JAID is an online open-access journal and is offered without cost to users.

View this journal at:  
http://www.jaidpub.org

For questions contact Don Robison at drobi036@odu.edu
Welcome to the premiere issue of the Journal of Applied Instructional Design. We appreciate your visiting our new journal.

This journal is the result of the work of a lot of people who put in endless effort to make it happen.

First of all, we want to recognize Gary Morrison for developing the proposal and acting as the advocate for its existence. We offer our deep appreciation to the Association for Educational Communications and Technology and its board and staff for sponsoring this publication. If you are not already a member of AECT, please follow this link and join a great organization dedicated to the advancement of Educational Technology.

It is also important to note that while my name may appear as editor, without the significant help of my fellow staff, Willie Savanye, Don Robison, Ben Erlandson, and Jason Huett, this journal would not have happened.

If you follow the link About you will also see a great group of collaborators serving on the Editorial Board and as reviewers. I do not know if it really takes a village to raise a child, but it does take a community to build a journal.

This journal is an open source journal freely available to the world and is not limited to AECT members. Once again I encourage you to join this fine group of scholars and practitioners who in turn will continue to give life to this journal.

The mission of the journal, that is elaborated elsewhere, is focused on the role and relationships of the scholar-practitioner who continually make contributions that improve the practice and knowledge base of ID.

As our graphic design represents the circle of knowledge, we often start with a knowledge base full of theories and research, some out of research studies and equally important out of the reflection of IDers who use the ID approach to improve learning. That knowledge gets transferred into the application of ID, which leads to reflection of how we can improve or refine our existing knowledge of the field.

To quote a Tao reading,

After completion
Comes new beginnings.
To gain strength,
Renew the root.

Although as the journal matures, we expect many new enhancements to the journal and additional articles. Sharing of ideas and hopefully our commitment will further increase the value of the journal and thus our mutual contribution to the growth of the ID discipline.

We have assembled some excellent articles in this issue to get us started. We are most interested in receiving new submissions or ideas, which can only help to increase the value of JAID to you. Feel free to contact me at Leslie.Moller@Waldenu.edu with your questions or ideas as well as potential submissions.

Once again, welcome and I wish you peace

Les
2011 AECT International Convention

Celebrate 3.0: Design.Learn.Community
AECT's Annual International Convention
November 8-12, 2011
Jacksonville, Florida

This year’s convention theme is Celebrate 3.0:

**Design.Learn.Community.** The rapid evolution of Web 2.0 technologies has generated a level of communication and interaction never before possible. In response, AECT 2011 seeks to explore the transformational potential that these innovations hold for education, as well as share current research and best practices related to these developments.

**HIGHLIGHTS!**

**Tuesday, November 8** – Pre-convention Workshops, Bus tour to St. Augustine, the nation’s oldest permanent settlement, features magnificent attractions and historic landmarks at virtually every turn.

**Wednesday, November 9** – Pre-convention workshops, two-hour Walking Tour of Jacksonville, morning tours to the Sally Corporation, a Jacksonville-based company that specializes in animatronics. The Ritz Theatre and Museum which celebrates the rich legacy of Jacksonville’s African-American community. Opening General Session (4:45pm-6:00pm) and AECT Welcome Reception. (6:00pm-8:00pm)

**Thursday, November 10** – Breakfast with Champions, Concurrent Sessions, 2ND General Session, Affiliate Reception, Annual International Dinner and Auction,

**Friday, November 11** – Concurrent Sessions, AECT Member Meeting, Joint University Reception, AECT Party at the Landing, 8pm (still tentative)

**Saturday, November 12** – Concurrent Sessions, Post Convention Workshops, Tours scheduled to the World Golf Hall of Fame and the IMAX Theater, "or" a half day of shopping to the St. Augustine Premium Outlets.
INTRODUCTION

From the earliest days of educational technology and throughout the history of formalized instructional development up to the present, the question of what was being or what might be designed has hung as a backdrop to the conversation, seldom being addressed directly. Instead, the designed object of choice in any given period of time has tended to be understood, in terms of a prevailing design discourse, which in turn has been dominated by one or more prevailing philosophies. For example, during and after World War I, the emphasis was on the development of industrial job training, and public education courses that implemented reformist principles. The main terms of the discourse at that time were task, job analysis, and teaching method in the former case, and objective, measurement, and evaluation in the latter (Schrock, 1995; Kridel & Bullough, 2007).

This first discourse prevailed until after World War II, when the growing influence of behaviorism introduced a new discourse which included terms for mechanical devices, programs, and detailed strategic structures—frames, responses, reinforcements, and sequences. These became the objects of design. Similarly, as media studies took center stage, the media product itself became the object of design—the film, the filmstrip, the workbook, the synchronized slide-sound production, the self-instructional package.

In almost every case historically, as one prevailing discourse gives way to a new one, the terms, and therefore the design objects of the old discourse, are left behind. Progress in this kind of world is represented not by the accumulation of useful designed object types but rather by the leaving behind of old philosophies, discourses, and objects and their replacement with new ones. So at present, for example, the instructional design literature is not abuzz with new findings on programmed instruction and self-contained, self-instructional modules, but rather on findings on Web-based media forms of all kinds. The effect of this is that progress in design has not been cumulative, and designers still tend to be confined to a narrow range of product concepts which are determined by a prevailing philosophy. Moreover, the discussion tends to center on outward, media-related forms rather than on the inner dynamic of the designed thing.
The pattern of philosophy-dominated discourse and discourse-determined design objects continues to the present time, as evidenced by the claims made for “constructivist instructional designs”, which are inspired by the various views of the constructivist discourse and philosophy on the one hand and, at the other end of the continuum, self-contained direct instruction objects and methods inspired by the discourse and philosophy of direct instruction.

The notable exception to this has been the persistence of tasks, job analyses, objectives, measures, and evaluations from the very first discourse. The meanings of these designed objects have changed over time, and the details of their construction and use have been much elaborated, but as designed objects they still form a core of what is created during instructional design practice, though this tends to be true more in the area of direct instruction. In some areas of design even these are looked upon as relics of the past (mistakenly) associated with now less-fashionable behaviorist views and are therefore of less general interest. How long has it been since the last substantive academic publication on instructional objectives in a world gone mad about objectives?

One thought tool that has been missing for designers up to this point is a description of the broader conceptual contexts within which particular design objects occupy a place, relative to each other. Designers need a sense of the contexts within which numerous potentially useful designable artifacts from all discourses and of many kinds exist from which the designer may choose to satisfy specific purposes. Such contexts taken together would form the foundations of a design lexicon independent of different time periods and their discourses and philosophies.

Design contexts are dimensional spaces wherein different structural or architectural concepts of design radiate along some coherent dimension, producing a range of structural-functional patterns of things or objects which are designable. That is, different abstract forms would be placed along one or more continua, providing the designer a principled lexicon of architectural and functional types, giving what was before considered only in isolation a context that explains it, gives a rationale for its variations, and relates it structurally or in terms of purpose to other forms.

Design contexts consist of arrays of objects which populate a space defined by a principle of interest to a designer, for example, increasing complexity, increasing size, increasing formalism, increasing economy, or any other factor of interest to a designer in need of making a selection from the many possibilities. The objects inhabiting a design context are arranged along the dimension of value. A design context allows the designer to select the kind of thing to be designed from a range of object forms, each of which exhibits some set of structural or functional properties that suit it particularly for a type of service within real-world settings.

The consequence to designers of not having the concept of design contexts is that the designer is left without orientational terms with which to describe the kinds or variations of things being designed, their properties, and the rationale for having chosen one over another. Without design contexts, decisions about what to design can be made on the basis of what is easy or fashionable. In this state, the thing being designed can only be determined by the prevailing philosophical and discourse-related fashion. But today’s categories are certain to age and be replaced as fashion changes. At present, as philosophies fall in and out of fashion, designers have no principle for accumulating patterns of designed things in relation to each other, and designers have no meta-language with which to communicate with each other and with design team members to promote shared conceptions of what is being created. Without this tool for professional communication, the natural alternative is for designers to either re-invent new design terms with the new design team or else to converse in terms of design process, which is the prevailing state of things at present: design process dominates design conversation, design pedagogy, and design literature. With a little imagination, the prevailing lore of design process itself can be seen as a design context that is dimensioned by the principles of passing time and intermediate product forms.

This paper explores the concept design context and examines two examples of contexts taken from the literature of other design fields where the concept of design contexts has been introduced. The paper proposes that both of the described design contexts are suitable for the purposes of instructional designers without modification and that this opens to instructional designers a new kind of thought tool that allows: (1) more meaningful conversation in the abstract about the properties of designed things, (2) more productive discussions regarding product architectures during the early stages of designing, and (3) the possibility of constructing additional contexts which describe and
relate families of designed things. The design contexts described in this paper are Krippendorff’s trajectory of artificiality (Krippendorff, 2006) and Young’s levels of design (Young, 2008).

**Krippendorff’s Trajectory of Artificiality**

Krippendorff’s trajectory of artificiality (Krippendorff, 2006) is a design context whose main axis is defined in terms of social involvement and degree of commitment to involvement. Krippendorff, who is a design theorist and not an instructional designer, defines a continuum of user-centered design targets—kinds of “things” that can be designed—that ranges from low-social, low-commitment to high-social, high-commitment. At one end of Krippendorff’s continuum are artifacts which do not require personal commitment to social interaction. At the other end are artifacts that cannot perform their function without considerable social interaction and personal commitment. At the most distal end of the continuum lies the designable object through which social interaction within a design specialty is carried out—the discourse. Krippendorff’s trajectory therefore asserts both ends of the interpersonal and intercommittedness dimensions of designs. If designers want to increase the interpersonal value of instruction and the degree of commitment it demands from the user, they will focus toward the upper end of Krippendorff’s continuum.

As designers mature in their craft, they give new abstract structuring principles priority, while others become less important and therefore subordinate as priorities in design decisions. At different stages of a designer’s career, different sets of design purposes can control the structuring of a design, using different design constructs. This is evidenced in Gibbons’ (2010) description of the evolution in “centrism” in the thinking of most novice designers. Krippendorff’s trajectory implies that just as a designer’s vision of what is being designed can mature in strategic ways structurally, it can mature also in terms of the social and interpersonal commitment dimension.

Krippendorff’s “trajectory of artificiality” (see Figure 1) can be interpreted as “a trajectory of…design problems…each building upon and rearticulating the preceding kinds and adding new design criteria…extending design considerations to essentially new kinds of artifacts” (Krippendorff, 2006, p. 6).

