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Problem-based Leadership Development:
Preparing Educational Leaders for Changing Times

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Today's educators are responding to a wide array of changes initiated, for the most part, from outside the schoolhouse: emerging instructional and management technologies, shifting governmental priorities for education, a stream of innovations in teaching and learning, evolving local governance structures, new community-school configurations, students and families with changing needs. These present schools with multiple and varied challenges, not all of which are welcomed with open arms. In education, as with the private sector, one prescription -- leadership -- seems to make all the lists of requirements for coping effectively with organizational change.

This is actually somewhat surprising since it was only 10 years ago that the need for school leadership, especially in the form of the principal, was being seriously questioned by union leaders, scholars and policymakers. Experience in school restructuring, however, now suggests that school-level leadership -- including leadership from the principal -- is essential even when school systems decentralize and empower staff and parents to share more actively in decision-making. In fact, under decentralized conditions, school-level leadership -- though of a different sort -- seems to be even more important than in the past.

Leithwood (1996) recently affirmed the linkage between the changing educational context and the need for school-level leadership in an assessment of international developments in the administration of schools.

Some of the reasons for this shift in [educational] emphasis are to be found in the quite recent school restructuring movement's preoccupation with the redistribution of power and responsibility from the middle (the district or local education authority) to both central governments and the local schools, each with quite distinct and distinctly different functions. At the school level, this has fostered greater interest in the empowerment of teachers and community members including more shared leadership. . . From this redistribution of power and responsibility has emerged a

decidedly different image of the ideal educational organization. . .

This is an organization less in need of control and more in need of both support and capacity development. Organizational needs such as these seem more likely to be served by practices commonly associated with the concept of leadership. . . than administration.

(p. xii)

The hockey star, Wayne Gretsky, once said, "I never skate to where the puck is now; I always skate to where it's heading." This characterizes the challenge for institutional leaders throughout modern society. They must have the vision to anticipate a rapidly changing context and the skills to enable others to share in the formulation of new purposes and the creation of new organizational designs. Unfortunately, the literature on educational administration indicates that Leithwood's prescription for *leadership* outstrips the current capacity of our preparation programs. Preparation programs in educational administration remain largely geared towards developing *managers* who can maintain schools as they exist today, rather than *leaders* who can guide their transition into the future.

Admittedly, the ever-changing educational system represents a complex context for which to prepare professionals. If, however, current trends are a reasonable basis for prediction, we can make three assumptions about leadership in education in the next two decades:

- Many of the people training for leadership positions in education today will still be
- The field of education and the knowledge needed to perform successfully will likely look quite different in the year 2017 than today;
- The evolving structure of schools will create more opportunities for leadership than has been the case in the past; leadership roles will be more varied and will involve increasing levels of collaboration among professionals and between professionals and parents.

Given these assumptions, how might our methods of preparing school leaders vary from those on which we have relied in the past? How can we prepare leaders who will be active

working

learners throughout their careers? Can we develop leaders who will have the knowledge, skills and attitudes to provide “support and capacity development” in a workplace characterized by high levels of collaboration and rapid change?

Medicine, business administration, architecture, and law are other fields that have faced similar educational challenges. self-directed learning skills that will enable future In response, educators in these professions have experimented with *problem-based learning* (PBL) as one alternative learning strategy (Bok, 1989; Boud & Feletti, 1991). Although empirical evidence on the outcomes of PBL in medical education remains mixed, there is sufficient justification in the literature to suggest that PBL is a promising approach for assisting students in developing the cognitive and affective tools needed for successful professional practice (Albanese & Mitchell, 1993; Bridges & Hallinger, 1993; Vernon & Blake, 1993).

