CHAPTER 18

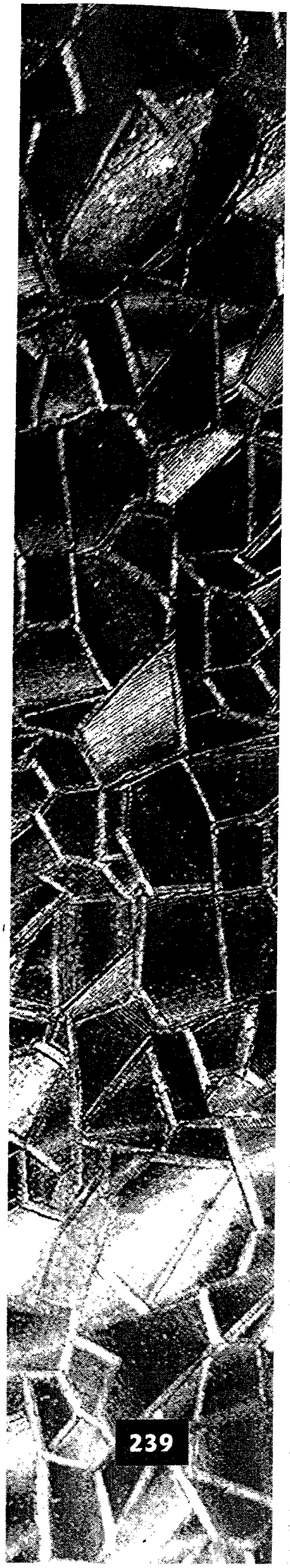
WHISTLING IN THE DARK? INSTRUCTIONAL DESIGN AND TECHNOLOGY IN THE SCHOOLS

Allison A. Carr-Chellman
Pennsylvania State University

Charles M. Reigeluth
Indiana University

Editors' Introduction

In this chapter, Alison Carr and Charles Reigeluth describe a variety of school-based initiatives that have been associated with the field of instructional design and technology and describe two continuous dimensions (breadth and directiveness) for classifying such initiatives. In addition to classifying each initiative along these two dimensions, the authors describe the impact each initiative has had on teaching practices and on student learning. On the basis of these results, the authors draw some conclusions as to why various types of instructional design and technology initiatives have not had a greater effect and offer some suggestions as to how we might increase the impact of our initiatives.



Knowledge and Comprehension Questions

1. *What do the authors mean by the breadth of an initiative? Describe the differences between a narrow initiative and a broad one. On what basis do the authors classify instructional design as a narrow initiative and constructivism as a broad one?*
2. *What do the authors mean by the directiveness of an initiative? Describe the differences between a directive initiative and an emergent one. On what basis do the authors classify direct instruction as directive and IDT graduate practice as emergent?*
3. *The authors indicate that directive initiatives have had little impact on classroom practices. What do they see as the reasons for this limited impact?*
4. *The authors indicate that emergent initiatives, particularly broad ones, have had limited application. What do they see as the major problems with emergent initiatives?*

Instructional designers and technologists have long sought increased involvement in, and impact on, public school classrooms. There are many issues that impede these attempts, raising the question "Are we merely whistling in the dark?" The field of instructional design and technology (IDT) is split in at least three directions. We serve corporate America by educating instructional designers who work in human resources and training. We work with preservice and in-service teachers and others, such as technology coordinators, to help improve public education. We also field large numbers of graduates who work as consultants in many settings, including corporations, nonprofit organizations, and public schools. Over the past fifty or so years, as the field has come into its own, we have both struggled with and contributed to tensions between corporate goals (emphasizing basic skills and vocational training) and public goals (emphasizing social and civic issues). As a result, a schism has been created between the IDT field and public education.

Those of us who seek to work with public schools often do not have clear goals in mind. Moreover, those in public education who come to us for help often do not understand our field. Teachers and public school administrators often see us as technologists, capable primarily of creating web pages for them or directing them to specific Internet resources for teachers. At other times, they see us as sources of in-service training on how to best use technology in classrooms. Some teachers see additional training in the field of IDT as a way to move from classroom teacher to technology coordinator. What very few classroom teachers see is that, once implemented in their classrooms, technology impels changes in every aspect of their daily classroom life and that it has the potential to radically alter the very structure of public schools if we allow it to.