![Figure 1. The Trajectory of Artificiality](From Krippendorff, 2006)
Krippendorff’s trajectory of design problems invites the designer to answer the question, “What kind of thing are you designing?” The trajectory describes a fault line between artifacts that are used by individuals in isolation with little sustained commitment and those that require social responsiveness and sustained personal commitment from the users. Krippendorff’s trajectory defines design problems in terms of their social goals: each type of problem defines a particular kind of social relationship between the user of the artifact and others. In this respect, Krippendorff’s continuum transcends traditional categories of designed artifact, especially for instructional designers, who commonly describe their artifacts either in terms of mediation (e.g., distance education, blended instruction, Web-based learning), enactment (e.g., simulation, role-play, tutorial), or instructional strategy (e.g., problem-based learning, direct instruction, apprenticeship, simulation). Krippendorff classifies design problems in terms of the degree to which the artifacts created bring people or technologies together in joint activity and by the level of commitment and participation required of them.

Table 1 provides a list of descriptors for each type of artifact on the trajectory. Krippendorff has given new meanings to some common terms (such as project) and has used them as category labels, so special care must be taken to note and remember Krippendorff’s definitions.

<table>
<thead>
<tr>
<th>TABLE 1</th>
<th>DEFINITIONS OF KRIPPENDORFF’S ARTIFACT CATEGORIES (From Gibbons &amp; Griffiths, 2010)</th>
</tr>
</thead>
<tbody>
<tr>
<td>KRIPPENDORFF ARTIFACT CATEGORY</td>
<td>KRIPPENDORFF DESCRIPTION</td>
</tr>
<tr>
<td>Products</td>
<td>• The end result of a manufacturing process • Designed according to producer’s intentions • Intended to be used in a particular way</td>
</tr>
<tr>
<td>Goods, Services, and identities</td>
<td>• Manufactured to be traded and sold • Meant to acquire exchange value • Qualities not of a tangible kind • Concerned with marketability • Possess symbolic qualities that encourage being acquired • Designed to appeal to diverse perceptions and local values • Consumer goods • Possible qualities: stability, dependability, reputation, values</td>
</tr>
<tr>
<td>Interfaces</td>
<td>• Human interfaces with technologies (computers, airplanes, power plants, automotive controls) • Create interactivity—action-response sequences • Create dynamics—changeability over time, endpoint seldom same as departure point • Create autonomy—Provide space for unpredictable action by user • Created to extend human action and amplify user’s mind • No “correct” usage patterns • Possible qualities: understandability, user-friendliness, transparently, reconfigurability, adaptability, intelligence</td>
</tr>
<tr>
<td>Krippendorff Artifact Category</td>
<td>Krippendorff Description</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>--------------------------</td>
</tr>
</tbody>
</table>
| **Multiuser systems/Networks** | • Coordinate human activities across space and time (traffic lights, wayfinding systems, signage systems, information systems, accounting systems, communication systems, telephones, computer networks)  
• Provide a place where people connect, form, and coordinate the activities of their own communities of interest or practice  
• Designers cannot control how the system is used  
• Provides facilities that allow users to organize themselves  
• Possible qualities: informaticity, accessibility, connectivity | • Educational systems (mentoring, some courses, graduate degree programs)  
• The Internet  
• Social software (Facebook, Twitter) |
| **Projects** | • Form around a desire to change something  
• Usually a knowledge goal or a cause involved  
• Require coordination of many people united in purpose (campaign, research, charitable action)  
• Purpose or goal may be mutable, may evolve  
• Require designer to address how to achieve cooperation among people  
• “Attracts” people  
• Involves language and a narrative (how, what, and when to change)  
• Must motivate commitment, coordinate contributions, direct activities  
• Designed by a group or by “the” group (not single designer)  
• Not controlled by the designer, controlled by stakeholder group  
• Designer suggests direction, provides space, shows possibilities, attracts resources | • Open learning  
• Charter schools  
• Reusable learning resources movement  
• Participatory design |
| **Discourses** | • Organized ways of talking, writing, and acting  
• Resides in community  
• Directs attention of community members  
• Defines “what matters”  
• Entails tension between reusing established forms and innovating  
• Place where new metaphors, vocabularies, discourses arise  
• Involves new ways of conceptualizing the world  
• Designers derive their identity from community  
• Possible qualities: solidarity, generativity, rearticulable | • Behaviorism, cognitivism, constructivism, all future –isms  
• The current movement to reconceptualize instructional design  
• All of the discourse communities in any professional field, but especially (for this paper) in instructional technology: threads defined as optional interests at professional conferences (gaming, reform, design, etc.) |
Young (2008) describes a set of "levels" of design "in order to improve the design practitioner’s ability to navigate the decision-making complexities of design projects." (p. 562). Young notes that complex problems stall because in reality the decision making required transcends the authority and competence of the design team. His design context defines levels of decision-making, implying that decisions pertaining to each level require a different expertise, authority, and forum of decision makers. At the same time, it also implies continuity among the levels supplied by the designer, who Young shows as the constant and unifying dimension among the levels.

Young's levels are based on the premise that "models of the design process should be more attentive to design content and context rather than just the process being followed" (p. 567). It is from Young's description that the term design context is borrowed. Young describes three levels: (1) "design at the level of product configuration and detail", (2) "design at the level of systems thinking", and (3) "design at the level of policy formation and ideology" (p. 570). He relates these levels by describing the first as design (of product) within a context, the second as designing context (the project), and the third as design the design of context (within which the project takes place). These levels, according to Young, allow the designer to decide whether to design within an existing set of resources and constraints or to attempt to modify them by either changing the project definition or by helping to change the context of policy, assumptions, expectations, and/or the goals of the larger social/political/economic setting that has vested interested (and perhaps sponsorship) in the solution of the problem.

Young describes the manner in which levels have been used to map design issues to their appropriate levels, making it possible for the proper design authority to deal with them. This allows the complexities of a given design project to be sorted in a more organized manner to the level of decision-making best equipped and empowered to deal with them:

"The model demonstrates that the best designs do and always have begun at the D3 [policy] level in order to have a meaningful affect [sic] on issues at policy and strategy forming levels of decision-making, despite the fact that clients, commissioners, and custom- ers or users of designs are seldom prepared to give permission to the designer or design team to operate at a level other than D1, i.e. the level of product detail and configuration (p. 572)."

The effect of applying Young's context should be that "the sphere of concern of the designer is enlarged; consequently D3 thinking around policy issues will become increasingly permissible for designers and design teams, enabling them to act beyond their existing sphere of influence." (p. 572). Young speaks of the "hierarchy to the structure of design problems" (p. 569), observing that cases have been studied where:

"Decisions had to be taken at different levels in the hierarchy at different times to progress the project and some important design failings were found to have been caused by difficulties in communicating information about the design problems and recognizing their true position in the hierarchy" (p. 569).

Young refers to a design context proposed by Archer (1987) which consists of levels of design decisions which include: (1) design at the level of decision, (2) design at the level of the product, and (3) design at
the level of the project. By joining Archer's and Young's design contexts together an even more comprehensive design context is obtained which describes additional levels of decision making that must be allocated to a decision maker working at some scope of responsibility and authority constraints.

Young has created a thought tool for determining the seat of decision-making for different levels of design decision and for determining those decisions which must be pushed to a higher level. This constitutes a valuable continuum of design considerations—one that in the past has created frustrations and lost time for designers attempting to firm up the bounds of a project so that productive work can move forward. Use of this design context allows designers to determine expeditiously the problems they can and can't solve and whether to escalate certain decisions or to work within the given project goals and constraints. At the very least, Young's design context makes designers conscious of potential barriers in moving projects ahead and provides a tool for dealing proactively with them. At its best, however, Young's design context creates for the designer a vision of a somewhat larger role which places the designer at the table where decisions are being made that influence the project, giving voice to the factors that will condition its environment.

Young points this out, saying:

...This model creates the potential to attend to the future better than the traditional concerns with products and artifacts. That is, it allows us to design the context rather than design within the context. This is of course a highly desirable state to achieve when dealing with complex and emergent social and business contexts, where existing professional thinking and practice struggles to understand the dimensions of complexity that are likely to present themselves in a future, real world context (p. 571).

Young describes how this brings design into a closer relationship with the larger concerns of society—one that reverses the historical isolation of design concerns of the past:

It lends itself to the this new opportunity for designing because it generates a new model of meaning and form that enables the design and the stakeholders involved in social contexts of complex change complex change to better comprehend and debate the levels of complexity and the relative levels of permissions that are appropriate for design processes to address them. The model is, therefore, a tool for facilitating design beyond the level of product, into the more complex level of systems and even more complex level of policy formulation with its attendant dynamics of social, economic, environmental, technical and political concern (p. 571).

**CONCLUSION**

These examples of design contexts share important similarities: (1) each begins to direct the attention of the designer away from a strictly product or process focus and toward a broader consideration of the designer’s role and the nature of the thing being designed, (2) each describes a trajectory of escalating qualities along a consistent dimension, (3) each broadens the scope of what the designer consciously undertakes to design, making it a thoughtful choice rather than a default choice, and (4) each leads to a set of useful abstractions about the nature of design or of designed things and relates them together in a way that rationalizes decisions about them. At the same time, the two examples are quite dissimilar. Krippendorff’s trajectory escalates along the dimension of social involvement, participation, and commitment as aspects of a designed artifact. Young’s escalates along the dimension of design process, placing into proportion the kinds of decisions that are addressed, or that might be addressed, by a designer.

What is important in the two examples presented is not whether they are agreeable to the judgment of the reader but the notion of design context of which they are examples. The importance of design contexts begins with the assumption that what designers think they are designing guides their choice of the design architecture and of the building-blocks they use in their designs. Not only do design contexts help to partition the design space so that design activities become more focused, but as designers think in terms of categories of designed artifact or categories of decision-making scope arranged along coherent dimensions, new design abstractions and structures suggest themselves, and innovation in design is a natural result. The broader vision of what is designed at a deep level leads to revising traditional surface categories, which in turn leads designers to ask and answer new design questions. These continua therefore represent bases for grounding not only the design rationale but the direction of design research as well.
References


INTRODUCTION

Over the past few decades there has been a strong movement towards education that moves beyond the simple rote learning common to the industrial age, toward meaningful learning suited for the information age (Reigeluth, 1999). According to Ausubel (2000), meaningful learning refers to learned knowledge that is fully understood by the individual and that the individual knows how that specific fact relates to other stored facts. Consistent with meaningful learning is the constructivists’ paradigm wherein individuals seek to make sense of their experiences from their own unique cognitive perspective (Ausubel, 2000; Duffy & Jonassen, 1992; Gredler, 2009; Mayer, 1999; von Glasersfeld, 1987).

FORMATIVE RESEARCH ON THE GOAL-BASED SCENARIO MODEL APPLIED TO COMPUTER DELIVERY AND SIMULATION

Chung-Yuan Hsu, National Taiwan University of Science and Technology
David Richard Moore, Ohio University

Abstract: For this research, we created an instance of the Goal-based Scenario (GBS) model called Statistics Specialist. The Statistics Specialist application was designed to attempt to implement the parameters and recommended attributes of a GBS. Formative research (Reigeluth, 1999) was employed to investigate the designed instance by using think aloud interview, debrief (semi-structured) interview, and a focus group interview. The result showed that a GBS might become a better instructional design model if improvements are made in these aspects: 1) provide worked examples, 2) employ small group work using open-ended questions, 3) provide detailed positive and negative feedback.