Over the past eight years, we have adapted PBL for use in the preparation of educational leaders (Bridges, 1992; Bridges & Hallinger, 1991, 1995). As a result of these and others’ efforts, scholars report that PBL is now being employed in the training of prospective and practicing school administrators in the United States (Bridges, 1992, 1993; Hallinger & McCary, 1990; Prestine, 1993), Australia (Dimmock & Edwards, 1996; Grady, MacPherson, & Mulford, 1995; Limerick & Crowther, 1996, In press; Limerick, Clarke, & Daws, In press), Canada (Leithwood & Steinbach, 1992), Thailand (Hallinger, Chantarapanya, Siriboonma, Taraseina, & Bridges, 1994), and Hong Kong (Walker, Bridges, & Chan, 1996). Although *experimentation* with PBL is taking place in professional preparation programs throughout the world, its *systematic use* in educational administration remains selective and remains, for the most part, in the initial stages of implementation (e.g., see for example, Dimmock & Edwards, 1996; Grady et al., 1995; Hallinger et al., 1994; Limerick & Crowther, 1996; Walker et al., 1996). Still efforts taken to employ PBL in educational administration over the past decade have begun to yield a base of experience on which to draw. In this article we would like to share our thoughts about how *problem-based leadership development* can respond to the challenge of developing leaders for schools of tomorrow.

Future School Leadership

The changing context of education creates a need for a different type of school leader and also for more flexible forms of leadership preparation. As noted above by Leithwood (1996), an emphasis on leadership implies a shift in role behavior away from implementing system policies and rules and towards supporting and developing the organization's capacity for change. Given current trends, we contend that school leaders of today (and tomorrow) must be able to:

- apply evolving educational theories of teaching and learning *in practice*;
- adapt educational policies and practices to the needs of an increasingly diverse student population;
- *find* and solve the significant problems that face their schools;
- make decisions in a group context with both professionals and lay persons;
- apply an understanding of the rapidly changing political and social context of schools to decisionmaking inside the schoolhouse;
- develop and sustain a humane and effective working environment that fosters the leadership and learning of self and others.

Note that these capacities entail the *active application of knowledge, skills and attitudes in a changing workplace*. This set of capacities represent an ambitious vision for leadership development, particularly since professional preparation programs have experienced such difficulty accomplishing even the more limited goal of simple knowledge acquisition about administration (Hallinger, 1992; Marsh, 1992; Leithwood & Steinbach, 1992; Murphy, 1990, 1993b). Is it possible to prepare school administrators with *higher-order leadership* capacities via a program of professional preparation (Marsh, 1992)?

Clearly the challenge is great and the jury is out. Yet, we believe that problem-based learning represents *one of a number of promising approaches* that warrant the attention of the profession (see Murphy (1993), Prestine (1993), Weaver-Hart (1993) for descriptions of other

innovative professional preparation techniques and programs in recent use). Let us begin by briefly clarifying what we mean by problem-based learning.

What is Problem-based Learning?

In most forms of instruction, the teacher begins with the content knowledge to be taught. Following presentation of conceptual material, the instructor may call for questions from the class, initiate small group discussions, or ask the class to apply the knowledge to a case (Bridges & Hallinger, 1995). This is the image most people conjure when we mention the word “teaching”.

PBL Starts with the Problem

The primary distinguishing feature of problem-based learning is that learning always begins with the presentation of a problem rather than with presentation of conceptual content. In a PBL environment, students learn the curriculum content in the context of high-impact problems such as they will encounter in the workplace. The problem is employed as the *stimulus for new learning*, not as the object for application of previously learned concepts (see Bridges & Hallinger, 1995, pp. 10-12 for examples of PBL problem scenarios).

This feature is one of several ways in which PBL differs from other instructional techniques. For example, in the case method the instructor also uses a complex, high-impact problem as a key instructional tool. However, in most forms of case teaching, the problem is used as a means of elaborating, clarifying, or applying a theory that has already been presented to the learners (e.g., see Christensen, 1987).

PBL Employs Cooperative Group Learning

A second distinguishing feature of problem-based leadership development is that instruction is conducted through cooperative team learning. The instructor acts as a *guide on the side* for the groups as they are learning. In PBL the instructor seldom provides knowledge and information to the class at-large in a directed approach.

Consistent with our third assumption, in PBL students learn how to solve high-impact, work-related problems in an environment that simulates the collaborative workplace of the

present and future. The learning process itself -- wholly aside from any curricular content *about* teamwork, group dynamics and collaboration work cultures -- fosters the ability to accomplish results through other people, a hallmark of leadership (Bridges, 1977, 1992).

Of course the use of cooperative learning is not unique to PBL. Other educational approaches incorporate cooperative learning as well. It is the use of cooperative learning in conjunction with the other features discussed here that is notable.