Many professionals in the field of IDT are ultimately interested in understanding this potential, understanding what sorts of predictable outcomes technology implementation may create, understanding the experience of classroom teachers using technology, and identifying ways in which we can enhance technology's potential to improve learning environments. This goes beyond the average parent's, student's, teacher's, or administrator's understanding of what our field is about and what we are interested in. A review of

initiatives in areas such as objectives, direct instruction, technology coordinator training, and constructivism can highlight this and other tensions that prevent IDT from having a broad-scale impact on classroom practice. The main purpose of this chapter is to explore the initiatives that may achieve broad-scale impacts and examine their underlying characteristics in order to design change for maximum impact.

Categories of Initiatives

The history of innovations that are passed from the IDT field to classroom practice is very similar to the history of many innovations as they move from theory to practice. An idea is born, usually founded on strong theoretical and philosophical ideals that match well the needs of several target populations involved in the context (teachers, learners, administrators, etc.). Typically, after a brief period of active or passive resistance by those who are asked to use the new idea, the idea is labeled "difficult" for laypeople to understand and is inevitably translated into more pragmatic step-by-step or formulaic solution designs and passed on to practitioners through brief interventions, such as half-day professional development workshops. Consultants are paid to help establish the new idea until another new idea comes along, at which point the previous one fades from attention.

This is the history of many new ideas and innovations. The philosophical and theoretical foundations are frequently softened or abandoned altogether to make the "solution" more palatable or instrumental, but in so doing, the power of the innovation is regularly lost (Kantrow, 1984; Rydz, 1986). As we shall illustrate with several past IDT initiatives, the innovation cannot long be sustained under these conditions, or else its impact is minimized (Belasco, 1991; Siegel, 1999).

The initiatives that are promoted by, and/or associated with, the IDT field can be organized in many different ways. We offer a framework that organizes the issue as broadly as possible while at the same time identifying some promising avenues for future partnership between classroom practitioners and instructional designers. The framework is composed of two dimensions, each having two extremes.

One dimension is the breadth of the initiative: how much of the educational system is changed by it. This dimension ranges from initiatives that are very narrow to ones that are very broad. *Narrow* initiatives, as we define the concept, are characterized by a relatively narrow focus, a reactive problem-solving mentality, and foundations that typically do not challenge the underlying belief structures associated with the current practices. An example is the effort to get teachers to define behavioral objectives for all their teaching. *Broad* initiatives are characterized by a broad focus and holistic views of not only the innovation as it is situated in the problem context, but also the larger environment and community. An example is the attempt in some elementary schools to have multi-age, continuous-progress, collaborative, problem-based classrooms with team teaching, mastery learning, and criterion-based assessment. One of the important hallmarks of broad initiatives is that they almost always challenge the values and beliefs underlying current practices. Broad initiatives go beyond asking the teachers to do something they haven't done before; they ask teachers to conceive of the teaching and learning process differently. Typically, such initiatives are proac-

tive and continuous. They also tend to engage substantively a broad range of stakeholders (often including teachers, students, leaders, parents, and community members). However, many of these initiatives are still led by experts.

The other dimension is the directiveness of the initiative: who makes the decisions. This dimension ranges from initiatives that are highly directive (top-down) to ones that are highly emergent (bottom-up). In general, *directive* initiatives are what we think of as top-down, mandated, leadership-led, or leadership-driven. An example is the mandated use of behavioral objectives. Most of these initiatives rely heavily on experts or external consultants for direction on how best to solve a problem or use an innovative process (Norum, 1998). An expert or consultant, sometimes from a university, another school system, or a foundation think tank, is invited into the school, most typically to help solve a particular problem.

In contrast, *emergent* initiatives are what we think of as bottom-up, voluntary, and teacher-led. An example is teachers' independent decisions to use constructivist approaches to teaching in their own classrooms. Teachers, students, parents, and/or community members may come together and develop an idea that they believe suits their school community. Of course, without leadership support, such ideas most often come to nothing, because they lack the resources and systemic support structures that are needed to encourage ongoing innovation and continuous improvement. Experts and external consultants are used in an advisory or support role, if at all. Whereas directive initiatives are almost always reactionary and problem-solving oriented, emergent initiatives have a greater tendency to be proactive and ideal-seeking (seeking a positive condition—what should be—rather than getting rid of a negative condition—a problem). Most initiatives may be implemented in either a directive or an emergent fashion, though certain initiatives will lend themselves more to one approach than to the other.