Authors may be contacted at moored3@ohio.edu.

The instructional problem of a superficial understanding still prevails in current education. Take statistics education for example. Many teachers and researchers perceive that students who pass a statistics class have a shallow and isolated understanding of foundational concepts and have difficulty applying these concepts to reasoning (Chance, delMas, & Garfield, 2004; delMas, Garfield, & Chance, 1999). These students may be able to do the necessary calculations but unable to comprehend the underlying process. Without deep comprehension, students in later classes tended to use a rote manipulation approach for statistical inference and were unable to interpret research studies accurately (Chance et al, 2004). This superficial or isolated understanding of foundational concepts is also known as “shadow learning”.

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Many educators seek solutions from technology to remedy the “shadow learning” problem. Bransford (2000) indicated that the use of simulations may “engage learners as active participants in their learning by focusing their attention on critical elements, encouraging abstraction of common themes or procedures (principles), and evaluating their own progress toward understanding” (p. 68). Simulations not only quicken the random and complex learning processes that may take a long time to display in the real world, but also provide opportunities to conceptualize and test ideas by experimenting parameters (Mills, 2004; Windschitl & Andre, 1998; Yu & Behrens, 1995).

In this study we have explored an instructional design model, Goal-Based Scenarios (GBSs) Schank, Fano, Bell, and Jona (1993/1994). GBS is a learning-by-doing model for using simulations to generate meaningful learning. In a GBS, students are responsible for pursuing a goal by practicing skills or gathering and applying relevant information to solve problems (Schank, Berman & Macpherson, 1999). These problems, selected by the designer to attract students’ interests, are moderately structured (Lohman, 2002); learners must work with the content and paths that are specified by the simulation, even though they are allowed to take a variety of paths to gather information and achieve their goal. During the simulation, instruction, worked examples, well-told stories by experts, or other resources are given to learners to assist them in completing the task (Schank et al., 1993/1994). A GBS ends when a learner completes the task specified by the simulation.

<table>
<thead>
<tr>
<th>TABLE 1</th>
<th>COMPONENTS OF GBS MODEL</th>
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</thead>
<tbody>
<tr>
<td><strong>Learning Goals</strong></td>
<td>Learning goals are target skills that a course designer or instructional designer wants students to learn. They have two different categories: process knowledge and content knowledge.</td>
</tr>
<tr>
<td><strong>Mission</strong></td>
<td>The mission is an interesting, realistic, and motivational task for the students to pursue.</td>
</tr>
<tr>
<td><strong>Cover Story</strong></td>
<td>The cover story is rationale that creates the need for the mission to be completed and offers learners sufficient opportunities to search information or practice skills.</td>
</tr>
<tr>
<td><strong>Role</strong></td>
<td>The role is the character the user plays in the cover story. It should be a role that is appropriate to practice the necessary skills or use the knowledge in the scenario.</td>
</tr>
<tr>
<td><strong>Scenario Operations</strong></td>
<td>The scenario operations are all the activities that students do in the GBS in order to complete the mission. They can be anything that the designers think will promote students’ comprehension. The scenario operations also include decision points together with positive or negative consequences as reinforcement.</td>
</tr>
<tr>
<td><strong>Resources</strong></td>
<td>Resources provide information that students need in order to acquire the target skills or content knowledge to complete the mission successfully. Resources in a GBS have two types. The first type is well-organized information such as text, video clips, narration, graphics, or other materials that are accessible to students. The second type of resource is stories that are embedded with lessons.</td>
</tr>
<tr>
<td><strong>Feedback</strong></td>
<td>Feedback as a consequence of action and delivered primarily through expert’s stories.</td>
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</tbody>
</table>
CHARACTERISTICS OF GOAL-BASED SCENARIOS

The purpose of a GBS is to teach skills in a context that is simulated to present a real-life environment in order to help students index relevant information, make predictions, and create explanations for the various phenomena taking place around them (Brown, Collins & Duguid, 1989; Schank et al., 1999). A GBS model consists of seven components: learning goals, mission, cover story, role, scenario operations, resources, and feedback (Schank et al., 1999). Table 1 reviews these elements.

Despite evidence that supports the effectiveness of using the GBS model (Bell, Bareiss, & Beckwith, 1993/1994; Campbell & Monson, 1994; Iverson & Colky, 2007; Naidu, Ip, & Linser, 2000; Schank et al., 1993/1994; Schank et al., 1999; Schoenfeld-Tacher, Jones, & Persichitte, 2001), no empirical studies have investigated strengths, weaknesses, or possible improvement of the GBS model. Thus, our purpose was to evaluate the GBS model by answering following questions:

1. What are the strengths and weaknesses of the GBS model?
2. What improvements can be made?

To answer these questions we used formative research. Formative research is a qualitative methodology designed to improve instructional design models (Reigeluth & Frick, 1999) by creating an instance designed by following theory. Our instance was designed according to the GBS model and modified based on a series of user trials.

<table>
<thead>
<tr>
<th>TABLE 2</th>
<th>FRAMEWORK OF STATISTICS SPECIALIST</th>
</tr>
</thead>
<tbody>
<tr>
<td>FEATURES OF GBS</td>
<td>STATISTICS SPECIALIST</td>
</tr>
<tr>
<td>Mission</td>
<td>Teaching students the concept of sampling distributions.</td>
</tr>
<tr>
<td>Cover Story</td>
<td>Accurately advising the client.</td>
</tr>
<tr>
<td>Role</td>
<td>Client is a new employee working on a shrimp farm. His boss is currently trying a food supplement to accelerate the growth of the shrimp. In order to see how this supplement works, the boss wants him to monitor the growth of the shrimp, particularly, measuring the average weight of shrimp weekly.</td>
</tr>
<tr>
<td>Scenario Operations</td>
<td>Serving as a statistics specialist to client.</td>
</tr>
<tr>
<td>Resources</td>
<td>Asking the expert for relevant information, running simulations or watching worked examples to verify the ideas.</td>
</tr>
<tr>
<td>Feedback</td>
<td>Experts’ explanation about the relevant concepts and prerequisite knowledge, worked example, and simulations.</td>
</tr>
<tr>
<td></td>
<td>Receiving positive or negative feedback after advising client.</td>
</tr>
</tbody>
</table>
Table 3 demonstrates the look and feel of the *Statistics Specialist* GBS instance.

**TABLE 3  **STATISTICS SPECIALISTS SCREEN SHOTS

| INTRODUCTION PAGE |  
|---|---|
|  
| ASK THE EXPERT |  
|  
| REPORT FINDINGS |  

**DESIGNING THE INSTANCE**

We created *Statistics Specialist* to teach students sampling distributions and evaluate the application of the GBS model. Reigeluth and Frick (1999) emphasized that “the design instance should be as pure an instance of the design model as possible” (p. 639). They suggested that researchers include components of the model and avoid those that are not called for by the model. This is related to construct validity. Table 2 indicates how *Statistics Specialist* was designed based on the framework of the GBSs model. As seen in Table 2, scenario operations consist of two approaches: expository and discovery. The former refers to the function of asking the expert; the learner asks the expert questions and the expert offers explanation. The latter refers to running the simulation; the learner follows the guideline to perform a simulation so that they can figure out how the target ideas develop.

We began by interviewing subject-matter experts to gain an understanding about issues related to learning sampling distributions. Interview results were analyzed and provided valuable ideas and suggestions for design of the instructional program. Additionally, we consulted the literature on statistics instruction to
could either choose to “Run the simulation” or “Ask the expert” (Figure 1). In the “Ask the expert” section, users could choose questions to ask an expert and, once clicked, a video clip would play to deliver the instruction. In the “Run the simulation” area, learners could decide either to watch a worked example first or to try the simulation.

We revised the design problems based on participant suggestions from two pilots and then sent the introduction of Statistics Specialist to Roger Schank (personal communication, February 23, 2009),
who proposed the GBSs model. His reply message indicated that, while small in scope (time on task), Statistics Specialist generally addressed the fundamental specifications of the GBSs model.

Collecting evidence

Once we had a working prototype of the instance we recruited participants (ten college students with a little or no prior statistical knowledge). They were recruited through poster advertisements. Participants were between 18 and 40 years old came from five different majors across the university.

During the treatment, we employed think aloud and observation methods gather data. Two computers were set up for observation. The first one was installed with Statistics Specialist and screen capture software to record the screen while participants used the program. In addition, an unobtrusive video camera was set up to allow observation of participant’s facial expressions without intruding. We recorded all spoken comments to insure thoroughness of data collection. After treatment, participants took a posttest and then we asked additional interview questions. A second data collection session was conducted with all of the participants in a focus group.

FINDINGS

STRENGTHS OF GBS

Learning Goals

The statement of learning goals was identified as a strength. Participants indicated that they wanted to learn statistics in order to conduct research or read research papers. They seemed to be motivated in Statistics Specialist when the learning goal resonated with their need to learn. This finding supports Knowles, Holton, and Swanson’s (2005) adult learning theory proposing that “adults need to know why they need to learn something before undertaking to learn it” (p. 64). They are more motivated to learn if they perceive that learning will help them perform tasks or solve problems that they may encounter in life situations (Knowles et al., 2005). In fact, goals influence performance through four mechanisms (Locke & Latham, 2002): 1) directing attention and effort to goal-relevant activities, 2) having an energizing function, 3) affecting persistence, and 4) indirectly affecting action by leading to arousal, exploration, and strategies. From this perspective, the statement of learning goals in Statistics Specialist seemed to be effective.

Mission

The learners identified the mission as a source of motivation that gave them a sense of investment necessitating that they acquire requisite knowledge before advising the client. This finding is in agreement with the perspective of Schank et al. (1993/1994) proposing that the main responsibility of the mission is to encourage a sense of investment in the GBS. It appears that when learners have ownership over some aspect of their GBS experience, they are engaged and driven to complete the mission.

Cover Story

Participants felt that the cover story provided a story line that connected the mission and other components as a whole. Furthermore, offering a story that included prompts for user questions provided varied opportunities to learn target skills and knowledge. Some participants indicated that the cover story (shrimp farming) made the conceptual application of sampling distributions more concrete and applicable, demonstrating how they could actually apply the information in real-life.

In addition, participants identified the questions asked by the client as a motivational way to generate inquiries and drive them to seek relevant information. This finding supports Jonassen’s (1999) claim that in any constructivist learning environment, questions that students attempt to solve will drive learning. Meaningful learning begins when one generates inquiries and tries to make sense out of learning materials (Mayer, 2002). Further, learners are more motivated to learn when the problems prompted are situated in natural context (Brown, Collins and Duguid, 1989).

Role

Participants expressed the view that helping the client was a good source of motivation that prompted them to give the client the most accurate answers they could. Still others indicated that assuming the role of the specialist seemed to set up a standard for them to meet. These findings support theoretical claims that role-play allows the development of role expectation and promotes engagement in learning activities (Nikendei, Zeuch, Dieckmann, Roth, Schäfer, Vökl, Schellberg, Herzog, & Jünger, 2005; Van Ments, 1999). As indicated by Resnick (1998), participation of role-playing activities enables students to ‘dive in’ mathematical and scientific phenomena and
to develop relations with the knowledge underlying the phenomena.