A PBL Curriculum (or Unit) is Interdisciplinary in Nature

A third distinguishing feature of PBL is that students receive a mixed array of interdisciplinary resources salient to understanding and solving the problem(s) presented to them. Professional education programs normally organize content by subject disciplines: organizational theory, school law, supervision. In PBL the content is organized in relation to key problems encountered in the workplace. A problem-based curriculum is by nature interdisciplinary.

For example, in one PBL module, *Leadership and School Culture* (Hallinger & Habschmidt, 1993), the resources include readings and videotapes that cover staff development, leadership, educational change, school culture, and adult development. These learning resources are all relevant to the complex problem posed for solution. Another PBL module focusing on staff supervision incorporates resources that would typically be covered in separate courses on school law, organizational theory, school change and improvement, and instructional supervision.

As in the workplace, the knowledge required to address such problems does not recognize the artificial boundaries set in academia. PBL places the disciplines at the service of the profession, rather than the reverse. Moreover, resources are drawn from research studies, research reviews, reports of successful practice, theory, and live or video-taped consultants who hold expertise in the salient knowledge domains.

Students Enact Proposed Solutions to PBL Problems via Workplace Products

A fourth distinguishing element of problem-based leadership development is that resolution of the problem culminates in an active performance that simulates the workplace activity of the school leader.

Depending upon the particular problem, the resolution of the problematic situation could be conveyed via a variety of student-developed *products*. The product could involve writing a memo to a superordinate, making a presentation to a mock panel such as a school board or administrative cabinet, conducting a simulated supervisory conference with a teacher, chairing a special education team conference, or selecting a teacher. For any given project, students will produce a mix of individual and group products (Bridges & Hallinger, 1995).

In enacting or carrying out their solution to the problem, students not only apply the analytical skills traditionally valued in graduate preparation programs, but also develop skills in implementation. In an earlier paper, Bridges (1977) noted the possibility that an unbalanced emphasis on issue analysis in preparation programs can produce “analysis paralysis” in graduates. We view skills in implementation equal in importance with analytical ability for students who will be charged with leading others to act on behalf of children. The demand that learners enact their solution, within the constraints of the classroom setting, reinforces the notion that administrators apply knowledge in an active context and that solutions have consequences, not all of which are expected. This also sets the stage for diagnostic feedback from the instructor that goes beyond a critique of the student’s analysis.

Again we would emphasize that it is the explicit use of this combination of learning strategies that distinguish PBL from lecture, discussion, case method and other forms of instruction. For example, proponents of the case method, as popularized at the Harvard University School of Business (Christensen, 1987), also focus on analysis of a problem as a core feature of instruction. As noted, however, the Harvard case method does not start with the problem, but with the knowledge to be learned. This mode of case teaching is also predominantly teacher-centered. When discussion groups are used, they do not employ the systematic precepts of cooperative learning. Moreover, while case teaching does focus on problem analysis, it places less emphasis on solution implementation and feedback.

We refer the reader elsewhere for a more extended discussion of these issues (see Bridges & Hallinger, 1995 pp. 12-15 for a comparison of PBL to the case method). Here we would simply

note that it is the combined use of a problem-centered case scenario, cooperative learning, role play, diagnostic feedback, and interdisciplinary resources that lends power to PBL as a learning strategy.

A Caveat

In this attempt to define problem-based learning, we do not wish to convey the impression that PBL is the only or necessarily the best form of instruction for preparing school leaders. We recently conducted a training institute for 30 educational administration professors from universities in the State of Mississippi. Initially, the participants assumed that we believed that preparation programs in educational administration ought to be predominantly problem-based. They were shocked to learn that despite our enthusiasm for PBL, we did not advocate its use as the sole means of instruction in a professional preparation program. We offered four bases for this response.

First, we noted that educational administration preparation programs are generally using PBL as but one instructional strand. To our knowledge, the program currently employing the greatest use of PBL is the *New Pathways to the Principalship Program* at Stanford University where it comprises 40% of the Masters curriculum (see Bridges, 1992, 1993). Our experience with PBL in a variety of professional preparation settings (e.g., Masters, doctoral, staff development programs) indicates that it is a very intensive mode of learning, perhaps too intense to comprise the entire instructional program. This perception has been reinforced in reports from a number of other users. We speculate that to expand the use of PBL, at least as we employ it, to a majority of the curriculum could well produce diminishing returns.