These two dimensions can be crossed (see Figure 18.1), such that there are narrow/directive initiatives, broad/emergent initiatives, and so on. Also, each of the two dimensions is continuous, for initiatives have many different degrees of breadth (from piecemeal tinkering to profoundly systemic) and degrees of directiveness (from purely top-down to purely bottom-up). We merely present them as categories for ease of discussion.

Our intent in presenting this schema for organizing the initiatives of our field is to categorize them in a way that will help to explore the impacts that different kinds of initiatives have had on classroom practice. The typology of initiatives is our creation; it represents our own internal schema for how we view our field's initiatives in the public school arena. Our main goal is to identify those kinds of initiatives and their underlying constructs that may offer more hope of effective change than others, and thus help people in our field to consider carefully the best way to approach innovation; inevitably, some value judgments are made.

Examples of Initiatives and Their Impacts

There are many change initiatives that have been created, adapted, adopted, or merely appropriated from other fields and disseminated under the umbrella of IDT. Having introduced our four categories of initiatives, we will now describe several examples of IDT-

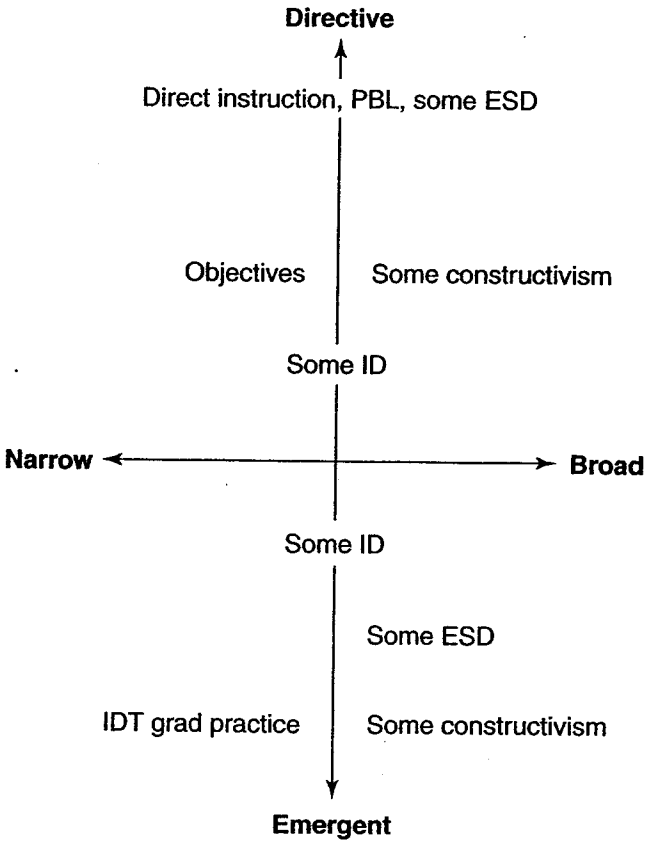


FIGURE 18.1 Dimensions of IDT initiatives.

related initiatives and indicate where they fall on the two dimensions of our framework. As we discuss each initiative, we will also discuss the impact the initiative has had on teaching practices and on learning.

It is vital to remember, throughout this discussion of examples, that many initiatives could be intended for, or implemented at, any degree of breadth and directiveness. In these cases, we are illustrating typical examples of how the initiative has been intended or implemented in the real world. For example, objectives usually represent a narrow initiative, though one might imagine a situation in which they are implemented as the driving force behind a broad effort. And constructivism is typically intended to force teachers to question and change their fundamental beliefs about learning, but one might imagine an actual implementation of constructivist learning in which little or no questioning is involved. Therefore, the following examples are highlighting our understanding of the typical intention and implementation of a given initiative and do not represent all cases.

Example 1: Objectives

The roots of behavioral objectives go back to the programmed instruction era in the 1950s and the publication of Robert Mager's popular book on how to write such objectives (Mager, 1962). However, the major initiative to use objectives in K–12 classrooms oc-

curred primarily during the 1970s when teachers were asked, and trained, to write properly formed behavioral objectives (Koch, 1974) and to keep them in their plan books for review by supervisors. This is clearly an example of a directive initiative because the decision to undertake it was made by school administrators. And it is an example of a narrow initiative because this change did not require any changes in teaching methods, student assessment, curriculum, or school organization.