Scenario Operations

Participants mentioned that it was practical and helpful to run scenario operations together with questions prompted in the cover story, and that it seemed a natural approach to deal with daily problems. This finding supports Schank and Cleary’s (1995) natural learning theory in which learning is achieved through a process of adopting a goal, generating a question, and developing an answer.

Additionally, results showed that learner control was helpful in terms of allowing them to select their preferred resources, keep their own pace, and repeat sections where they felt unclear. Some participants reported that learner control satisfied different learning styles. When asked about their own learning styles (self identified independent learners tend to explore information first by themselves while learning something new, whereas self identified dependent learners are inclined to receive instruction first), those who claimed dependent learning styles tended to prefer using “Ask the expert”; the only one considering herself an independent learner liked to use “Run simulation.” The dependent learners revealed that they selected “Ask the expert” since the video clips could walk them through the concept, instead of trying to figure out by themselves.

The ability to control learning not only enabled the instructional system to be adapted to the users’ preferences and cognitive levels (Merrill, 1980), but also facilitated students’ knowledge construction and development of self-regulatory skills (Scheiter & Gerjets, 2007).

Resources

Nine out of ten participants identified resources as the most helpful component to promote their understanding of sampling distributions. They agreed that the resources were concise, clear, and accomplishable with reasonable effort and felt that the content was broken down in a simple-to-complex sequence, which played an important role in the quality of the simulation (Reigeluth & Schwartz, 1989). Some participants felt that with support from the resources, they gained more confidence in answering the client’s questions. This finding supports the theoretical claim that scaffolding can promote cognitive self-efficacy (Van Eck, 2007).

Feedback

After providing accurate advice to the client and receiving feedback, some participants gained a certain degree of encouragement and confidence. Even the feedback they received while offering wrong advice still influenced participants’ emotions and motivated them to review the relevant information. The combination of learning goal with timely feedback seems to produce an emotional engagement that enhances the learning activity.

Achievement Confirmation

A good way to investigate the effectiveness of a GBS model as a whole is through an evaluation of participants’ understanding. Posttest results showed that participants’ performance and confidence levels increased. In addition, most participants could offer an explanation with only slight errors when given an open-ended question during a debriefing interview. These results provided additional support that the GBS model worked well.

Improvements in GBS: Changes

Based on data analysis results and reported weaknesses and suggestions, we decided that each component in GBS, except learning goals, needed to be modified, as follows, in order to improve the model.

Mission

The data revealed that participants experienced stress while performing the mission in the beginning of Statistics Specialist since they did not know much about the concepts yet. This finding is related to Bandura’s (1986) claim about self-efficacy. He described that people tend to spend time thinking about how they perform while starting a task. Those with a strong sense of efficacy attend to task challenges and generate a competent attitude toward incoming scenarios, whereas those with a weak sense of efficacy focus on personal deficiency and generate negative attitudes toward any challenge.

According to Reeve (2005), a possible way to increase self-efficacy is to empower people through self-efficacy training that employs a mastery modeling program in which an expert shows learners how to deal with the problems that lowers their self-efficacy. We found that adding worked examples to the Statistics Specialist improved self-efficacy among our participants.
Role

The role was the least helpful component in GBS according to three participants during the debriefing interview and five during the focus group interview. Many of whom reported that they did not take on the role while using Statistics Specialist. Research (Aldrich, 2005; Rollnick, Kinnersley, & Butler, 2002; Swink, 1993) has shown that role-playing activity may form barriers for some students, especially adults, who for various reasons may be unfamiliar or unwilling to buy into the experience. In this study, the reasons for not assuming the role could be attributed to two factors: overlook and refusal. The former described participants who paid more attention to the acquisition of knowledge and little to assuming the role. The latter described participants who felt that they knew nothing about the concept yet, so did not consider themselves to be a specialist.

Both issues are probably due to inadequate introduction. In Statistics Specialist, we merely displayed a short description and then played the video clip of the cover story, hoping that the participants could ‘dive in’. Apparently, this was an insufficient stimulation for participants’ involvement in the role play. Researchers (Vallius, Kujanpää, & Manninen, 2006) have pointed out that playing a role could be a learning process and through these experiences, role-playing ability might be improved.

A solution for these two problems was to provide a video clip modeling the role-playing behavior as well as instruction that introduces the ideas for which the role play was designed to support. This may allow users to be acquainted with the operation of the tutorial in the beginning of usage.

Scenario Operations

No participants pointed out any weakness in the scenario operations. Although while examining the participants’ test results, we found that the use of multiple-choice questions in “Advising the Client” seemed less challenging for the participants and promoted rote learning (Ausubel, 2000).

Scenario operations, according to Schank et al. (1999), should be constructed with decision points that either signify successful completion of the mission or failure. Learners acquire targeted knowledge when the mission is achieved. An investigation of test results showed that on average, participants correctly answered 90% of questions in Statistics Specialist. During the interview, some participants said that those questions were uncomplicated. However, although participants performed well when answering questions within the GBS program and during the posttest, more than half were unable to offer an accurate explanation when answering an open-ended question during the interview. Similarly, they could correctly answer the questions in the multiple-choice retention examination, but failed to offer a sound reason for the options they chose when asked to write a justification.

The usage of a multiple-choice examination in Statistics Specialist may have promoted shadow learning. For example, when we asked a participant why he did not run the simulation, he replied that “I retained that information well, so I didn’t see the need to try it on my own.” Similarly, when another participant was asked to predict the shape of the sampling distribution for a given sample size and population, we found that he could only recite the rule, stating “More than thirty it would be normal is what I’m retaining” but he still couldn’t explain the reason. The finding supports Scouller’s (1998) study in which students were inclined to employ surface learning strategies and motives in the multiple-choice examination context and to perceive this type of examinations as assessing factual information (lower levels of cognitive processing).

Students who used superficial learning approaches tended not to perform well on the retention test. According to Ausubel (2000), rote learning may not result in the acquisition of any meaning and its retention may not last long. Possible remediation included adopting small group usage and promoting reflection with open-ended questions. There is no specific prescription for assessment in GBS, though most GBS studies employed multiple-choice examinations. Given the lack of definitive assessment protocols, we suggest two ways to facilitate students’ engagement in a GBS:

1. Have two students work in a group and encourage discussion. This idea is based on social constructivism that encourages learners to not only collaboratively construct knowledge but also to support each other (Jonassen, 1999).
2. Design a field below each question and require learners to write an explanation. The purpose here is not to evaluate the correction of answer, which is still a challenge for instructional designers to do through computer-based instruction, but to allow them opportunities to reflect on what they have acquired. It is possible that students may provide unrelated or inaccurate answers, but at least they
are prompted to retrieve information, organize it, and interact with activities.

**Resources**

While the data did identify resources as the most helpful element, the results also suggested changes that consisted of reducing information overload and supporting doing. First, participants expressed confusion about the terms they learned in the tutorial; some were newly acquired and some they learned previously, but had forgotten. Collectively, the terms imposed a large information burden. Offering a glossary or hot linked terms in the application to remediate this problem may be an appropriate approach since it not only allows learners to alleviate ignorance about a concept, but also quickly review the concepts already taught (Murray, Piemonte, Khan, Shen, & Condit, 2000).

Another information overload issue was demonstrated by one participant who felt distracted while reading text instruction and performing the simulation in “Run simulation.” A possible solution would be to replace text instruction with narration and allowing users to control each step they read. This suggestion is related to a modality effect that students understand narrated explanations and pictures more effectively than on-screen text explanations (Mayer & Moreno, 2003). Another participant recommended offering a summary in each video clip in “Ask the expert” section. Summary information was included for some clips, but not in the first two of the client’s questions, which were two that the participant watched. She further indicated that a summary would be helpful to reduce information overload. This finding supports the theoretical claim that providing a summary encourages learners to focus on relevant information (Mayer, 1999). GBS, when implemented with computer simulations, should follow Mayer’s recommendation.

Second, resources need to support doing. Participants in *Statistics Specialist* were provided with control over resources, which fulfills the constructivist ideal of individual knowledge construction (Duffy & Jonassen, 1992; Jonassen, 1999). The problem with this approach is the variability of how learners utilize specific resources, which may not be the way designers would like them to be used.

Despite the simulation’s capability to provide an excellent visualization of the abstract process of generating sampling distributions, most students still refused to use it. According to an investigation of the time spent on *Statistics Specialist*, participants tended to use “Ask the expert” more than “Run simulation.” We designed the simulation because of evidence from numerous studies supporting the usage of simulations in statistics learning (Chance, Ben-Zvi, Garfield & Medina, 2007; Chance & Rossman, 2006; delMas et al., 1999; Garfield & Ben-Zvi, 2007; Mills, 2004). However, the participants’ preference to “Ask the expert” seemed to work against the intent of a GBS.

Schank (2002) stressed, “In any case, listening should come after difficulties in doing rather than in preparation for doing” (p. 229). The usage of simulation in teaching sampling distribution underlies the idea of learning by doing.

A possible approach to remediate this problem is redesigning other GBS components, such as the cover story, role, or scenario operations, that intentionally limit usage in order to support doing-related activities that the subject experts consider critical, for example, within *Statistics Specialist*, when a user selects “Ask the expert”, the expert could direct explanation to the usage of simulation and provide narration with step-by-step guidance.

**Feedback**

The results showed that some participants identified feedback as the least helpful element in GBS, since it merely told the consequence of actions without offering any informative information. The feedback in GBS can be given in any of three ways (Schank et al., 1999): through the consequence of actions, through online coaching with just-in-time support, and through video clips in which domain experts tell stories of similar experiences. Because of limited resources, feedback was provided by displaying consequences of actions in our GBS. The purpose of showing learners the consequence of their choices, especially negative consequences, was to give them opportunities to reflect on their experiences and construct their own knowledge. Schank et al. (1999) explained that:

> Once you experience an expectation failure, explanations become important. They form the lesson that you learn from the expectation failure. When something does not happen the way you planned, you need to figure out why that is. The reason will help you to abstract a lesson that you can apply to your expectations in the future (p. 171).
The participants in this study seemed to prefer direct guidance telling them what went wrong and what information to look at, which may hinder opportunities to reflect on their experiences and interact with learning materials. Further, it may merely promote the memorization of key facts rather than reviewing the material to gain a sound comprehension. Conversely, it is possible that brief feedback telling them that they are wrong may frustrate learners. As recommended by a participant, a possible solution for this dilemma is to display a hint describing which concepts to focus on. Another participant pointed out that positive feedback would be more helpful if it could recapitulate the critical concept in the question. This suggestion supports the theoretical claim that students can concentrate on the relevant information if summary is provided (Mayer, 1999).

CONCLUSIONS

The purpose of this study was to evaluate the GBS instructional design model by examining its designed instance, Statistics Specialist. We were able to confirm many of the strengths and identify areas for improvement.