Second, in neither medical education nor administrative preparation does PBL appeal to all students. Students at all educational levels possess a range of learning styles. We deem it inappropriate to limit the instructional approach within a preparation program to any single strategy, including PBL.

Third, we believe that one's instructional method ought to be selected based upon the learning goals proposed for students. We continue to believe that lecture, seminar-based

discussion, teacher-centered cases, or a practicum are more appropriate than PBL for certain learning outcomes. At Stanford University, the *New Pathways to the Principalship Program* is designed so that PBL projects are integrated with the knowledge base conveyed through other courses in which instructors use a variety of instructional methods. At Vanderbilt University, PBL is but one of several instructional approaches in use, across the doctoral program or within a given course.

Finally, as noted earlier, research results on the outcomes of PBL compared with other methods of instruction remain mixed. On certain outcomes, PBL demonstrates distinct advantages over traditional instructional approaches; on other outcomes, it appears to be a weaker method; on still others the results are mixed or ambiguous (Albanese & Mitchell, 1993; Bridges & Hallinger, 1993; Vernon & Blake, 1993). While professional enthusiasm for PBL remains high, the absence of solidly substantiated advantages over traditional forms of preparation is a reason to proceed with caution. Next we will discuss how the goals of problem-based leadership development create the possibility of achieving the capacities that we propose will be needed by school leaders of tomorrow.

Goals of Problem-based Leadership Development

The ability of PBL to enhance leadership capacities is attributed both to the *goals* inherent in problem-based curricula as well as to specific *design features*. The aims of problem-based curricula include the following:

- Familiarize prospective leaders with the problems they are likely to face in the future;
- Acquaint students with the knowledge that is relevant to these high-impact problems;
- Foster skills in applying this knowledge;
- Develop problem-solving skills;
- Develop skills in implementing solutions;
- Develop leadership skills that facilitate collaboration;
- Develop an array of affective capacities;

- Develop self-directed learning skills. (Bridges & Hallinger, 1995, 6-8).

An inspection of this list indicates that PBL addresses a broader range of goals than characterize traditional preparation programs. Problem-based curricula share the common goals of knowledge acquisition, formation of life-long learning skills, enhancement of problem-solving skills, and the development of affective capacities for professional practice. We will discuss these four goals and how the design of PBL fosters their attainment in subsequent paragraphs.

Knowledge Acquisition

A PBL curriculum is singularly concerned with the acquisition of knowledge. Some critics evince concern that PBL may *devalue the academic content* of the educational program in favor of promoting soft, hard to measure *process skills* (e.g., problem-solving, communication, conflict management, decisionmaking). This legitimate concern, however, overlooks an important conceptual underpinning of problem-based learning.

Problem-based learning places the curriculum content in an *active perspective* that renders it important and meaningful in the eyes of the learner (Margetson, 1991, p. 50). From the introduction of the problem at the outset of a PBL module through the entire learning process, students are pressed to consider how they might *apply* the curriculum content. Student evaluation in PBL reflects this focus on high-order thinking by emphasizing performance-based assessments. In our view, these features of PBL *elevate the status of the curriculum content* by ensuring its salience to practice and fostering higher order thinking about its meaning in context. As Bransford and his colleagues stress:

[T]he argument is not that people are unable to learn from being shown or told.

Clearly, we can remind people of important sets of information and they can often tell it back to us. However, this provides no guarantee that people will develop the kinds of sensitivities necessary to use relevant information in new situations. (1989, p. 470)

Problem-based curricula are explicitly designed to teach content in a functional context in order to stimulate retention and transfer. Both cognitive theory and findings from research in medical education lend support to the notion that PBL can lead to higher rates of retention, increased motivation to learn, and better understanding of the content that is covered (Albanese & Mitchell, 1993; Bridges & Hallinger, 1993; Eisenstadt, Barry, & Glanz, 1990; Martenson, Eriksson, & Ingelman-Sundberg, 1985; Shin, Haynes, & Johnston, 1993; Vernon & Blake, 1993).

Lifelong Learning Skills

PBL proponents view self-directed learning with such importance that it receives explicit attention as a curricular goal. Given our assumptions stated earlier, this goal seems particularly salient for educational leadership development during a period of change.