Rationale. Three primary advantages have been hypothesized for using objectives:

1. Students who are aware of the objectives of their learning are more focused and effective in their own learning and studying.
2. The teacher who uses objectives has a better understanding of what to teach and test.
3. Teachers can use types of objectives as a basis for making sound decisions about instructional strategies.

Impact on teaching. Our experience with teachers has strongly suggested that objectives, particularly formulaic behavioral objectives, are not typically used in everyday classroom practice. For most teachers who still use them, they have become a trivial exercise to please administrators rather than a meaningful practice to help teachers focus on their instructional goals and related teaching strategies. This is partially due to teachers' perception that objectives can be restrictive (Frey, 1974; Thompson et al., 1973).

Impact on learning. In general, the research suggests that using objects has very little impact for either the first or second rationale above, and the third has seen minimal implementation in spite of strong research support (see, e.g., Merrill, Olson, & Coldeway, 1976; Merrill, Wood, Baker, Ellis, & Wulfeck, 1978). Studies that examined the impact of teaching with clearly stated behavioral objectives include those of Fisher (1973), Eberwein (1974), and Sullivan, Lievens, Villalpando, Marquez, and Watkins (1986).

Generally, the findings from the research on the impact of objectives have not been conclusive; some studies have found a positive correlation between objectives presentation and achievement (e.g., Gagné, 1972), but others have found the opposite (Ferguson, 1971). Sullivan et al.'s (1986) study found that an objectives-based learning program generally took longer to complete but generated faster learning rates and more favorable student attitudes. Generally, however, the research seems to suggest that, although the use of objectives may improve student achievement scores, particularly when objectives are closely matched to testing and assessment, their impact on classroom learning has been minimal.

Example 2: Direct Instruction

Direct instruction (Hunter, 1967, 1982) was translated for classroom application into DISTAR (Direct Instruction System for Teaching Arithmetic and Reading) (Becker & Englemann, 1973). It involved regimented and behavioral presentation and teaching strategies and came into vogue in classroom practice in the late 1970s and 1980s. The direct instruction method of teaching involved having teachers clearly state their in-

structional goals, deliver their instruction in discrete steps, constantly monitor learner performance, and provide learners with immediate feedback. This was clearly a broader initiative than the objectives movement but still falls short of entailing fundamental changes in many aspects of the educational system, including student assessment, curriculum, and school organization. We place it about in the middle of the breadth continuum. But like the objectives movement, this direct instruction initiative was designed and implemented in a very directive manner.

Rationale. During the 1980s, many teachers were trained how to use direct instruction. Like the objectives movement and instructional design, direct instruction techniques helped to reinforce a certain systematic nature to instruction and ensured adequate learner feedback.

Impact on teaching. As with many such innovations, despite its pragmatic nature and frequent application to classroom practice, direct instruction had a minimal impact on daily teaching. The innovation, at least as it was repackaged for professional development, was restricting, particularly to teachers who wanted to maintain nonstructured aspects of classroom life and wanted to encourage higher-level thinking, as opposed to fact accumulation (Edwards, 1981).

Impact on learning. Several studies, such as those of Gersten (1984) and Reutzel (1988), have examined the impact of direct instruction on learner achievement. Adams (1996) suggests, in his meta-analysis of twenty-five years of research on direct instruction, that the DISTAR programs—one type of direct instruction—were highly successful with the full range of teacher and student populations that used them.

Example 3: Instructional Design (ID) Process

Several authors have written textbooks designed to teach presérvice and in-service teachers how to use a simplified instructional design (ID) process when they engage in instructional planning (e.g., Gerlach & Ely, 1971; Reiser & Dick, 1996). The ID process encourages teachers to align goals (or objectives), tests, and teaching and to formatively evaluate and revise their tests and instructional practices. ID, as it has typically been implemented, is about at the midpoint of the breadth continuum because the fundamentals of education and learning are typically not questioned in association with the use of ID. ID does not suggest specific methods of instruction, such as project-based or constructivist environments; nor does it specify technologies or student groupings. Sometimes, ID is adopted by individual teachers rather than being initiated by more directive means, so it can fall fairly close to the emergent end of that continuum. On the other hand, like many other technical innovations, most teachers require expert help to utilize ID effectively in the classroom, so it most often falls toward the directive end of the continuum.