The strengths of a GBS included: 1) learning goals that enabled learners to see their learning needs, 2) a sense of investment due to a mission that engaged students in the learning activity, 3) a cover story that provided a context and problems to enhance students’ engagement in the program, 4) a role that increased users’ motivation through a title that the role inherits and through the aid of the client, 5) scenario operations that satisfied learning control and different learning styles, 6) resources, indicated as the most helpful element, that promoted understanding, and 7) feedback that gave learners confidence and the perception of negative discrepancy that triggered further learning.

A GBS might become a better instructional design model if the following improvements are made: 1) provide a worked example or instruction that demonstrates the behaviors of using the program and seeking supports in order to increase the user’s sense of self-efficacy while pursuing the mission or assuming the role, 2) employ small group usage and open-ended question approaches to promote learners’ engagement and interaction in scenario operations, 3) carefully integrate other components in GBS to support hands-on activity, 4) display a hint with negative feedback and recapitulate the concept in positive feedback.

The ultimate goal of a GBS is to provide guidelines designing a simulated context that helps students take advantage of the software features and promote conceptual understanding. Although some weaknesses were identified in this study, these tentative recommendations were limited to the subject domain. More studies with other instances of GBS need to be conducted in order to confirm and refine the findings of this study.

Recommendation for Practitioners

One strong recommendation emerging from this study is to spend more time identifying methods that support and engage learners in doing-related activities. Learning by doing, the core tenet of a GBS, works “because it strikes at the heart of basic memory processes that humans rely on” (Schank, 2002, p. 5). However, evidence both from the literature and this study showed that it is challenging to involve adult learners in simulations.

Although role playing in a GBS allows users to learn by participating, making mistakes, and challenging themselves, practitioners should provide appropriate guidance to facilitate students’ engagement. Evaluation plays an important role in a GBS and should be provided with some way to allow learners to generate cognitive dissonance so that they can retrieve, organize, and construct knowledge. Finally, since a GBS instructional system begins with teaching a small concept that learners have difficulty conceptualizing, it is essential to select a reusable concept for software design. By doing this, future tutorials may be linked to previous ones, which saves time and effort.

Recommendations for Future Research

1. Additional research should investigate how students’ learning styles influence their usage of an instructional instance. What kinds of learning styles tend to engage in the tutorial? And how can a GBS be modified to satisfy learners with different learning styles?
2. Pretests should include items that assess students’ prerequisite knowledge to learn whether this knowledge influences their learning activity. In this study, although fundamental information about sampling distributions was offered in the program, some participants still expressed confusion and overload among these concepts, which may affect their usage.
3. Future studies should examine different usage of a GBS instance, such as working in pairs. The intent
is to observe whether the strengths of social constructivism can be gained through collaborative simulation performance.

4. Since participants in this study were graduate level students, additional case studies should design and test an instructional instance using GBS with similar content and difficulty, but with undergraduate students.

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In the town of San Lucas Toliman in rural, western Guatemala, a series of free training workshops were provided for 34 public and private school English teachers in collaboration with the Fundacion Rigoberta Menchu Tum (FRMT). Teachers were invited to participate in 10 months of Internet-based English curricular training modules with free Internet services hosted at the FRMT’s secondary vocational school. Of the 34 teachers, 19 initiated coursework, and only 5 completed it in spite of the training having no financial cost for the participants. To better understand this paradox from the perspective of potential learners and the constraints they were facing, a study was undertaken integrating principles of the ADDIE instructional design model with the participatory rural appraisal (PRA). A research based design and processes for derivation of findings on interactivity with the target audience at all stages of the research effort were used to discover why the instructional design model used in the training modules was not effective in engaging teachers.

Using Chambers' participatory rural appraisal (PRA) methodology (1998), the study’s findings indicated steps for expanding and improving online curricula to match local needs. This methodology is surprisingly appropriate for encouraging community involvement in the research process, yet is also appropriate for the development of the teaching modules. The PRA methodology relies fully on local input to identify research and curricular needs to increase sustainability and sustained diffusion of technological innovations. The focus of this article is to provide an in-depth look at how the PRA methodology was employed to obtain

USING CHAMBERS’ PARTICIPATORY RURAL APPRAISAL TO FOMENT SUSTAINABILITY IN TEACHER ENGAGEMENT WITH ONLINE LEARNING IN GUATEMALA

Douglas Tedford, Fundación Rigoberta Menchú Tum, Walden University
MaryFriend Shepard, Walden University

Abstract: Chambers’ participatory rural appraisal (PRA) methodology was used to analyze the Internet usage and engagement of 34 teachers in western Guatemala, employing culturally sensitive teacher interviews and local educators to interpret findings and propose solutions to its use. The PRA methodology empowers rural sectors of developing nations for community-driven development, incorporating research methods of their choosing for resolution of locally identified practical challenges. Manageable steps for implementing the PRA are described. The use of PRA for successful instructional design and implementation in developing nations was discussed as a means to affect positive social change.

Keywords: community-driven development, curricular design, design-based research, developing world, developing nations, distance education, Guatemala, indigenous, instructional design, online learning, participatory rural appraisal, PRA, rural, social capital, teacher education
information from interviews of teacher participants that would not only inform improvements in curricular planning for the FRMT’s online English program, but would successfully engage the participants’ long-term commitment to promote the program’s success and to inform its curricular design, development, and dissemination.

The PRA facilitated local analysis of how to define and approach the study’s central issue by selecting an audience with high stakes in its success, both at the instructional and at the decision-making levels. This relied on the input of a culturally sensitive native speaker/interviewer, whose participation was integral to selecting specific processes and settings for interviewing the teacher participants. The PRA also required local decision-making for setting up a safe and productive environment to evaluate interview data and render findings. Jointly by local educational leaders, teacher interview participants were able to anonymously render interpretations of their collected input in a gathering known as the permanent group interview (PGI). In this setting, the approach of the PRA to integrating the audience in the evaluation of the findings improves the sustainability of the decision-making process about instructional design and implementation.

A COMMUNITY’S SENSE OF URGENCY FOR PROBLEM RESOLUTION

While working with the teachers onsite and online, the researcher’s wife and daughters concurrently volunteered their time teaching English in group classes for the community. With aid from the IT staff, they also assisted in teaching basic Internet skills to the English teachers at the FRMT’s Community Technology Center, located on the school’s campus. Learning English and computer technical skills are two major priorities for area teachers and students as prerequisites for employment in many settings. Demonstrated mastery levels in English are a requirement for admission to state and private institutions of higher education. Like many of Latin America’s underclass people, rural Guatemalan English teachers face multiple barriers to engagement in online education resulting in continued and deepening inequities in educational opportunities for teachers and students. Earning just $200 a month on average, they lack personal resources to pay for Internet usage or teacher education. With scarce access to telephone land lines, electricity, and satellite dish technology, teachers need connections to a telecommunications infrastructure on par with metropoli-

tan areas, or they will continue to fall behind with the education of children to a greater degree. Isolated from the ICT culture of large cities, they need orientation from experts in order to feel comfortable with the Internet. The provision of free Internet usage to the English teachers via the FRMT’s community technology center seemed to be a plausible solution because of their remote location.

Of 34 teacher participants in the face-to-face training sessions, 19 elected to register for the 10-month, free, online course for English Teachers. Halfway through the course, 11 teachers had continued course involvement, but only 5 completed the course. Literature mirrored this reality. Foth attested that provision of “a community of place,” (2003, p. 14) such as a community technology center does not guarantee usage [of the Internet]. Few research studies have addressed any aspect of Internet usage including online education in developing nations. Creed and Joynes (2005) attributed this to “poor dissemination, limited research skills and constrained resources.” This study addressed an unmet need, cited by Kowch, to apply social capital theories for improving online teacher education in the developing world (Lorenzetti, 2004).

PARTICIPATORY RURAL APPRAISAL (PRA)

The use of social relations in networks of trust can generate willpower for local change in rural sectors of the developing world. This was found to be the central, governing concept of community-driven development (CDD), a process which emphasized empowerment of rural developing nation communities to synergize for the purpose of creating plans to resolve self-acknowledged challenges. Principles of CDD have been emphasized increasingly in rural development policies of the World Bank and other non-governmental organizations (NGOs) since the 1990’s. Principles of CDD were designed to build leadership among those who were directly affected and to inculcate lasting social changes by increasing ownership of decision-making through deemphasizing traditional authoritarian change structures or invasive research practices (Dudwick, Kuehnast, Nyhan Jones, & Woolcock, 2006; Woolcock, 2002). Concurrently, new approaches to research interventions in developing nations have emphasized participation in communicating about and controlling for change in ways which increase the potential for permanency and diffusion through social relations (Bessette, 2004; Gonsalves, 2005; Grenier, 1998; Van Bavel, Punie, & Tuomi, 2007).
Uniquely linked to social capital research was the recommendation by Woolcock (2006) for incorporation of Chambers’ participatory rural appraisal (PRA) methodology (1998) to study how individuals in bonding (close associate), bridging (expert help), and linking (extra-societal supports) relationships could support the resolution of problems identified by members of rural developing nation communities. Considerable research had been conducted using the PRA for resolution of environmental and agricultural issues in rural communities of African nations (Bessette, 2004; Gonsalves, 1998). Durston (2002) and Fazio (2007) both pointed out, in descriptions generally similar to many developing nation rural social systems, that rural Guatemalans rely heavily on social ties for group agreement upon methods for resolving problems in rural communities. Woolcock directly advocated the PRA, a methodology oriented to community-driven development, for this same reason in rural Guatemala (Dudwick, et. al, 2006).

In order for the results of such a study to foment lasting change in practices tied to teacher Internet usage in San Lucas Toliman, it was necessary to select a research approach which validated the norms and values of community-driven development, making the input of local leadership endemic to the research plan and its implementation (International Bank for Reconstruction & Development, 2007, para. 1). As suggested by multiple sources the study needed to deflect its focus from issues of improving Internet access to questions of how to improve Internet usage (Crump & McIlroy, 2003; Foth, 2003) and it needed to integrate learning about the effect of social capital for enhancing teacher involvement with ICT (International Bank for Reconstruction and Development, 2007a; Lorenzetti, 2004). Compatibility of such an approach was found in the PRA (Chambers, 1990, 1992, 1994, 1998) which had been previously employed to study interactions between rural indigenous groups developing nations, including Guatemala (Dudwick et. al., 2006; Ibanez, Linder, & Woolcock, 2002)

The PRA is known as “a growing family of participatory approaches and methods that emphasize local knowledge and enable local people to make their own appraisal, analysis, and plans...to enable (entities) to work together to plan context-appropriate programs” (International Bank for Reconstruction & Development, 2007c, para. 2) Use of the PRA was found to eliminate distortions of data collection and findings (Chambers, 1998) which could result from cultural differences between developed and developing nations (Laungani, 2005), and to support culturally-meaningful styles of collecting and evaluating data. The PRA foments community-driven identification of problems and involves the community in devising methods, conducting data collection, interpreting data and developing solutions to be implemented locally (Gonsalves, 2005). PRA is also a strategy that would be effective in instructional design for Guatemalans as they gain input and ownership into the proposed courses.