In medicine today, the *half-life of knowledge* is said to be four to six years. In the field of computer science it is less than two years. Even in the less technical field of educational administration the pace of curricular change is increasing. Twenty-five years ago, topics such as instructional leadership, transformational leadership, multi-cultural education, instructional supervision, special education, change implementation, educational law, educational equity, effective instruction, school-based decisionmaking, and bi-lingual education received quite different treatment in terms of content. Moreover, if they appeared at all in the educational administration curriculum, they were accorded quite different priorities and treatments.

Problem-based learning fosters students' ability to learn not only the content of today's curriculum, but also prepares them for learning the new knowledge they will need later in their careers. PBL explicitly encourages students to seek out the information they need to address the problems they encounter in their learning modules. They are active rather than passive learners. This enhanced capacity for self-directed learning becomes increasingly important as we envisage schools becoming learning organizations with the principal and senior teachers as the *head learners*.

Problem-finding and Problem-solving Skills

In a rapidly changing world, school leaders must be able to identify and solve problems inside the schoolhouse as well as in the school's environment. Moreover, our assumption concerning the likelihood of increasing levels of collaboration in the workplace makes it imperative for school leaders to become skilled facilitators of group problem-solving (Leithwood & Steinbach, 1992).

Problem-based curricula approach the teaching of problem-solving systematically, though not as a separate course of study. Instruction and practice in group problem-solving are integrated into the curriculum. Students receive multiple opportunities to develop both confidence and skill in tackling complex problems of the type they will face in the workplace. Problem-based learning requires students to adopt explicitly a problem-solving approach in addressing the problem, even when there is no one right answer to the problem. This finds support from Prawat (1989) who claims:

The focus in such an approach would not be on problem-solving per se, but on providing a rationale for a particular interpretation of the problem and a justification for various proposed solutions. The advantage of such an approach is that students become much more aware of how the knowledge they are acquiring can be put to use. Adopting a problem-solving mentality, even when it is marginally appropriate, reinforces the notion that the knowledge being acquired is useful for achieving particular goals. Students are not being asked to just store information away; they see how it works in certain situations which increases the [future] accessibility. (p. 18)

Thus, problem-solving is learned as students attempt to understand important problems and apply knowledge towards their solution. Problem-solving, therefore, is a vehicle for integrating content knowledge salient to the work role of the educational leader.

Development of Affective Capacities

School administrators have always had to cope with a wide range of affectively charged situations. However, given our assumption about the collaborative workplace, we see the

possibility for increased levels of conflict as professionals work more closely with each other and with the community. While conflict can be used constructively, school leaders must develop the affective capacities for dealing with conflict as well as their emotions more generally in working with others.

PBL raises the development of students' affective capacities to the status of a curricular goal. The team-oriented learning format provides a setting in which students experience the typical problems faced by groups and practice skills in working to accomplish common goals. The PBL process leads to high levels of student engagement as well as emotional intensity. Students report experiencing a wide range of emotions -- frustration, excitement, anxiety, joy, anger, satisfaction -- in relation to the work of the group. Empirical study of PBL, as well as our own observations, suggests that this range of emotions mirrors, to a surprisingly high degree, the emotional spectrum experienced by administrators in the workplace (Bridges & Hallinger, 1995; Habschmidt, 1990).

The emotional reactions of individual students and their peers quite naturally lead to the serious consideration of affective issues in group leadership. The fact that each PBL module has a meaningful, concrete, knowledge-related outcome that students must produce elevates the PBL process beyond the status of a "T-group". The emphases on self-reflection and peer assessment further press students to systematically examine their personal responses and interactions with peers during each module.

Thus, we commonly build team-based assessment of both group process and products into PBL projects. For example, in one project, Meeting Management, students use Likert scales to rate their team's group process, meeting outcomes, and project process. In all PBL projects, we ask students to supplement project specific assessments with a more general reflective essay. This enhances the development of their affective capacities for group participation as well as leadership (see Bridges & Hallinger, 1995 for examples).

Our awareness of the potential for addressing affective goals through PBL has deepened through observations and discussions with our students. We now seek to include at least one

explicit learning objective that targets the affective dimension of leadership in all PBL modules.