Rationale. The ID process is an important effort to help teachers design and present instruction in accordance with systematic planning principles. One of the main advantages

of this approach is that it helps teachers to clearly identify their goals (similar to the objectives movement) and then follow through by identifying appropriate measures of learning (tests) and strategies for teaching. The congruency foundation on which the ID process is built (that both your teaching and your testing should be consistent with your goals) is a strong rationale for using the ID process.

Impact on teaching. Relatively few teachers use the ID process (Moallem, 1996; Reiser, 1994), perhaps because of the lack of adequate training and its exclusion from the teacher preparation curriculum, as well as the many competing demands that classroom teachers face. In addition, most school districts usually provide teachers with directives, or at least guidance, regarding the goals, instructional strategies, and tests to use. Clearly, from the teachers' perspective, the path of least resistance is to accept the curriculum, trusting that the developers have done their job well and followed sound instructional principles in the development of classroom materials, and focus instead on more important things, such as building good relationships with their students.

There have been some studies that examined the impact of ID on schools (Martin, 1990; Applefield, 1992), most notably a series of articles in a special issue of *Educational Technology* (Earle, 1994). These studies indicate that at least in a few cases, teachers have incorporated ID principles into their instructional planning and delivery practices. However, few studies have considered the impact ID has had on the curriculum and instructional development activities undertaken by textbook companies and producers of educational software. One such study (Komoski, 1974) indicated that less than 1% of commercially produced instructional material was empirically developed (formatively evaluated). Thus even if these more tertiary influences are considered, the findings are still disappointing.

Impact on learning. Although the ID process can help to ensure systematic approaches to instruction and learner knowledge of learning goals, very little impact on learning has been found. This seems to be primarily a function of the lack of sustained use by teachers, perhaps because of more pressing demands on their time.

Example 4: Constructivism

Constructivism is an alternative to the more fact-based learning models of behaviorist theories. The basic ideas underlying constructivism are that knowledge is constructed (rather than received) by individual learners *and* is embedded in particular experiences within specific domains (Duffy & Jonassen, 1992). Constructivism also includes the following central elements: Learners are active, multiple perspectives are valued and necessary, collaborative relationships are supported, control of learning remains with the learner, and authentic real-world learning experiences are valued (Carr, Jonassen, Litzinger, & Marra, 1998). As a field, we struggled for several years with what it meant to design in a constructivist framework, but we have recently found ways to integrate constructivist ideas into design processes to create constructivist-learning environments (e.g., Wilson, 1996).

Constructivism calls into question some of the most basic understandings and assumptions teachers have about learning and teaching. Because constructivism asks the teacher to reexamine how learning happens and what strategies make sense, given this new view of learning (mostly more learner-based and less teacher-based), constructivism is located toward the broad end of the continuum. Constructivism also causes other structures (such as curriculum, assessment, materials budgets, even parent communication structures) within schools to be reconsidered in order for constructivism to be effectively implemented. This adds to its breadth. While some teachers find that constructivism is a natural outgrowth of already established teaching philosophies, many teachers need expert facilitation in the appropriate use of constructivism and the creation of constructivist learning environments. When teachers decide to use constructivist approaches or when they adopt constructivism in their own way in their classroom, it is surely more emergent. But because most implementations of constructivism in classrooms have been administrator driven and expert assisted, its application, like that of ID, often tends to fall toward the directive end of our continuum.

Rationale. Constructivism is purported to increase motivation by acknowledging the students' role in their own learning. Strategies associated with constructivism tend to be more learner-centered, increasing motivation, particularly with regards to relevance. Advocates of constructivism see it as a liberating form of learning in which the learner is empowered to learn, learning is socially negotiated, and the learner is immersed in environments and activities that surpass formerly stringent curricular requirements.

Impact on teaching. In recent years, many preservice and in-service teachers have taken courses or workshops designed to teach them how to use constructivist learning principles in their classrooms. There have also been numerous efforts to develop and implement learning environments designed in accordance with constructivist learning principles (e.g., Hannafin, Land, & Oliver, 1999; Jonassen, 1999; Schwartz, Lin, Brophy, & Bransford, 1999).