Chambers presented the key values of utilizing the PRA:

1. Enable realities and priorities of poor and marginalized people to be expressed and communicated to policy-makers
2. Enable trainers to facilitate attitude and behavior change
3. Make normal bureaucracies more participatory
4. Build self-improvement into the spread of participatory methodologies
5. Enable people with power to find fulfillment in disempowering themselves. (1998, pp. 1-2)

Chambers attributed Brazilian educator Freire’s Pedagogy of the Oppressed (1971) as the inspiration for the PRA, contributing to “the idea that it is right and possible for poor and marginalized people to conduct their own analysis and take action” (Chambers, 1998, p. 2). When this occurs for instructional design, the final product is more likely to be adopted by the people for whom the instruction is intended.

The Rapid Rural Appraisal (RRA) is a culturally-invasive, quick, and Western-biased assessment process also developed by Chambers (1990). In contrast to the RRA, its predecessor, the PRA places the power for identification of the study question, development of inquiry strategies, and synthesis of findings directly under control of communities who have identified a problem to be resolved. As such, the PRA bears a powerful transformational potential for improving ICT practices of rural communities. The PRA was employed to examine the influences of bonding, bridging, and linking social capital upon decisions of rural Guatemalan English teachers to utilize the Internet for sustained online professional development. The research questions were tied to interview questions designed by the culturally-sensitive native interviewer and addressed teacher concerns about using the Internet,
teacher satisfaction with Internet resources, and social influences upon Internet usage.

Grenier laid out 31 distinct processes which could be employed under the umbrella of participatory rural appraisal. As the subject matter of much investigative work under PRA has been in the areas of agriculture and the environment, some of these processes were not considered for this study. Those remaining were the following (sub-headings inserted by this researcher):

**Recording of Data by Participant, Delegate, or Researcher:**
1. Participatory diagramming
2. Wealth and well-being matrices
3. Daily activity profile
4. Venn diagram
   *Interviews:*
   1. Types, sequencing, and chain interviews
   2. Permanent-group interviews
   3. Key probes
   4. Futures possible
**Analysis:**
1. Shared presentation and analysis
2. Field report writing
3. Self-correcting notes
4. Review of secondary data (Grenier, 1998)

From these processes, three activities were selected in order to triangulate measurement of teacher attitudes and thereby minimize distortion of their input.

The PRA might be carried out over time or during a short time frame. In PRA the researcher is designated to oversee the investigative process but acts solely as a facilitator of data collection and data analysis, emphasizing the opinions and priorities of respondents. Semi-structured interview questions were found to be a key characteristic of the PRA, which in contrast to open-ended questions, allowed input from respondents to lead questioning in any direction of their choosing (Chambers, 1998). Some researchers questioned this practice (Hirschmann, 2003; Kapoor, 2002), but proponents of the PRA recognized it as essential for assuring that input of respondents is self-directed (Gonsalves, 2005; Grenier, 1998). With rural, indigenous people, it is essential that their input is sought and included in planning, implementation, and evaluation of the teacher education.

While World Bank researchers cited focus group discussions as an ideal setting for discussing social capital influences (Dudwick et al., 2006), Bessette (2002) pointed out that some individuals might want to maintain complete anonymity about their opinions, and might not speak up in a group setting. This might be due to gender, employment relationships, or other factors. Grenier preferred to recommend, in place of focus groups, which might include participants previously unknown to each other, the holding of permanent-group interviews (PGIs) (1998). PGIs could form the sole basis for implementation of the PRA or could be realized as complements to other PRA data gathering activities. It was also generally recommended that PGI discussions should not precede other PRA processes, to avoid group determinations of what other community respondents could contribute in individual settings. This also meant that PGIs should not be allowed to become a brainstorming or complaint session, but should be made as a culminating event for finding patterns in the data obtained and interpreting implications of the same, with the focus of generating recommendations for improvement of a program or a process. In the case of the proposed study, this would entail discussions of action steps for improving usage of the Internet by teachers.

**COMMUNITY-DEVELOPED FINDINGS**

For implementation of the PRA methodology the researcher took the role of facilitator. A locally culture-sensitive native speaker recast the interview questions into comprehensible segments and took charge of the interview style and process. Facilitated by the researcher, the culturally-sensitive native speaker molded open-ended interview questions to match Spanish proficiency levels of the indigenous teachers participating in the study. Two to three direct questions, succinctly-phrased, fulfilled the intentions of each of the original interview questions. Following is a list of the original interview questions, which were segmented by the culturally-sensitive native speaker into chains of shorter and simpler questions in Spanish:

**Interview Question 1**
Tell me about the influences which caused you to become a school teacher, and the concerns you have experienced regarding use of the Internet for professional development.

**Interview Question 2**
Tell me about people who you turn to for help, skills, or guidance to persist and achieve your goals for teaching and for using the Internet.
Interview Question 3
What grade levels and subjects do you teach and how necessary or useful do you perceive using the Internet at the Pavarotti school for enhancing your school teaching? How often do you use the Internet for professional development and what are the fundamental reasons for this?

Interview Question 4
Tell me who you turn to for help, skills, or guidance to persist and achieve goals using the Internet for professional development, or if you are more of an independent learner.

Interview Question 5
How much of what you achieve in the classroom is due to using the Internet, and how prepared do you feel to apply what you achieve in the classroom? How useful do you think the Internet will be in the future to you and to teachers like you in other locations?

The interviewer used a digital recorder to elicit responses from 20 teachers in a purposive sample. Interviews were held in a variety of locations, including the FRMT conference hall, cafeteria and kitchen, local school classrooms, living rooms, and the interior of a van. In each case, the researcher sat close by, taking notes, being careful not to interact with the teachers. The purposive sample was assembled according to four levels of online participation, from zero to full completion of coursework, as shown in Table 1:

At the end of each series of interviews, usually each evening, the native-speaker interviewer collaborated with the researcher to transcribe the interviews into written Spanish and reproduce significant responses onto cards which were color coded as attitudes, professional goals, and social influences. These themes aligned with the original research questions. After completion of the 20 interviews and preparation of the response cards, the synthesis of responses into study findings began. Led by a respected, local community administrator, 42 local educators met in a PGI at the conference hall of the FRMT on the campus of the Centro Escolar Luciano Pavarotti “Utzilal Tijonikel,” to derive findings by prioritizing the response cards and defending their perspectives in small group discussions and whole group presentations.

No one in the PGI meeting revealed his or her identity as interview participants. This allowed all present to discuss the issues objectively and free of the fear of sanction. Findings were synthesized uniquely and wholly by the processes which the members of the PGI developed and implemented. Each of five randomly assigned groups approached the objective of prioritizing and synthesizing key interview responses in very different ways. Some pasted all the responses on their poster. Others were selective, and some derived and recorded their conclusions independently. Although available for clarification upon request, the researcher never intervened in the organizational process which was led and managed by the local community of educators.

| TABLE 1 | CHARACTERISTICS OF 34 TEACHERS INVITED TO ENROLL IN A 26-WEEK ONLINE COURSE |
|---------|--------------------------------------------------|------------------|-----------------|
| Sub-Group Size | Course Completion | Participation Level | Sample |
| 5       | Yes                | Consistent         | 5               |
| 6       | No                 | Consistent, then dropped out | 5               |
| 8       | No                 | Logged on once or twice only | 5               |
| 15      | No                 | Never logged on    | 5               |
Findings indicated that interest in engaging the Internet and receiving specialized introductory support (bridging social capital) in groups (bonding social capital) was high. Salary level (linking social capital) and family time demands (bonding social capital) were barriers to attending a community technology center or Internet café. Access to ICT experts (bridging social capital) and to ICT infrastructure (supported by linking social capital) at the FRMT’s community technology center significantly reinforced local educator support for the design of online coursework leading to salary points and college credits.

APPLYING THE PRA TO RESOLVE ISSUES OF ONLINE ENGAGEMENT IN A DEVELOPING WORLD

Following is a review of key steps in planning for implementation of the PRA to resolve issues tied to instructional design and/or ICT usage in a rural, developing nation setting:

1. Community members identify an instructional design and/or ICT issue to be resolved.
2. Researcher agrees to collaborate with community for design and implementation of a study, and then using the PRA methodology develops research and interview questions.
3. Researcher removes self from the traditional researcher role, becoming a facilitator, available for questions and guidance upon request.
4. Culturally-sensitive native speaker fashions segmented interview questions based on original, western-style interview questions.
5. This native speaker conducts interviews in a style and format which is comfortable and appropriate to the participants. Participants are drawn from a purposive sample.
6. The culturally-sensitive native speaker transcribes interviews. The facilitator identified key concepts and themes from the interviews for presentation to the community forum. The native speaker and facilitator record the key concepts on color-coded cards. Both reproduce color-coded cards for small group use.
7. Both assemble small group reporting materials. Both meet with community leader to set up process which will be followed during the PGI.
8. Community leader gathers local educators. Community leader directs meeting, and process of deriving and reporting findings and next steps.
9. Researcher provides resources for celebration to culminate the PGI.
10. Community leader plans and manages follow-up activities for conversion of PGI findings into innovative, sustainable, and uniquely effective social action to resolve an instructional design and/or ICT challenge.

This study was the first of its kind to explore the influences of social capital upon teacher online learning in a developing nation setting (Lorenzetti, 2004). Providing educational opportunities for teachers in rural Guatemala via the Internet and digital learning experiences or in a face-to-face setting requires that teachers have ownership of the process. These communities lack the resources of metropolitan areas, and attempts at utilizing the Internet for improving the educational system have not been effective. The PRA provided an approach that brought the perceptions and insights of teachers to the awareness of community leaders. As the members of the community forum analyzed the teacher input and developed a plan of action for the use of the Internet in teacher education, an unusual benefit was received by all parties. Instructional design that builds on the values and beliefs of these teachers may be the only way to effect social justice and positive social change in these rural communities. PRA provides a framework that may ultimately lead to education that can effect a lasting change because of the ownership it provides to its participants.

The PRA method was the ideal choice for involving a community in a developing-world setting in pinpointing the need to improve the ongoing involvement of its English teachers in an English teaching curriculum project. In interviewing teachers who apparently resisted the program, and in deriving findings in an interactive community meeting (PGI), an effective methodology for effecting positive social change regarding the diffusion of an instructional intervention was identified. In spite of the free online English learning resources that were made available to the group of 34 teachers, most rejected the offer due to cultural and temporal impediments. The use of PRA supported the improvement of the curricular program and methods for delivering it with community support. Without the support factors necessary to get teachers to consistently attend online classes, the best curricular plan would be inadequate and not implemented. The PRA findings integrated cultural factors for informing instructional expectations with social factors to en-
hance the implementation and adoption of a new instruc-
tional design including online learning modules
customized to their needs.