The nature of the affective objectives varies and may include:

- development of a *commitment* to the implementation of a belief (e.g., equity),
- clarification of personal *goals, values* and *principles*,
- the development of *self-confidence* in relation to a particular skill, knowledge domain, or role

Recent research on principal problem-solving supports the appropriateness of focusing on affective dimensions of the administrative role (Leithwood & Steinbach, 1992). A problem-based curriculum can address these affective learning objectives in a productive and meaningful fashion while at the same time working towards the development of cognitive capacities.

Conclusion

At the outset of this article we set out three assumptions about the context of educational leadership in the coming years. We asserted that professional education programs must prepare future leaders for a changing world of practice, for a future filled with uncertainties. This discussion of problem-based leadership development offers a rationale for why this approach to professional education seems well-suited to the challenges of developing leaders for 21st century schools.

We close with reflections on PBL from a former student. Jinx Bohstedt was a “weekend student” in Vanderbilt’s doctoral program in school administration. Her exposure to PBL consisted of a single course that had been organized around PBL. A staff developer for a school system in Tennessee, she expressed in her own terms “why PBL works”.

[Following this course] I have been trying to figure out what makes PBL “work” so well. . . . I realized early in my career that some of the students who were not “A” students offered the deepest insights when solving problems; that the kids who were shy, if offered inviting conditions, would dare nudge the learning of the more assertive and predictable “superior” students. So, for nearly every teaching episode I engaged in,

I pondered how to make a single challenging lesson which worked for the various styles of learners and different interests of students.

I thought that if I could invent a form [of instruction] that asked for a great span of responses, but maintained the integrity of the concept I wanted them to practice, I might be able to tap into the students' personal styles and interests. [During the course] I used to query [concerning PBL], "how can such a rigid form allow and invite this tremendous creativity?"

Now, I do not think that PBL offers us a "rigid" form; nevertheless it is a form, a protocol which is an organizing device. And that is the beauty of it. I believe that it is a resilient form, flexible enough to accommodate different kinds of concepts and different types of learners. Its simple elegance lies in providing a universal problem and then offering an invitation to solve it in a personal or specific way. That tension between the universal and the particular is compelling for learners, for it offers a way to connect the unknown to the known self -- a powerful teaching and learning strategy.

The invitation to explore various solutions to the problem is inherent in this PBL format; therefore, there is no sense that there is one "right" answer. Nevertheless, one assumes that a high standard will be used to assess [student outcomes]. Were appropriate resources consulted? Did the response have integrity for the problem it solved? Was the communication of the problem's solution clear and persuasive? These attributes and standards are appropriate for learners who bring a wealth of experiences, practiced skills, problem-solving capabilities and intuition to learning. In no way is PBL patronizing; nor does it play the "guessing game;" that is, [I'm the teacher] "I know something you don't know. . . can you figure it out?"

This idea of an organizing form for *all* students' learning within a community of learners seemed central when I taught primary students and now I see it as compelling for adult learners. The flexibility of the form for divergent responses makes the learner

more empowered and the teacher, more a facilitator than a “know-all.” This serves as a motivating notion for learners to get better and better, and to dig more deeply.

One last thought on why PBL “works.” I have always believed that a large part of teaching lies in what happens before and after one works with students. . . ; the selection and preparation of materials before teaching is critical to the success of a lesson. I believe that the assessment of the students’ learning experience must be done thoroughly and thoughtfully. PBL essentially carves out the problem, offers numerous resources, and then allows the teacher to step back and out of the way of the subsequent learning.

So, in fact, what’s different from other forms of teaching or teaching strategies is that the teacher is not central to the moment of contact between student and material, but *is* central to the learning by preparing rich materials and giving feedback to the individual learner. These are two realms of the teaching - learning process that we often don’t emphasize.

PBL is a powerful and persuasive teaching - learning process. It may help teachers organize concept learning which is traditionally very elusive. As a process, it manifests the attributes of what makes good teaching: manageable objectives, guiding questions, relevant resources, work with colleagues in a problem-solving atmosphere, a link to the present or known. Together these provide meaning and relevance for the learner, and offer an inherent invitation or challenge to learn. (Bridges & Hallinger, 1995, 160-161)

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Bio Notes

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Edwin Bridges is Professor of Education and Director of the *New Pathways to the Principalship Program* at Stanford University School of Education. He has a longstanding interest in the nature of leadership and preparation for school leaders. He is author of Problem-based learning for administrators and Problem-based Leadership Development.