Perhaps to a greater degree than most of the innovations or movements discussed in this chapter, some would suggest that the instructional practices associated with constructivism have been adopted by many teachers (Yell & Scheurman, 1998). This may be due in part to the influence of teacher educators in such areas as science education and reading education. Moreover, several texts have been published on the strategic use of constructivism as a classroom strategy (e.g., Brooks & Brooks, 1993). However, much of the literature in constructivist teaching remains at the strategy or theory level, and studies of the impact of constructivism on classroom practice have been limited.

Many teachers are currently embracing constructivist methods, particularly those who were likely to reject something as highly structured as direct instruction. However, there are also many factors that keep in-service teachers from adopting constructivist classroom strategies (Chang, 1998), and some argue that the adoption of constructivism in classrooms is neither widespread nor systematic (Airasian & Walsh, 1997). Furthermore, the constructivist initiative is still in its infancy. When the objectives movement was at this same stage of implementation, it had captured similarly broad public attention. It remains to be seen just how widespread and enduring this innovation becomes.

Impact on learning. The impact of constructivism on K–12 classroom learning has gone largely unstudied and unreported in the education literature. One study with Hispanic fifth graders found that contextualized instruction produced higher standardized test scores (Moore, 1997). However, the study involved a voluntary program, which may limit the generalizability of the findings. Another study in higher education more directly compared traditional lecture-based instruction to a student-centered constructivist environment and found that constructivist learners did perform significantly better on tests and had better attitudes about the course (Lord, 1997).

Example 5: Problem-Based Learning

Problem-based learning (PBL), first practiced in physician education (Barrows, 1986) was later seen as a good instantiation of a learning environment that is consistent with the principles of constructivism (Abdullah, 1998; Savery & Duffy, 1995). PBL as a strategy includes the use of rich, complex problems as a starting point for learning. PBL provides learners with problems, typically as authentic as possible, and facilitates the process of solving these problems and examining the processes by which problems are solved. PBL, like constructivism, is based on a very different conception about how learning (and consequently teaching) should occur and usually requires fairly significant changes in curriculum, student assessment, teachers' roles, students' roles, and even school organization, as well as instruction. Therefore, it is typically at the broad end of the breadth continuum. Although the use of problems can certainly be undertaken by any teacher without expert training, effective use of PBL is most often directed by administrators and implemented in a top-down fashion. Moreover, experts usually facilitate the initial implementation of PBL environments. Thus attempts to employ PBL are initiatives that usually fall toward the directive end of the continuum.

Rationale. Asking students to engage deeply in problem solving within an authentic context is expected to provide relevance and motivation, as well as more closely approximate the real environment in which problems will have to be solved in the future.

Impact on teaching. The frequent use of problem-based thematic units in public schools is a good example of the positive influence PBL and constructivism have had on classroom practice. Moreover, case-based PBL is enjoying a good deal of adoption within university courses (Cranton, 1998), particularly as a model to prepare teachers to teach using PBL (e.g., Peterson & Treagust, 1998). Also, several sets of guidelines have been produced for teachers who wish to use PBL in their classrooms (Delisle, 1997; Torp & Sage, 1998). On the other hand, the direct translation of PBL to K–12 classroom practice has been largely unreported and is often seen by teachers and administrators as inefficient and, at times, out of alignment with curricular demands (Abdullah, 1998).

Impact on learning. By and large, the literature on PBL (as with constructivism) is made up primarily of philosophical positions and general guidelines. A few K–12 classroom studies have been reported (e.g., Ben-Chaim, Fey, Fitzgerald, Benedetto, & Miller, 1997; Sage, 1996) and have found largely positive effects on problem solving skills.

Example 6: Educational Systems Design

The Educational Systems Design (ESD) movement, largely spearheaded, within the IDT field, by Bela Banathy (1991) and Charles Reigeluth (1992), asks those of us who are interested in sustained adoption of IDT innovations to consider much broader changes in the entire system in order to support our efforts at improving learning. Educational systems design is the stakeholder-based creation of whole new systems of education. Central to this process are the agreement on a vision for an educational institution; the creation of support systems to enact that vision while cooperating with the needs of the suprasystem (such as the community); and the ongoing monitoring, evaluation, and redesign of the educational system. It is a process that invites stakeholders to dream and create by design the educational system that they truly want for their community on the broadest scale possible.