The PRA not only improved the quality of the
research process from problem identification to find-
ings and conclusions, but for this instructional design
problem in rural Guatemala a momentum was created
for technological diffusion of teacher education mod-
ules. In a region previously unaccustomed to free
online learning opportunities, the PRA created an ac-
ceptance commonly only found among those with ade-
quate buying power for acquisition of required ICT
hardware. Since the completion of the evaluation phase
during the PRA, multiple recommended changes by
the community have been implemented. Among these
are (a) uniting of the English teacher learning modules
with other free instructional opportunities under the
FRMT’s Campus Virtual (current enrollment 105), (b)
the expressed support of the Guatemalan government
for expansion of the FRMT’s online services, and (c)
the commitment of partial funding to develop the Uni-
versidad Maya en Linea (Mayan Online University)
with free offerings for teachers in rural areas of Latin
America.

The FRMT’s English language training
courses for rural Guatemalan teachers following the
use of the PRA to create an implementation plan was
successful. A sustained cycle of analysis and evalua-
tion of an instructional program by key members of the
audience, led to its adoption with expanded compo-
nents. The PRA enabled community “buy-in” that re-
sulted in additional communities being involved in the
teacher modules. Bringing online English teacher
education to a remote sector of the developing world
has blossomed into a series of decisions and actions.
Because local educators made decisions that were im-
plemented, they now recognize the value and future
potential of utilizing a new curricular model for free
online teacher education. In a world where the concept
of sustainability too often stops short at considerations
for developing financial, temporal, and human re-
sources, the PRA methodology was shown as a dy-
namic force for sustaining human commitment at local
levels, and for developing and using a new curricular
model.

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Essay:
IN SEARCH OF THE SECRET HANDSHAKES OF ID

Ellen Wagner, Sage Road Solutions, LLC

Practitioners and scholars working in the professions clustered near the intersection of learning and technology have struggled to clearly and precisely define our practice for a long time - almost as long as technologies have been used to facilitate the creation, production, distribution, delivery and management of education and training experiences.

As a professional group, instructional designers -- IDs -- often bemoan the fact that it is hard to tell “civilians” what it is that we actually do for a living. Ironically this inability to clearly describe our work is one of the “secret handshakes” that unites us in our quest to better define our professional identity.

One of my favorite examples of this definitional challenge was described in a recent blog post by Cammy Bean, vice-president of learning for Kineo, a multinational elearning production company:

You’re at a playground and you start talking to the mom sitting on the bench next to you. Eventually, she asks you what you do for work. What do you say? Are you met with comprehension or blank stares? This was me yesterday:

Playground Mom: So, what do you do?

Me: I’m an instructional designer. I create eLearning.

Playground Mom: [blank stare]

Me: ...corporate training...

Playground Mom: [weak smile]

Me: I create training for companies that’s delivered on the computer....

Playground Mom: weak nod..."Oh, I see."

I see that she really doesn't see and I just don’t have the energy to go further. I’m sort of distracted by the naked boy who just ran by (not mine). We move on.

Is it me? Is it the rest of the world?


AECT has actively supported work on the definitions of big overarching constructs that offer people working at the intersections of learning and technology with a sense of identity, purpose and direction. Lowenthal and Wilson (2007) have noted that AECT has offered definitions in 1963, 1972, 1977, 1994, and 2008 to serve as a conceptual foundation for theory and practice guiding “The Field.” But they wryly observe that our definitional boundaries can be a bit fluid. For example, after years of describing what we do as “educational technology,” Seels and Richey (1994) made a case for using the term “instructional technology” as the foundational, definitional descriptor. Januszewski and Molenda (2008) returned us to the term “educational technology” as being broader and more inclusive. All seemed to agree that the terms educational technology and instructional technology are often used interchangeably. In discussing these implications for academic programs, Persichitte (2008) suggested that labels - at least the label of educational technology or instructional technology - do not seem to
matter very much. And yet, I wonder - without precision – do we not contribute to the confusion about what it is that people like us actually do??

And what about this thing we do called instructional design? That seems to be an even harder domain to adequately define and describe. A definition of instructional design offered by the University of Michigan (Berger and Kaw, 1996) named instructional design as one of two components (the other being instructional development) that together constitute the domain of instructional technology. Instructional design was then further described in the following four ways:

**Instructional Design-as-Process:** Instructional Design is the systematic development of instructional specifications using learning and instructional theory to ensure the quality of instruction. It is the entire process of analysis of learning needs and goals and the development of a delivery system to meet those needs. It includes development of instructional materials and activities; and tryout and evaluation of all instruction and learner activities.

**Instructional Design-as-Discipline:** Instructional Design is that branch of knowledge concerned with research and theory about instructional strategies and the process for developing and implementing those strategies.

**Instructional Design-as-Science:** Instructional design is the science of creating detailed specifications for the development, implementation, evaluation, and maintenance of situations that facilitate the learning of both large and small units of subject matter at all levels of complexity.

**Instructional Design as Reality:** Instructional design can start at any point in the design process. Often a glimmer of an idea is developed to give the core of an instructional situation. By the time the entire process is done the designer looks back and she or he checks to see that all parts of the "science" have been taken into account. Then the entire process is written up as if it occurred in a systematic fashion. [http://www.umich.edu/~ed626/define.html](http://www.umich.edu/~ed626/define.html)

Ten years later, Reiser & Dempsey (2007) defined instructional design as a "systematic process that is employed to develop education and training programs in a consistent and reliable fashion" (pg. 11). They noted that instructional technology is creative and active, a system of interrelated elements that depend on one another to be most effective. They suggested that instructional design is dynamic and cybernetic, meaning that the elements can be changed and communicate or work together easily. They posited that characteristics of interdependent, synergistic, dynamic, and cybernetic are needed in order to have an effective instructional design process. In their view, instructional design is centered on the learned, is oriented on a central goal, includes meaningful performance, includes a measurable outcome, is self-correcting and empirical, and is a collaborative effort. They concluded that instructional design includes the steps of analysis, design, development, implementation, and evaluation of the instructional design.

During the years I worked as a tenured ID professor, I was a true believer. I was proud to serve on two AECT definitional committees. I strove to make the linkages between theory and practice, process and product clear and easy to understand for my students and in my work products. I ensured that my students were exposed to the theoretical underpinnings of learning, cognition and instruction. I made sure they understood that media selection was contingent upon the analysis of the learner, the learning, and the conditions of learning. I considered definitions as noted in the previous paragraphs as robust, defensible, researchable aspects of the discipline. And then I left the academy – I left my life as a tenured academic behind to pursue commercial ID adventures at the time when the phenomenon known as the “dot.com” was starting to explode.

As a commercial instructional designer and supervisor of teams of instructional designers creating digital learning content and courses, I more often found myself driven to meet a timeline, stay within a budget, respond to the needs of a range of stakeholders, making sure that the assets being produced were attractive, compelling, standards-conforming, and industry-relevant. Many of my sponsoring stakeholders – that is, the people with the power to buy instructional design services - wouldn’t have known a learning solution if it bit them on the toe. Frankly, they really didn’t care about learning. They really didn’t want me to tell them about the gloriousness of ID. But
they were all exceedingly aware of the consequences for not getting a workforce sufficiently trained to support a new product launch or to respond to a new regulatory requirement. Shockingly, the beat that drove so many to push technology mediated learning in amazingly innovative directions in those days had far less to do with learning than it had to do with being able to bring “innovative technology solutions for learning” to market. In other words, it had a lot more to do with code strings than constructs, more to do with products rather than processes. These developments offered the object lesson that theoretical foundations guiding the study of the evolution of a field can be awkwardly out of alignment with the evolution of a professional practice, particularly one so directly affected by the speed of technological change.

As we fast-forward to the current day, the good news is that there has never been a time where demand for IDs has been so high. Sites such as Instructional Design Central list job after job, noting that “Instructional design jobs and eLearning jobs are abundant. They are available in various government, higher education, K-12, non-profit, and business sectors. Instructional design jobs are in high demand as organizations are turning towards instructional design professionals to solve business performance problems and to provide rich learning opportunities.”

http://www.instructionaldesigncentral.com/htm/IDC_instructionaldesignjobs.htm#

The not so good news is that the alignment between preparation and practice has continued to bifurcate. Many of the things that academic instructional design programs prepare people to do are not necessarily the same set of skills that employers look for when hiring an instructional designer. According to some observers and industry analysts engaged in enterprise learning and talent management, a majority of today’s working IDs do not come to the practice with formal instructional design education. Data tracked by the eLearning Guild, an international community of practice of eLearning designers and developers who claim ID as the foundation of much of their work, indicates that the more a learning intervention depends on technology, the more likely it is that practitioners engaged in the work come from technological and design disciplines rather than from ID graduate programs of study. More than 2/3 of working IDs responding to the open question asking ID practitioners how they came to the practice that appears on Cammy Bean’s blog site report that they do not come to the practice from graduate ID programs. Instead, they come from creative professions (e.g. artists, designers, producers). They became IDs when assigned with learning and development responsibilities. They are the IT professional who is put in charge of the enterprise LMS. They are the training manager who gets put in charge of the new eLearning – mobile learning – game based learning – virtual world learning – initiatives that the enterprise wants to explore. Technical acumen – absolutely. Learning acumen - not so much.

Job descriptions for today’s IDs have a strong expectation for people with good communication skills and very strong technical skills. Today’s working IDs are technical writers, screen writers, video producers, project managers, budget manager, evaluators, graphic artists, graphic designers, experience designers, interface designers, web designer, content authors, scripters, coders, analysts. They develop Captivate and Camtasia movies. They know a .swf from an .flv, and can produce a virtual webinar on any number of web platforms. They administer blogs and wikis. They can program in Actionscript 3. Administer an LMS or two or three. Metatag content so that everyone in your organization can find it. Create videos. Develop apps. Evaluate the impact of a performance support initiative in your workplace. Manage a project. Soothe a client’s ruffled feathers. Develop a bottom’s up budget and staffing plan. Trouble-shoot the network. It can be a scary place for people who have only cursory exposure to the creative digital production skills required to adequately use the software tools du jour.

I expect that there are some faculty members among us who will look at these lists and examples somewhat dismissively. Yes, many of these are concrete operational tasks and production skills. There is no emphasis on learning theory. There is no emphasis on instructional theory. There are no assessments. These are not the things that graduates of academic ID programs typically expect to do. IDs with graduate degrees are prepared for different, higher level activities: selecting heuristics from among a range of learning and instructional theories to establish a foundation for designing an effective learning solution. Writing measurable, observable instructional objectives, developing valid and reliable assessments, conducting content analyses and learner analyses based on empirical evidence. Creating a shared collaborative experience and documenting its impact. Conducting formative and summative evaluations.
I say what I am about to say as a reflection, not a criticism: I do wonder how many of us could actually do the jobs that the people we purport to prepare in our programs get hired to do. I wonder if we continue to serve “The Field” by not actively exploring more and better ways to bridge the growing gap between our preparatory programs, our practice, and our practitioners.

As a case in point - how many of you actively participate in events like SXSW? South-by-Southwest is a music, film, multimedia, video game, new media, design, trend-setting, opinion-leading festival that is THE place to be if you have aspiration of “being somebody” in the design, media, and entertainment industries. I’m sure you have probably seen the news stories, blog posts and many tweets from the technology, media film, and music industry cogniscenti who descend upon the City of Austin, Texas during this two week spring gathering. Amazing energy; Lots of young designers, producers, entrepreneurs. Lots of digital media experiences. For better or worse, very little focus on educational technology, instructional technology or instructional design.

Another case in point - how many instructional designer programs participate in events like GDC, the Game Developer’s Conference? This is the influential, “see and be seen” gathering of the game industry. From casual games to edutainment, Wii to 3D, MMOGs to geo-games, the GDC is a meeting ground for developers, producers, distributors and pundits. Lots of young designers, producers, entrepreneurs. Lots of digital media experiences. Very little focus on educational technology, instructional technology or instructional design.

These days, whether we like it or not, educational technologists and instructional designers need to understand that leveraging technology in our work is a requirement, not an option. And whether one is dealing with representative media, digital media, ILT or CBT, eLearning or mLearning, Web 1.0 or Web 2.0 social media, 3D and immersive media and beyond, IDs must be able to:

- Analyze the learner, the context, the situation.
- Design an intervention.
- Develop and produce it.
- Implement it.
- Evaluate it.

IDs are responsible for managing the conditions, inputs and outcomes of experiences that actively promote and enable an improvement in learning and performance - whether we use a constructivist approach, a social learning approach, a connectionist approach or a behavioral approach. Yes, it’s more than ADDIE. And yes, IDs DO need to understand the technology du jour, of that there is no doubt. But an ID is not necessarily someone who identifies him or herself by the technology tools that they use. We are so much more than the Apple iPad app or the Adobe Flash .swf. that we create.

Today, an ID produces value through the design, development and distribution of learning solutions. We used to look more like psychologists than artists, scripters or programmers, but that balance has shifted. ID must work with technology tools, because so much of today’s learning and performance support is enabled / managed / distributed via technology. But IDs are not just elearning content authors, either. IDs are also engaged in supporting and enabling distance learning’s web collaborations. IDs are starting to work more with mobile learning’s apps and podcasts. IDs are learning first-hand that game design and instructional design have a lot in common.

For better or worse, we can’t think ID competencies simply as points in a taxonomic framework. It’s time to think about ID more in terms of what it is going to take to give our emerging professionals the strength, acumen and strategic awareness to take technology-mediated learning to the next level. I would hate to lose the learning part of what we do – I have had the up close and personal experience watching learning interactions reduced to a code string in Flash. As someone fighting the good fight inside the software company, trying to keep the focus on learning and NOT on the technology, I confess to being sorely disappointed when I realized that not very many people from “The Field” seemed to notice or care that learning lost that particular battle. Interaction? Forget teacher and learner, learner with learner, learner with content. In the land of software development, an interaction is a “drag-and-drop” feature.

Perhaps it is time to stop thinking about instructional design as a process and to think about what we do as product development. IDs produce engaging digital learning experiences that engage and inspire. Real value can be realized from ID process models when they are used to guide production - of solutions, of interventions, of digital learning products. A focus on production suggests that something real is being created. For better or worse, a “process model” sug-
gests "that which someone should be able to do," without insisting that one can actually do that which is being specified. We need to be more assertive, focused on the solutions and results engendered by our efforts. Maybe head in the clouds...but definitely feet on the ground.

As an ID stakeholder, I get a little cranky when industry pundits poke fun at us for being too theoretical. I am equally impatient with those who dismiss ID as being nothing more than an "engineering approach" that "sucks all the fun out of learning" (Van Eck, 2006). [http://www.educause.edu/Resources/AnInstructionalDesignerLooksat/156841]. I try not to be too offended when I hear the cry of "ID is dead." Yet I acknowledge that there is fun to be poked. To be fair, if all an ID does is to rote memorize the ADDIE model and then expect to be successful then perhaps he or she DOES run the risk of becoming a "fun-sucker."

So I ask you this very pointed question - what do YOU think and ID should be able to do? Are we technologists? Psychologists? Evaluators? Programmers? Do we need business skills? Theoretical cognitive skills? IT skills? Are we artists or engineers or a little of everything in-between?

There are essential things that an aspiring ID - well, an aspiring new media professional of any kind - will be well-served to know. Even before analyzing audience requirements, or producing a solution to a learning or performance problem, or creatively expressing ideas and information in digital form, or measuring the impact of a lesson on knowledge or performance. If an ID model can effectively guide production, then all IDs must be able to produce.

First, one must be able to express oneself effectively in writing, using a variety of forms and styles to achieve different effects. Of course this means emails, blogs, IMs and tweets. But it also means knowing how to write a variety of types of documents, including things like a status report, a review of professional literature, a market analysis, a course syllabus, a creative brief, a grant proposal or two or three, project proposals, a statements of work, a bid for services, white papers, press releases, website copy, research proposals, case studies, a business case or two, a concept specification. If only I'd known.

Second, one must know how to present ideas to others in such a way as to inform, engage, persuade and to get a response to a call for action. This means expressing oneself verbally, both with and without a variety of presentation media, using a range of forms and styles. This includes public speaking, conference presentations, teaching, training, briefings. But it's more about learning the psychology of persuasion, overcoming objections, inspiration, engagement and motivation.


Fourth, one must have an appreciation for design. So many instructional designers jump into the work of doing instructional design without giving much thought to design itself. Designers engage in process of determining the form, function, appearance, or application characteristics of something. There are many categories of design, including graphic design, industrial design, fashion design, interior design, experience design, interface design, and information design. For some, design is closely linked to art and can be considered the expression of an artistic aesthetic in a practical environment. For others, design is a process of specification, composition and construction. A large element of contemporary industrial design is web design, which includes both the technical and aesthetic aspects of creating websites. Increasingly, rich internet application design emphasizes user experience, demanding even more sophisticated design sensibilities. For the good of our profession, those of us engaged in ID – regardless of our epistemological roots of professional training or the places where we work – need to find the common ground that unites and facilitates.

Theoretical foundations matter, but so do digital creativity and the ability to clearly articulate and represent meaning, probably just as much as do the skills to keep a project on budget and on time. We need to find our secret handshakes – the more that technology solutions for learning dominate, the more critical is that that we, the ID faithful, know how to recognize each other.

I expect that there are a few readers who have significant disagreements with some of the points I have raised in this essay. I hope so. JAID is aimed at helping the scholar practitioner raise the bar on these kinds of conversation. We can’t wait to hear what you have to say. Bring it.
Book Review:

THE FORMATION OF SCHOLARS: RETHINKING DOCTORAL EDUCATION FOR THE TWENTY-FIRST CENTURY

MaryFriend Shepard, Walden University

The inaugural edition of *The Journal of Applied Instructional Design* provides the opportunity to reflect upon and rethink the purposes and role of instructional designers in education. The editor’s selection of *The Formation of Scholars: Rethinking Doctoral Education for the Twenty-First Century* seemed to be an unusual choice for the first book review since it is a reflection on doctoral education in the United States. The wisdom of the choice should not be overlooked. The authors argued that a community of scholars will continually reflect upon its goals and purposes and use them to drive all that it does. While the book was written as an analysis of doctoral programs in higher education, many of the questions and conclusions are equally appropriate to forming scholars who are instructional designers at any level.

Forming scholars was the central thread woven throughout the book and was organized around three themes: scholarly integration, intellectual community, and stewardship. In reflection, I wondered what it meant to form scholars who were effective instructional designers. The questions the Carnegie Initiative on the Doctorate (CID) emphasized about those seeking a doctorate should be asked by instructional designers to deliberate their purposes. The authors stressed that scholarly integration requires that teaching be viewed through the “lens of research …and research through the lens of teaching” (2008, p. 10). Instructional designers analyze learning goals and needs to systematically apply instructional and learning theories to the development of curriculum materials. The authors argued that scholarly reflection and conversation about purpose grounded in research is essential if the new challenges of education are to be incorporated with new technologies, global issues, changes in student demographics, and an emphasis on the integration of academic fields. How best does the instructional designer make decisions between “knowledge-absorption and knowledge creation” (2008, p. 53)? What research questions should instructional designers be asking?

Creating an intellectual community was the second theme in the formation of scholars, with a focus on ways of building collaborative communities as new knowledge is generated and transformed into action. The authors stressed partnerships between faculty and students with an exchange and respect for diverse ideas. A greater degree of accountability is expected between partners in the learning community, and in an open community of scholars one should find a high level of creativity and risk-taking. If facilitating learning is the main purpose in instructional design, then the emphasis should be on communication and collaboration among the various partners to achieve that end. Many questions arise for the instructional designer: How do exciting partnerships grow among all the stakeholders in every aspect of the process? How do we create a lively exchange where new approaches and designs for ID may take place? How do we help learners at all stages of development to generate new knowledge and build skills and insights that transform their society?

Being a steward of the discipline is one of the more compelling ideas posited by the Carnegie team and provides a challenge to instructional designers. Stewards conserve the past as they reflect upon what is considered the most relevant and reliable knowledge and practices. From their understanding of an existing body of knowledge, they generate new knowledge while assessing the knowledge being generated by others. Finally, the authors argued that stewards use...
knowledge to transform society while they communicate their ideas to others. Instructional designers need to be stewards of their disciplines as they collaboratively select the knowledge and skills they draw from the past to engage the minds of learners. If instructional designers viewed their role in ID as that of a steward of the discipline, how would what we do be transformed?

Finally, the authors shared three principles they believe guide student development in learning: progressive development in terms of self-initiative and responsibility for learning, the ability to integrate and synthesize knowledge, and collaborative learning (2008, p. 62). The authors provided insight into ways that K12 instruction can help develop early research, collaboration, and critical thinking skills in learners. Multiple examples of strategies for accomplishing these three goals are provided in the second half of the book. The nature of decision-making about the complex issues and problems faced by learners at any level P-16 is too complex to be left to students to figure out on their own.

Perhaps for instructional designers the time has arrived for us to reflect systematically upon the purpose of learning and what those guiding principles should be for 21st century learners. If we accept the assumptions of CID that students can take initiative and responsibility for learning; that they can analyze, synthesize, and evaluate knowledge for action; and that they can work in teams to accomplish a goal that is greater than they could achieve individually, then there are implications for our work. How do we help learners move along the continuum to develop these skills systematically? How do we help students assess how they learn so they become life-long learners? How do we develop instructional materials that help faculty and students engage in activities as co-learners in the process?

*The Formation of Scholars* offers a fresh look at learning and what it means to be a scholar. Many relevant questions are asked that can challenge an instructional designer to go beyond the obvious goals and outcomes of a specific group to designing exciting and challenging programs. I highly recommend this book to any instructional designer who wants to ask questions of purpose and go beyond the obvious.

**Reference**