Because ESD efforts—for example, ones in Michigan (Jenlink, 1995)—are concerned with systemwide change, they are necessarily on the broad end of our continuum. They tend to consider not only the system of interest (typically an entire school district), but also its supra systems, such as the larger community and society, and their expectations of the school system. These considerations, along with a strong bias toward substantial stakeholder involvement in design and decision making, are the main reasons why ESD cases are an excellent example of broad initiatives. ESD initiatives often are led by teachers and even by community members. Therefore, ESD initiatives tend to be on the emergent side of the directiveness continuum. However, at times, the ESD process can be heavily facilitated by an expert in that process, and strong support from administrators is crucial. Moreover, in some cases, the facilitator might have agendas that become confused with or forced on the stakeholders, rendering the actual implementation of some ESD cases more on the directive side of the continuum.

Rationale. The ESD movement stems from a belief that schools and their structures (systems) are outmoded in today's rapidly changing information age (Reigeluth, 1992). In light of this belief, the movement asks us to consider creating whole new systems of education that account for the interdependence, interconnection, and embeddedness of the system of interest (i.e., the school system) with other systems, including the larger community, and, at times, the society (Banathy, 1991).

Impact on teaching. Unfortunately, although ESD has the potential to have a great impact on classroom practice, there have been few written descriptions of attempts to employ this relatively new methodology. A substantial problem with this movement, in terms of reaching its potential to impact on classroom practice, is its own lack of published research, particularly in the area of successful case studies. ESD is difficult to carry out. This may be due to the scope of the effort required in designing and/or implementing entire educational systems, or it may be because those who are engaged in doing ESD are so busy with that work that they are unable or unwilling to write about their endeavors or are unrewarded for doing so. Regardless of the reasons, the literature in ESD currently contains only case studies of broad change efforts (e.g., Anderson, Caldwell, Linstrom, Makings, & Pedersen,

1995; Farris, 1994) and, as with constructivism, articles and books describing the process of ESD and general guidelines for systemically changing schools (e.g., Banathy, 1991; Jenlink, Reigeluth, Carr, & Nelson, 1998). The impact of ESD on classroom practice, particularly on the micro level of classroom practice, is, as yet, largely unreported.

ESD initiatives take a very long time and are often not feasible because of the significant financial, emotional, and intellectual investment required. ESD initiatives also have not enjoyed wide acceptance by school leaders because they lack a "quick fix" orientation.

Impact on learning. To the best of our knowledge, no ESD initiatives have reached the point at which effects on student learning can be assessed.

What Can We Do to Increase the Impact of Our Initiatives?

There are many change initiatives besides those described here that have been created, adapted, adopted, or merely appropriated from other fields and disseminated under the umbrella of IDT. Why do so many of them seem to have minimal impact on public education?

Narrow, directive initiatives (as one quadrant in our framework) are characterized by a relatively confined focus, reactive problem-solving mentality, and foundations that do not challenge the underlying belief structures of the practitioners using the innovation. Although they enjoy a high rate of adoption by leadership, directive initiatives have had relatively minimal sustained impact on classroom practice, perhaps because they are frequently incompatible with various elements of the educational system, which consequently exert continual pressure to undo the change. Another possible explanation for their limited impact is that they tend to have been behavioral, at times recipelike. Most narrow directive initiatives seem to lack adoption by those who see value in flexibility and empowerment in creating their own contextualized solutions.

There are hundreds, if not thousands, of examples of directive initiatives—the standards movement, mandated values education, even increasing the number of Internet connections—in which active or passive implementation resistance has severely limited the impact of the innovation on classroom practice. We have found that directive initiatives have not enjoyed good success in the past, primarily because they do not truly engage classroom teachers, the people who are expected to use the innovations (Banathy, 1991; Peck & Carr, 1997).

Broad, emergent initiatives also seem to have had minimal impact. There is little evidence that such initiatives have been widely adopted. This may be because the people who engaged in these initiatives are too consumed by their work to write up their research findings. However, it is also quite likely that such initiatives never get past leadership approval, owing to their challenging and uncontrolled nature. Broad, emergent initiatives, as we have pointed out, are inefficient and never-ending and can create a sort of "deer in the headlights" reaction of feeling overwhelmed. Because these initiatives try to deal with the whole system and possibly even address necessary social changes, they have met with extremely limited application. Stakeholder participation is cumbersome, time consuming, and seen as highly inefficient and uncontrolled.